



Über dieses Buch

Dies ist ein digitales Exemplar eines Buches, das seit Generationen in den Regalen der Bibliotheken aufbewahrt wurde, bevor es von Google im Rahmen eines Projekts, mit dem die Bücher dieser Welt online verfügbar gemacht werden sollen, sorgfältig gescannt wurde.

Das Buch hat das Urheberrecht überdauert und kann nun öffentlich zugänglich gemacht werden. Ein öffentlich zugängliches Buch ist ein Buch, das niemals Urheberrechten unterlag oder bei dem die Schutzfrist des Urheberrechts abgelaufen ist. Ob ein Buch öffentlich zugänglich ist, kann von Land zu Land unterschiedlich sein. Öffentlich zugängliche Bücher sind unser Tor zur Vergangenheit und stellen ein geschichtliches, kulturelles und wissenschaftliches Vermögen dar, das häufig nur schwierig zu entdecken ist.

Gebrauchsspuren, Anmerkungen und andere Randbemerkungen, die im Originalband enthalten sind, finden sich auch in dieser Datei – eine Erinnerung an die lange Reise, die das Buch vom Verleger zu einer Bibliothek und weiter zu Ihnen hinter sich gebracht hat.

Nutzungsrichtlinien

Google ist stolz, mit Bibliotheken in partnerschaftlicher Zusammenarbeit öffentlich zugängliches Material zu digitalisieren und einer breiten Masse zugänglich zu machen. Öffentlich zugängliche Bücher gehören der Öffentlichkeit, und wir sind nur ihre Hüter. Nichtsdestotrotz ist diese Arbeit kostspielig. Um diese Ressource weiterhin zur Verfügung stellen zu können, haben wir Schritte unternommen, um den Missbrauch durch kommerzielle Parteien zu verhindern. Dazu gehören technische Einschränkungen für automatisierte Abfragen.

Wir bitten Sie um Einhaltung folgender Richtlinien:

- + *Nutzung der Dateien zu nichtkommerziellen Zwecken* Wir haben Google Buchsuche für Endanwender konzipiert und möchten, dass Sie diese Dateien nur für persönliche, nichtkommerzielle Zwecke verwenden.
- + *Keine automatisierten Abfragen* Senden Sie keine automatisierten Abfragen irgendwelcher Art an das Google-System. Wenn Sie Recherchen über maschinelle Übersetzung, optische Zeichenerkennung oder andere Bereiche durchführen, in denen der Zugang zu Text in großen Mengen nützlich ist, wenden Sie sich bitte an uns. Wir fördern die Nutzung des öffentlich zugänglichen Materials für diese Zwecke und können Ihnen unter Umständen helfen.
- + *Beibehaltung von Google-Markenelementen* Das "Wasserzeichen" von Google, das Sie in jeder Datei finden, ist wichtig zur Information über dieses Projekt und hilft den Anwendern weiteres Material über Google Buchsuche zu finden. Bitte entfernen Sie das Wasserzeichen nicht.
- + *Bewegen Sie sich innerhalb der Legalität* Unabhängig von Ihrem Verwendungszweck müssen Sie sich Ihrer Verantwortung bewusst sein, sicherzustellen, dass Ihre Nutzung legal ist. Gehen Sie nicht davon aus, dass ein Buch, das nach unserem Dafürhalten für Nutzer in den USA öffentlich zugänglich ist, auch für Nutzer in anderen Ländern öffentlich zugänglich ist. Ob ein Buch noch dem Urheberrecht unterliegt, ist von Land zu Land verschieden. Wir können keine Beratung leisten, ob eine bestimmte Nutzung eines bestimmten Buches gesetzlich zulässig ist. Gehen Sie nicht davon aus, dass das Erscheinen eines Buchs in Google Buchsuche bedeutet, dass es in jeder Form und überall auf der Welt verwendet werden kann. Eine Urheberrechtsverletzung kann schwerwiegende Folgen haben.

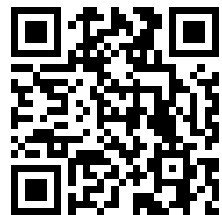
Über Google Buchsuche

Das Ziel von Google besteht darin, die weltweiten Informationen zu organisieren und allgemein nutzbar und zugänglich zu machen. Google Buchsuche hilft Lesern dabei, die Bücher dieser Welt zu entdecken, und unterstützt Autoren und Verleger dabei, neue Zielgruppen zu erreichen. Den gesamten Buchtext können Sie im Internet unter <http://books.google.com> durchsuchen.

This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

GoogleTM books

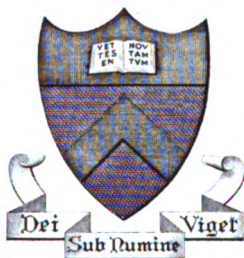
<https://books.google.com>





074830983

Library of

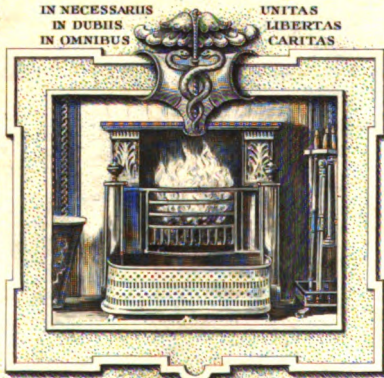


Princeton University.

✠ WILLIAM PIERSON ✠
MEDICAL LIBRARY ASSOCIATION

IN NECESSARIIS
IN DUBIIS
IN OMNIBUS

UNITAS
LIBERTAS
CARITAS



• PRESENTED BY •
THE FAMILY OF WILLIAM PIERSON
• 1901 •



9.82
222
1883

THE LANCET.

A Journal of British and Foreign Medicine, Physiology, Surgery,
Chemistry, Criticism, Literature and News.

JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

PUBLISHED MONTHLY.

No. 1.

NEW YORK, JANUARY, 1883.

An Address

ON THE

ANTISEPTIC TREATMENT OF DISEASES OF THE LUNGS.

*Delivered at the Inaugural Meeting of the West London
Medico-Chirurgical Society.*

By I. BURNBY YEO, M.D., F.R.C.P.,

Physician to King's College Hospital, Etc.

GENTLEMEN—When your secretary, Mr. Keetley, did me the honor of inviting me to bring before this Society the subject of the Antiseptic Treatment of Pulmonary Diseases, I confess I at first hesitated to accept that invitation. I felt that although I had given some attention to the subject, my time was at this moment so fully occupied, that I should not be able to deal with the subject so fully and completely as its importance merited, or as was due to a Society so learned and influential as yours. I also felt that it was a subject which was only just beginning to be looked at from something like a firm scientific standpoint, and that from this point of view the question of the antiseptic treatment of diseases of the lungs was in its initial stage, a stage certainly full of suggestions for future investigation, but the work of examination, of experiment, of comparison, of testing, and of criticism—serious, helpful criticism—for the most part had yet to be gone through. It might then, I thought, seem premature to introduce this subject to this Society for discussion in its present stage; but when I reflected on the intrinsic importance of the subject itself, when I thought of the vast interests, direct and collateral, involved in its discussion, and of the power and influence the members of such a Society as this would possess in collecting evidence bearing upon it, I yielded to your secretary's request, relying on your kind indulgence to excuse the merely suggestive character of this address and the many shortcomings and defects which future research alone can supply. It is remarkable when we begin to look into the history of almost any subject, how little there is that is new in its facts and its phenomena. What is new resides in our mode of regarding them, our comprehension of them, our application of them. The truth is always there in the facts and phenomena of Nature,

but it is often only discovered after ages of observation, of experiment, and of opposition. Of opposition: how remarkable is this spirit of opposition! how remarkable has it been in the history of one of the latest and greatest triumphs and discoveries in the art and science of surgery, the antiseptic system. As if the work of discovering truth in this universe was not hard enough, men are perpetually encountering from their fellow-men the most ardent opposition in this task. In proof of what I say I need only point to the present agitation on the part of a well known Society against all experiments on animals—a Society which, reversing the exclamation of the dying Goethe for "more light," might be fittingly designated "The Society for the Maintenance of Darkness."

The idea of an antiseptic treatment of pulmonary diseases is certainly *new* in our present mode of regarding it, in our comprehension of the phenomena with which it is concerned, and in the extended application which we propose to give to it. But the thing itself is not new, the phenomena are not new. The adoption and the success of antiseptic methods of treatment of pulmonary affections have been recorded again and again, and they have, again and again, met with opposition, and not rarely with a sort of sneering contempt. This, gentlemen, you may be satisfied will never be the case again, and for the following reason. Hitherto, or till quite lately, such efforts were empirical, and without any strictly scientific basis, but now our antiseptic methods are founded on scientific knowledge—on principles, principles that have been evolved from a series of most patient and at the same time most fruitful investigations, which will go far to make this latter half of the nineteenth century the most illustrious in the history of medical science. A very few historical illustrations will suffice to prove what I have said about the antiquity of the fact of the antiseptic treatment of pulmonary affections. Hippocrates and Galen used to advise the inhalation of balsamic vapors in pulmonary affections, and the latter used to recommend phthisical patients to settle in the vicinity of Vesuvius and Etna, where they could inhale sulphurous vapors as well as sea air. But we will confine ourselves to the history of pulmonary therapeutics during the last hundred years, and one of the most noticeable facts in this period is the frequency with which tar vapor has been advocated as of great value in the treatment of lung diseases. Dr. Rush, of Philadelphia, in 1787,

(1)

954

(RECAP)

250
558
1883

Dr. Beddoes in this country about the same time, and Sir Alexander Crichton in 1817, all stated that they had met with great success in treating cases of phthisis by inhalation of the vapor of boiling tar, and Dr. Solis Cohen, in his excellent book on "Inhalations" in connection with this testimony, says: "The use of tar vapors in phthisis deserves to be fully and systematically studied, so that safe indications may be laid down as to the character of cases to which it is most applicable." Between 1819 and 1830 the French physicians Gannal and Cottreau, and Sir James Murray in this country, reported excellent results from the treatment of cases of phthisis with dilute chlorine vapor. One of these had noticed that the workmen in bleaching factories with chest disease visibly improved, and another reported thirteen cases of phthisis cured by inhalation of chlorine, and Louis in Paris, and Dr. Elliotson and A. T. Thompson in London, spoke well of it.

In 1835 Sir Chas. Scudamore became an enthusiastic advocate for the inhalation of iodine vapors in phthisis, and after ten years' experience of its use he expressed himself as convinced of its remedial power. Piorry (between 1850 and 1860) also was an advocate for the continuous inhalation of iodine vapor in phthisis, and for this purpose he used to have several saucers containing iodine placed about the patient's pillow. He treated thirty-one patients in this way for two years; twenty were decidedly benefited, both as regards symptoms and physical signs; in seven cases both symptoms and physical signs disappeared, and four cases died. Later still Skoda used inhalations of the vapor of turpentine with much success in phthisis, pulmonary gangrene, and in catarrhal affections of the air passages.

I have selected these few illustrations almost at random from the history of pulmonary therapeutics to prove to you that I was right in saying that there is nothing new in the facts, and they also go towards disproving the statement that I have lately seen made by one or two writers in the journals of the small amount of success that has attended the antiseptic treatment of phthisis.¹ I suppose I have as much right to speak on this subject as any of those writers, for during ten years I saw personally over 27,000 applicants in a hospital devoted to the treatment of this affection, and of all the methods of treatment of which I have had any knowledge or experience, those into which some antiseptic measure entered as an important element were certainly attended with the best results. The difficulty, however, always was to secure anything like a proper application of an antiseptic agent; and after trying various devices for this purpose, I at length devised a very simple method of continuous inhalation, which answers the purpose better than any other with which I am acquainted. I have described this elsewhere,² and you can examine the specimens of the little apparatus I have devised for this purpose that are on the table.

Let me here make a remark which as practical men you will at once see the force of. It is useless to attempt to test any method of treatment by applying it to cases of advanced phthisis. In such cases the mischief is done. No antiseptic agent will cause numerous suppurating cavities to close up and heal, or replace lung tissue that has been destroyed by progressive ulceration and disintegration, or remove extensively disseminated tubercular and inflammatory infiltrations. And yet how many cases of phthisis come before us already in

this state. It is greatly to be regretted that certain physicians should ever have pretended to have cured such cases, and that others should seriously have tested their statements by the application of any special method of treatment to cases so advanced and so hopeless. In order that any case may be cured by any method of treatment the first and essential condition is that it should be curable. And cases of phthisis too often come for the first time under our observation long after the possibility of cure is passed. But the question for us to examine and to satisfy ourselves about now is this, Is an antiseptic system of treatment applied to lung diseases true in principle? If we can convince ourselves that the principle is a true one, modes of application and developments in practice will be certain to follow. In the first place, then, let us inquire, What is antiseptic treatment? Antiseptic treatment applied to the lungs is one or both of two things: First, it is the prevention of a hurtful, poisonous (septic) agent getting to the lungs from without; and, secondly, it is the destruction, or the limitation of the action of a hurtful poisonous (septic) agent already within them.

And now let us ask ourselves if there is any *a priori* reason why it should not be possible to satisfy both these indications. It was argued warmly not many years ago, as a necessary preliminary to this discussion, that it was impossible to bring medicinal agents into contact with the pulmonary surface by inhalation. That argument has been abundantly disproved by the most varied and elaborate experimental investigations.³

So, then, supposing a hurtful septic agent to exist in the lungs—and in phthisis the presence of such an agent has been demonstrated beyond all question, and its virulently septic quality established—the problem of the antiseptic treatment is this: Do we possess, or can we discover, any agent which we can convey, in the form of gas, vapor, or solution into the lungs which shall be inimical to the life and activity of this septic body? Or can we place our patient under any possible conditions of life which shall prove hostile to its growth and development? It would be illogical and absurd in the extreme to deny the possibility of such a method, or of the discovery of such an antiseptic agent, if we do not already possess one or more. The second indication must therefore be admitted to be quite possible. Now, let us turn to the first indication. It is not only necessary to destroy any septic agent that may be already in the lungs, but we must be able to prevent septic agents from entering them with the respired air. Now, this may be accomplished in two ways: (1) We may place our patient in an atmosphere which by examination we know to be absolutely pure and free from septic particles; or (2) we may diffuse through the air he breathes an agent hostile to the life and activity of any septic particles there may be in it. This, again, is a true antiseptic treatment, and it is certainly possible in either of these two forms. If then we limit ourselves (which we had better do on this occasion) to the consideration of the treatment of phthisis, we have two things satisfactorily proved. First, there does exist a hurtful specific septic agent in the lungs. Second, an antiseptic treatment is possible. There is no beating the air in this. Gentlemen, we are here on sure and certain footing; we have reached a principle. This is only the first stone of the edifice we have to build, but it is the foundation stone. The next thing for us to do is, by patient labor in the way of observation and experiment, to apply this principle. Our object is to discover what agents there may be within our reach capable of being administered

¹ In my recently published Lectures on Consumption I have collected a mass of contemporary testimony in favor of this treatment.

² Lectures on Consumption. London: J. & A. Churchill.

³ Vide Oertel: Respirator schen Therapie.

without inflicting injury to the pulmonary tissues, which may have the power of destroying, or neutralizing, or arresting the activity of the septic organism, which seems to be the operative cause in the origin and propagation of phthisis. I am disposed to believe that other common forms of disease of the respiratory organs have a septic origin also, and call for antiseptic treatment, but we must for the present concentrate our attention on this subject of phthisis.

Already we have abundant and incontestable proof that pure air—pure, cool dry air, in unlimited amount—is such an antiseptic agent. Wherever such air is found—on the high tableland of Mexico, in the elevated valleys of Switzerland, on the Kirghiz steppes of Asiatic Russia, in the pine forests of Central Germany, and on the open sea—wherever men live a life in the open air, away from the emanations of cities, and from too close contact with humanity,—in all such places we hear of consumption becoming arrested and cured. The bacillus tuberculosis seems to love hot, moist air, and air freely charged with the exhalations of humanity; warmth and moisture seem to provoke it into special activity, while dry air at a comparatively low temperature seems to be inimical to it. Whoever has watched, as I have done, a large number of cases of phthisis in this country, must have been struck with the frequent occurrence of rapid advances in the disease during the first warm moist days of spring and early summer.

And here again I am tempted to quote a passage to which my attention has been recently called by my friend, Dr. Frank, of Cannes, to show how true it is that the facts we are discussing are not new. It occurs in a very able book by a German writer, "Hausrath on New Testament Times," an English translation of which has been published by Williams & Norgate. He is alluding to the mountain air of the fortress of Masada, a mountain fortress on the borders of the Dead Sea, where John the Baptist was imprisoned. There, he says, Josephus tells us provisions retained their freshness for over 100 years "because the air at the altitude of the fortress was purified from all earthly and corrupt particles!" It is precisely such air—air purified from all "corrupt particles"—that we require for our phthisical patients; and if we cannot send them where such air is naturally found, we must artificially create for them an antiseptic atmosphere which they can breathe where they are; and if we are to perpetuate consumption hospitals, it is with such an atmosphere we must fill them. But the time will probably come when instead of crowding a number of consumptive patients together in the centre of a populous district of a crowded city, we shall acquire for the same purpose a good-sized pine wood with a dry subsoil a few hundred feet above the sea-level, and build a certain number of scattered cottages through the wood, and hang up a number of hammocks between the fir trees and send our consumptive patients there to be aired into health! In wet weather they would make up fires of fir wood and pine cones, and so fill their cottages with balsamic and antiseptic vapors; and with open windows and a dry soil they would find the wet weather less injurious to them there than in towns. But we have other antiseptic resources more manageable than a pine wood. And here let me call your attention to the peculiar anatomical conditions of the respiratory organs, by which they are rendered peculiarly prone to septic attack, and specially needing of antiseptic defence. The lung is the only deep-seated internal organ in the body which is freely accessible to the surrounding air. Perpetually the outer air is passing in and out of the

lung, and thus septic particles in the air can readily reach the pulmonary surface, which is most richly supplied with absorbent vessels. But if, owing to the anatomical disposition of the parts of the lung septic bodies can readily reach it from without, for the same reason antiseptic particles can also be readily brought into contact with it, either in the form of gas, or vapor, or fine spray and mist, or even fine solid particles.

It is needless to offer you any proof of this. You will, I take it, all accept this statement as proved; and you are no doubt familiar with various forms of apparatus devised for the purpose of carrying out such applications. But though we may sterilize or destroy in this way such germs or microbes as may commonly occur in the surrounding atmosphere, and so purify and render harmless the air that passes in and out of the lungs in respiration, it does not follow that the agents we now know to be germicides, such as carbolic acid, eucalyptol, thymol, etc., and which are used by surgeons on account of that property, are necessarily destructive of the tubercle bacillus. Analogy would lead us to conclude they might be, and the experience of their use in the hands of many competent observers,* tends to strengthen this view. But we must not rest satisfied with this; we must pursue our studies of the life-history of the tubercle bacillus until we have discovered what is the particular agent or agents which are especially inimical to its development and activity.

There is another difficulty which we must be prepared to encounter—the difficulty of inducing patients to submit to a continuous process of disinfection. It is by no means easy to induce phthisical patients to wear, almost continuously, even so light and simple an appliance as the one I have shown you, and it would be infinitely more difficult to get them to inhale a spray for many hours a day, supposing it should be discovered that the best antiseptic is soluble in water but not vaporizable at ordinary temperatures, as was the case with the benzoate of soda of which so much was expected by some. But I believe this difficulty would almost entirely disappear if our knowledge became absolutely precise, and our confidence in our remedy completely assured. If we could say to our patients "by this means you will be cured, and by no other," this difficulty would, I am persuaded, almost cease to exist. Hence, however, we see the obvious advantage of being able to remove our patients to an antiseptic atmosphere where they cannot help inhaling the curative agent continuously.

And now I must bring these merely suggestive observations to a close. In the foregoing remarks I have chiefly endeavored to show that the idea of an antiseptic treatment of lung diseases is based on scientific data, and that in principle it is established as a truth. What lies before us is to overcome the difficulties in its application. We should be encouraged in this work by the thought that whatever progress we are enabled to make we shall be furthering the labors of the great experimental pathologists of our times, the labors of men like Pasteur, Koch, and Lister. It is not given to everyone to be enabled to work with a genius and an energy like theirs. But let me remind you that one of them—Koch—was a country doctor, a general practitioner, like many who are here to-night; and we may all do something towards transferring the influence of their intelligence and their genius, and in applying the fruits of their labors to the practical daily duty of healing the sick; and in spite of much disingenuous misinterpretation and foolish abuse we may be able to prove to the world

that experimental pathology is in the very highest degree beneficent and philanthropic. For the first time we seem to have grasped a principle in the treatment, both preventive and curative, of a class of diseases which we have hitherto regarded almost with despair. Let us steadily work on the foundation which this principle supplies, the successful application of which must be attended with immense service to humanity and lasting honor to medical science.

Clinical Lecture

on

TUMOURS.

Delivered in the Liverpool Royal Infirmary, July 26th, 1882,

By **RUSHTON PARKER, B.S., F.R.C.S.,**

Professor of Surgery in University College, Liverpool.

THE word "tumour" is familiar throughout the scientific world. In English, French, and Italian the spelling differs only by a letter or two from that of the Latin "tumor," which is preserved unchanged in Spanish and by a large proportion of English-speaking persons. A tumour is a swelling or lump, and these three names are applied, in medical practice, to morbid conditions in which increase of size is a feature. Every enlargement is accordingly a tumour, which, on complete investigation, will invariably be found to be one of the following things:—

1. A *distortion* or *displacement*: as in a hernia, a fractured or dislocated bone, ruptured muscle or other organ, and in some congenital deformities. A *distension*: as an over-filled bladder, intestines, etc.; an aneurism, a varix, a hydrocele. In some such sense a hematoma or blood extravasation must often be considered.

5. An *obvious inflammation*: as in abscess, especially chronic; in rheumatic enlargement of bones, and other indurations.

3. A *local hypertrophy*: as in congenital enlarged toes or foot, congenital moles of the skin, elephantiasis, hyperostosis (?).

4. A *tumour proper*.

Though every tumour necessarily falls into one of the above four categories, it is by no means always easy, or even possible, to be certain which that category is. For various reasons, the many elaborate definitions that have been devised with the view of representing exclusively those new formations or neoplasms that are reckoned among tumours proper are unnecessary, since every specimen in the above list of morbid conditions is confessedly called a tumour in practice, both before and after recognition. They are, moreover, useless, since not one of these definitions successfully describes the fourth group in language that invariably excludes the other three.

1. In the first class a hernia, a dislocation, or an over-distended bladder are capable of certain distinction from tumours proper. Yet a hydrocele of the tunica vaginalis or spermatic cord is a pathological effusion of fluid into a cyst that should be empty or absent. Is it an accidental physiological "distension" of Class 1, or is it a well-ascertained "inflammation" of Class 2; or is it without ascertainable cause, and a form of cystic "tumour proper" of Class 4? Again, an atheromatous sebaceous tumour is physiologically due to retention and accumulation of sebaceous secretion, closing, over-distending, and thickening a cutaneous gland,

converting it into a more or less globular cyst. It is confessedly regarded as a cystic variety of tumour proper; yet its causal resemblance to hydrocele is very close, and the distinction of either from an overfilled urinary bladder is one of degree rather than of kind.

2. Among "obvious inflammations," a chronic abscess and a glandular enlargement are capable of a recognition, that if not clinically easy or immediate is ultimately certain on dissection. A fluid distension of a patellar or other bursa is a purely inflammatory phenomenon, which subsides on the application of suitable treatment, with or without previous evacuation; yet a fibrous thickening of the same bursa, though equally of inflammatory origin, may fail to disappear on the removal of irritation. There is something of the nature of "hypertrophy" in the increase of fibre-growth or production; though for all essential purposes it is called a tumour proper. Yet the clinical features and many of the pathological phenomena of certain tumours called malignant partake so strongly of the inflammatory type as to call for detailed comparison presently under the proper head.

3. Enlargement of bone, the obvious effect of inflammation, and similar enlargements called hypertrophy or hyperostosis, are constantly and inseparably blended with bony "tumours proper," from which they cannot always be distinguished, and with which they must often be identified. Is a pedunculated exostosis, produced by acrogenous ossification of its cartilaginous tip, an instance of "displacement," in the period of growth, of a fragment of epiphyseal ossifying cartilage? Is it an example, in addition, of "hypertrophy" of cartilage, of bone, or of both? or is it, when finished, a "tumour proper," whether as a pedunculated exostosis, or as a great "enchondroma" with so proportionally inconsiderable a bony pedicle as hardly to suggest its similar origin and mode of growth? Who is to say? Except obvious inflammation, all the above categories may claim it.

4. Tumours proper are of many kinds, and must be classified for systematic discrimination, and for the mutual assistance of observers. Such arrangement as may be from time to time adopted for this purpose depends upon a variety of considerations, summed up in the purport and ultimate result of a tumour in its natural course, or in that modified by interference. Some tumours give little or no inconvenience, being harmless excrescences when situated in parts ordinarily concealed by the clothing, or, if exposed, being at worst unsightly. Others that may be painless are inconvenient deformities, whether concealed or exposed, attaining an excessive size and weight, the physical incubus of which is scarcely mitigated by an associated slowness of growth. But pain, though generally, is not always absent from otherwise non-injurious tumours, and those that are painful happen to be usually small and sometimes diminutive, not seldom suggesting, from their situation in or beneath the skin, the probable entanglement of nervous filaments. The situation of an otherwise harmless growth, as, for instance, beneath the tongue, in the orbit, or displacing the windpipe, may imperatively demand its removal. Finally, the skin over an innocent tumour now and then becomes ulcerated, with risk or loss to life through hæmorrhage or blood-poisoning. Such catastrophes are but indirectly associated with the morbid growth, and are, in fact, more or less accidental complications, which may accordingly be avoided.

These, then, are the attributes of benignancy, as contrasted with those of malignancy, next to be considered. All tumours proper are either benignant or malignant. The former are local

abnormalities that have no inherent tendency to endanger life, and frequently fail to inconvenience their possessor; while the latter, though occasionally perfectly curable by operative removal, are always dangerous, and, though often temporarily checked with the effect of prolonging life, are only too frequently rapidly or hopelessly fatal. The size of a malignant tumour may be little or no guide to its nature, or measure of its danger. Rapidity of growth, however, is an almost constant feature, rendering them all conspicuous, and giving to their proportions, if at all huge, a significance that is something appalling. There is a special inveteracy in their growth, evinced in varying degrees and modes—(a) Ulceration of the integuments, over malignant growths, is a conspicuous though not invariable feature. The attendant exhausting complications, blood-poisoning, hæmorrhage, and pain, though often as adventitious as in their more exceptional occurrence in the benign, assume by their frequency quite an integral importance. (b) A liability to reappear near the seat of removal, even after what has seemed to be thorough excision; suggesting the neighboring existence of infective particles which, though undiscovered by the naked eye and microscope alike, are still suspected to imbue the tissues or fluids. (c) An infective spread to, and inveterate infiltration of, the lymphatic glands pertaining to, and draining, the seat of primary growth. (d) A dissemination in viscera, serous membranes, or subcutaneous and interstitial connective tissues, of tumours identical in most particulars with a primary original growth, which latter, though almost invariably obvious, occasionally eludes discovery. These disseminations are believed to be embolic, the infective particles being conveyed in the blood-stream and lodged in the arterial or capillary system, growing into tumours after their arrest. Some evidence is circumstantially furnished in the form of thrombi, composed of the tissue of malignant tumours, that are sometimes found filling neighboring veins of various sizes visible to the naked eye, and that may be often presumed to similarly invade smaller veins that are not thus visible. Microscopic investigation has, moreover, revealed the actual presence of malignant emboli impacted in minute afferent blood-vessels of viscera; proving to demonstration both the fact of conveyance and its mechanism.

Now, ulcerated swellings of the lip or tongue, the face or cheek, skin, or mucous membrane, due to cancerous invasion, to syphilitic infection, or to non-specific inflammatory induration, have resemblances conspicuous and puzzling to all, sometimes temporarily misleading the ripest experiences, and therefore undeniably real. The clinical import, various in name and in course, is eventually clear in most instances, but the anatomical comparison, pushed to its furthest histological limits, not merely confirms the characteristics of divergence, but clenches the identity in points of resemblance. A simple inflammatory induration subsides on the discontinuance of the physical irritative cause, a specific infection of syphilitic influence as truly disappears by exactly similar means, or by the organic administration of a constitutional chemical antidote or by both. The physiological aberration in simple inflammation, due to the irritation of mechanical agency, is reproduced in the infective forms, where the irritative effects of a specific virus, as a parasitic organism, when known at all, are chemically and otherwise manifested. Such are the exudations of præmia, of syphilis, of tubercle. The visible products of malignant disease suggest comparison with those of infective inflammation. They are more luxuriant than the simple inflammations, but

incapable of undergoing absorptive resolutions on the removal of irritation. They are exempt from suppuration, except, apparently, in the added complication of putrid irritation, but are amenable to no ascertained system of antidotal medication, and share with tubercle the necessity of removal as the sole accessible means of practical cure. They appear, especially in the case of some sarcomata, to partly owe their commencement, mysteriously, but almost undeniably, to the operation of local injury, in which respect "acute traumatic malignancy" resembles infective inflammation, such as acute necrosis and, perhaps, caseous tubercle of bone. In anatomical structure malignant tumours conform largely, and often strictly, with inflammatory type; in superficial features, in physiological infection, and in much of their clinical inveteracy, they resemble products of known parasitic agency. There lacks only the discovery of a visible parasite to complete the analogy.

Classification of Tumours proper.

Accumulated observations of the external appearances, general behavior of tumours, their localities, physiological development and anatomical structure have resulted in attempts at classification, truly reputable in their day, but necessarily changing with the advance of knowledge, and proving eventually more or less unsatisfactory in phraseology, if not in fact. The diseases remain the same if their names have been changed, though by fresh discoveries they seem sometimes to be multiplied, at others to be reduced in number. Some of the names, too, have undergone changes of meaning; so former terms and their previous significations must be noticed for purposes of interpretation. Among benign tumours the names explain themselves and their possible synonyms; it is in a portion of the malignant series that confusion has arisen. The classification of tumours according to their anatomical structure, associated with the name and times of John Abernethy, was a memorable step in naked-eye procedure. The refinements of the same principle, effected in the microscopic era, have celebrated the name of Virchow and of his contemporaries at home and abroad. The resolute appreciation of all clinical features, and a refusal even to admit anatomical distinctions except in subordination to the former, are at once most conspicuous characteristics of the example and teaching of Billroth, and a tribute to all that is excellent in cultivated empiricism. By employing two methods of classification in alliance, instead of preferring or excluding either, there has latterly resulted a systematic arrangement of all tumours proper, the malignant apart from the benign, assorted in anatomical sequence. The best statement of this kind is probably that which appeared in 1877, in the seventh edition of Erichsen's Surgery, found also in all essential outlines in the subsequent edition of Green's Pathology, and of Holmes' smaller work. The following table is prepared; with slight alterations, from Erichsen's account.

Benign tumours are divided into—

I. Cystic tumours in general.

(1) retention cysts.

A. In glands or their ducts,

Cutaneous (sebaceous), as wens or atheromatous tumours, including "horns."

Mucous (mouth, vagina, etc.):

Glands of Bartholin—Cysts of vulva.

Glands of Cowper—Male perineal cysts.

- Larger glands.
Salivary—Ranula.
Mammary—Simple cysts
- B. In ductless glands or cavities.
Bursæ—Hydrocele, housemaid's knee, bunion.
Sheaths of tendons, ganglion—Liquid, fibrinous, fibrous.
Ovary or thyroid glands—Simple cysts.
- (2) Newly formed closed cysts.
- A. Dermoid, congenital tumours.
(a) Sebaceous, placed away from seat of sebaceous glands.
(b) Ditto, with wall of true skin structures, glands, hair, etc.
(c) containing teeth, bone.
- B. Serous, simple cysts.
Congenital, as hydrocele of neck or shoulder.
Arising in solid tumours.
- C. Proliferous, compound cysts, of ovary and elsewhere.
- D. Blood-cysts—Hæmatoma, hæmatocele.
(The same occurring in solid tumours.)
- E. Parasitic cysts—Hydatids.
- II. Tumours composed of one of the modifications of fully developed connective tissue.
- Fat—Lipoma.
Fibrous tissue—Fibroma.
Mucous tissue, like that of umbilical cord or vitreous humor—Myxoma.
Cartilage—Chondroma, enchondroma.
Bone—Osteoma, exostosis.
Tooth—Odontoma.

III. Tumours which resemble in structure, more or less perfectly, one of the more complex tissues of the body.

- Muscle—Myoma, myofibroma, as in uterus prostate, etc.
Nerve—True neuroma.
Blood-vessels—Angioma, nævus, also called cavernous or erectile tumours.
Lymph-vessels—Lymphangioma.
Lymph-glands—Lymphadenoma.
Papillæ (of skin or mucous membrane)—Papilloma or wart.
Secreting glands—Adenoma.

A. Myeloid tumours of bone (*see* Sarcomas).

Malignant tumours are divided into—

IV. Sarcomas, or tumours composed of tissue which is either purely embryonic, or is undergoing one of the primary modifications seen in the development of adult connective tissue. Arising in connective-tissue layers and interstitial spaces, such as fasciæ, periosteum, bone, marrow, adipose tissue, corium, submucous tissue, the framework of secreting glands, and lymph glands.

Present names.	Older names.
A. Myeloid or giant-celled sarcoma. (This variety alone is non-malignant.)	Myeloid, fibro-plastic tumours (in some cases).
B. Spindle-celled sarcoma. Fasciculated sarcoma.	Fibro-plastic tumour (as generally understood). Recurring fibroid.
B*. Spindle-celled melanoma.	Melanosis, melanotic cancer, fungus hæmatodes.
Or Melanotic Or Pigmented	Spin. celled sarcoma.

Present names.	Older names.
C. Round-celled sarcoma. Alveolar sarcoma. Fibro-sarcoma. Lympho-sarcoma, and malignant lymphadenoma.	Encephaloid cancer. Medullary sarcoma or cancer.
Round-celled melanoma.	Melanosis, melanotic cancer, fungus hæmatodes.
Melanotic Pigmented	Round-celled sarcoma. Alveolar sarcoma.
Myxosarcoma.	Probably often called colloid cancer.

V. Carcinomas, or tumours composed of cells of an epithelial type, arranged in spaces in a stroma consisting of more or less perfectly developed fibrous tissue. Arising in and consisting largely of cutaneous, mucous, or glandular epithelium.

- A. Cutaneous epithelioma of skin.
Cutaneous epithelioma of lip, anus, etc.
Cutaneous epithelioma of prepuce, glans penis, vulva, etc.
- B. Mucous epithelioma of tongue, gums, mouth, fauces, gullet.
Mucous epithelioma of stomach, intestine.
- C. Glandular cancer of breast, pancreas, and other glands.

Sarcomas of Bone.

Any of the malignant sarcomas may arise in the fibrous covering of bones, their names being then preceded by the additional word "periosteal." Or they may arise in the central fat, whether of cancelli or of tubular marrow. In any of these central tumours may be found giant-cells or myeloplques; sometimes so abundantly as to give the growth a resemblance to ordinary myeloid, microscopically, though differing in all other respects. The following sarcomas are peculiar to bone, and may be of either central or periosteal origin: osteoid chondrosarcoma, osteo-sarcoma or ossifying sarcoma, both otherwise known as osteoid cancer. Carcinoma never arises primarily in any bone, but invades it secondarily either by contiguous spread from another primary source (as skin, tongue, mammary gland, etc.); or as a reproduction by distant conveyance in the circulating fluids.

Mammary Tumours.

I. Benign.

(a) Cysts.

- | | |
|---|--|
| (1) Simple. | Unilocular.
Multilocular. |
| (2) Adenocoeles.
Cystic adenofibroma.
Cystic adenomyxoma.
Cystic adenocarcinoma. | Other names:
Chronic mammary tumours, serocystic tumours. |
| (3) Parasitic hydatids (rare). | |
| (b) Simple tissue tumours (rare curiosities).
Lipoma, chondroma, osteoma. | |
| (c) Adenomas, and pure hypertrophies. | |
| (1) Non-cystic adenofibroma of young women. | |
| (2) Simple general hypertrophy. | |
| (3) Simple local hypertrophy.
Acinous adenoma.
Tubular adenoma. | |

II. Malignant.

(d) Sarcomas.

Round-celled sarcoma.	Known formerly as fungus hematodes, pulpy medullary sarcoma, fibroplastic tumours, and some cases of so-called encephaloid cancer.
Spindle-celled sarcoma.	
Myxosarcoma.	
Alveolar melanoma.	
Alveolar giant-celled sarcoma.	

(The rare varieties observed by Billroth)

(e) Carcinomas.

Anatomical varieties, now classed by Billroth, as—

(1) Acinous cancer.	Variously known as scirrhus and medullary, or encephaloid cancer.
(2) Tubular cancer.	
(3) Shrinking cancer.	
(4) Gelatinous cancer.	Colloid cancer.

As to the causes of tumours proper, many of them among the benign are known to be either congenital or developmental excrescences, as for instance—1. Dermoid and other congenital cysts in the permanent or temporary orifices, or in the cavities and organs of the body. 2. Pedunculated cartilaginous exostosis. 3. All nævi, warty and pigmented cutaneous moles. But a notion has arisen, and has been treated of by Cohnheim, that tumours have their origin in portions of embryonic tissue lying in the numerous interstices of the body, and undergoing the developmental alterations necessary to produce them; a form of growth which, in the case of simple solid tumours, is a mere repetition of that which occurred in the completed tissues which they imitate or exactly resemble. This notion has been so far supported by experiment that fragments of embryonic cartilage, transplanted to the aqueous chamber of the eye, to the peritoneal cavity, and into the stream in the jugular vein, have grown into cartilaginous tumours, whereas fragments of completed periosteum and hyaline cartilage, similarly dealt with, grew only for a time, and eventually underwent absorption. The notion, though quite as yet unproved, is interesting, if not important, affording a credible and comprehensible mode of accounting not only for all solid and some cystic benign tumours, but possibly malignant too, for, when considered along with a supposed anatomical alliance with inflammation of a possibly infective type, and with the strongly suspected "traumatic" excitation of "malignancy," one or other, and sometimes all, of these hypothetical explanations may be applicable to the origin of the groups sarcoma and carcinoma in completion of the idea. In fact, evidence is not wanting in support of some such idea in the case of certain instances of "branchial carcinoma" related by Volkmann (*Centralblatt f. Chir.*, Jan. 28th, 1882). This term he has applied to examples of deep, primary carcinoma of a distinctly cutaneous epithelial composition, excised by him from the stylo-hyoid region, and supposed to have arisen in epidermic structures included at the obliteration of the branchial clefts¹. Among the tumours of the breast preserved in this museum is one (F. 30) of cystic nature, excised with the whole gland. The

soft contents had the naked-eye appearance which characterizes some softened epitheliomatous swellings, especially when secondarily affecting lymph glands, and the cyst wall was found by Mr. Paul to show the microscopic structure of unmistakable cutaneous epithelioma, an opinion which I entirely confirm from inspection of the slides. Such a product is extremely uncommon if not as yet unique, and not accounted for on any plan that has yet been devised to explain the origin of tumours, except the one now referred to. One may imagine a congenital or developmental aberration of cutaneous tissue, such as might form a small subcutaneous or even intra-mammary "dermoid cyst," however minute, subsequently undergoing the same transformation into epithelioma that any previously healthy cutaneous part would have to undergo when invaded by this disease. The same may apply to sarcomas, and may account for their hitherto mysterious appearance in the numerous connective tissues and interstitial spaces of the body. Their relation to congenital structures is so far known that a cutaneous pigmented mole may in after life be the actual and only seat of sarcomatous infiltration. Such a specimen is mounted in this museum. It is said that, under circumstances such as these, the usual malignant course is not manifested, though the structure be identical with that seldom unattended otherwise by recurrence, infection, and fatality.

Introductory Lecture

TO THE

COURSE OF SURGERY

IN THE

UNIVERSITY OF EDINBURGH.

Delivered Oct. 24th, 1882.

By JOHN CHIENE, M.D. Edin.,
Professor of Surgery.

THE Chair of Systematic Surgery in the University of Edinburgh is of comparatively recent foundation. The cause of this is not far to seek. For many years it was held conjointly with the Chair of Anatomy. As the range of anatomical science increased in scope and importance, and when in 1736 the foundation of the Royal Infirmary by the Royal College of Physicians brought more prominently forward the practical aspects of surgical teaching, it was evident that the double work was too great for any one man. The Royal College of Surgeons early recognized this necessity, and in the interests of surgical science they petitioned the patrons in 1777 to found a separate chair. It was not, however, till the year 1831 that a Chair of Surgery was founded, and J. W. Turner was elected professor of surgery. He was succeeded in 1836 by the great physiologist and scientific surgeon, Charles Bell. He, in his turn, was succeeded in 1842 by James Miller; and on his death in 1864, James Spence, whose loss we now mourn, became professor of surgery. I well remember Mr. Spence's introductory lecture, delivered in this class-room eighteen years ago, before a crowded audience of students, former pupils, and friends: his leading thought—the gradual growth of surgical science; his subject—the Edinburgh School of Surgery. He laid special stress on the influence of John Bell and Robert Liston. Of John Bell he says, "He was no ordinary man, but a real surgical genius, of great natural talents, and imbued with that enthusiasm which is a mark

¹ I have also met with one case of this kind, and have the microscopic slides prepared from a deep primary cutaneous epithelioma, removed some years ago from the left side of a middle-aged man's neck by Mr. J. P. Harris, assisted by me. The thing had puzzled me until I saw Volkmann's paper.

of genius, and which does so much to create enthusiasm in others." Of Liston he says, "As a bold, and cool, and dexterous operator, I have scarcely seen his equal. His great power in diagnosis, the wonderful faculty he possessed of perceiving, as if by intuition, the true nature of a case in all its bearings, and of adopting adequate measures for its treatment was such as are rarely to be met with." Syme and Fergusson were then alive, and the time had not yet come to form an estimate of their great power for good. William Fergusson had gone to London, and was at that time at the height of his fame as a skilful surgeon, a brilliant operator, and, above all, a kind friend and adviser to anyone from Scotland. Of this I have a very pleasant recollection, when, in 1867, he gave me sound advice in what was probably the turning point of my career, advising me to stay in Edinburgh, and not to migrate south as so many of my countrymen had done. He never forgot the land of his birth. James Syme was then the leader of Scottish surgery, of whom it might truly be said in the words of that good kindly man, the author of "Rab and his Friends," "He was, I believe, the greatest surgeon Scotland ever produced." "He had that quality of primary minds of attaching permanently those he had relation to, his students never ceased to love him, and returned to him from all regions of the world." As one of his pupils may I be permitted, in John Brown's words, to say, "Of what he was to me—his patience, his affection, his trust, his wisdom, and still more, what he might have been to me had I made the most of him—it is not for me now to speak. He remains in my mind as one of the strongest, clearest, capablest, most valuable understandings; one of the warmest, truest hearts I have had the privilege and the responsibility of knowing." It has often been a matter of surprise to me that Syme's works have never been re-issued in a collected form. They will always be classical. I feel sure of this that there are many of his old pupils who would gladly undertake the task. Mr. Spence, in his introductory lecture, pointed out to us, his students, the great importance of anatomy and clinical study, of the dissecting-room and the hospital ward. He could speak with authority on these points, because he had been for many years a teacher of anatomy, and for fifteen years a surgeon in the hospital and lecturer on surgery in the extra-mural school. When we remember that Charles Bell held the Chair of Surgery in this university, physiology must always play an important part in the surgical teaching. With our vivid recollection of the complete mastery James Spence had over all the details of anatomy, we can never forget the paramount importance of anatomical dissection as the basis of surgical practice.

As many of you know, it has been my endeavor, during the last twelve years, to teach the principles of surgery from a physiological standpoint, the practice of surgery from an anatomical point of view. While I certainly shall have difficulties as to the best way fully to utilize and develop the great opportunities for good which my present position affords, one thing I feel sure of is this, that in the future there will be no necessity for any departure from the method of teaching that I have always hitherto followed. I shall be encouraged, in so doing, by the remembrance that I hold a position previously occupied by Charles Bell and James Spence. It was my good fortune to be the pupil both of James Miller and James Spence. Miller, an eloquent lecturer, a brilliant operator, and a kind-hearted man; Spence, the representative, for some years before his death, of Scottish surgery, the careful and painstaking surgeon, whose skill as a diagnostic surgeon was unrivalled. You know

how well he did his work as your professor; he never forgot—what has ever seemed to me the reason why Edinburgh attracts so many students—that teaching was his primary duty. His daily lecture, his hospital visit, were to him a time sacred to learning and teaching, and not to be lightly interfered with by the calls of practice, however urgent. You know how hard he worked; of late the troubles of declining years interfering in no way with that thoroughness in all he did, and that daily round of arduous duties the performance of which was to him his chief pleasure and his life-work. I would desire to remind you of his avoidance of all show. I recall at the present moment the early days of the winter session of 1862, the operating theatre in the Old Infirmary, Spence evidently pre-occupied, restless, and excusing his restlessness by an occasional glance at the instrument-tray, as if every knife and every needle had not been carefully examined and arranged by himself; the theatre crowded to the ceiling, a small sprinkling of practitioners amongst a host of students. The juniors, of whom I was one, were somewhat anxious, and perhaps not over-confident of their staying powers; the seniors, who had left the medical house to visit their old haunts and see "Spence operate," were there in great force, some perhaps thinking of the time when they were juniors, with heart-searchings of time misspent, never to be recalled, others in whispered comments recalling some dreadful operation which they had witnessed, patronizing, but withal in a kindly fatherly manner, us juniors. The patient was soon brought in, a pale but healthy middle-aged woman. She suffered from a large tumour of the neck. I need not detain you with an account of the operation; the time seemed to me short—it must have occupied an hour. During all that time Spence went on with his work quietly; little was said, but gradually the large growth, separated from its attachments, became more and more apparent, until at last it was removed, and a gap was left, exposing the carotid vessels and the internal jugular vein from the angle of the jaw to the clavicle. That large blue vein is still vividly before me. I remember my only thought was, that man must be a good anatomist. This was my first lesson from James Spence; since that day it has been my great privilege to receive from him very many practical lessons and much kindness. It will be an evil day for the teaching of surgery in this school when the useful lessons which Spence taught are forgotten by his pupils. He was a good practical surgeon, a kind friend, and an honest man. In his "Lectures on Surgery" he has left us a guide which will always be eminently trustworthy, more especially in those branches of practical surgery to which he devoted special attention. His chapters on hernia, aneurism, diphtheria, croup, stone in the bladder, their diagnosis and treatment, are to my mind full of sound advice, and will always be read and acted upon, and Spence's name will be handed down as an authority in practical surgery.

The term "introductory" may refer either to the lecturer or to his subject. Personally I am pleased to feel that I require no formal introduction. May I then be permitted to utilize what remains of this hour, and make it a part of the course on which we are now entering? I have no desire that this lecture should in any sense be of the nature of a pastime, but that to-day, as I trust in every lecture this session, something will be learned by you and by me. To be useful, what I have to say must be more or less elementary; for this I cannot but feel that I owe an apology to those present, old friends and former pupils, who come here to welcome me in a new position, and to other kindly critics present, who have perhaps finished or are

now finishing their university course. While my remarks are more especially addressed to students of the second year who are commencing the study of surgery, I am well aware that there are some present fresh from school life who are only now beginning their medical studies, and who as yet consider it a privilege to attend an introductory lecture, and who can still enjoy their comparative freedom as university students, comparing it favorably with the rigor of school discipline with which very lately they were so well acquainted. May I as a friend say to them a passing word? In your present freedom there is a great danger: see that you use that freedom aright. Remember that you are now university men. Your school looks to you to be a credit to your up-bringing; your university hopes in the future to be proud of you. Take this to heart, that your future prosperity very much depends on the way you spend your first year here. I earnestly entreat you to take great care what friends you now make. You will most certainly be tempted. Learn then, above all things, to be able to say "No;" that is the whole business, and I have no fear of the result. "Read carefully; do not be satisfied with a superficial understanding of a book, nor hastily give your assent to those who talk too much."

Pardon me for this short digression; I could not help it. I have seen in my day many bright beginnings end only in disaster, self-reproach, and home misery. My audience is a large one; perhaps what I have now said may be of use to some one junior student now present.

The healing of wounds has from the beginning occupied the attention of surgeons. Rapidity of healing and freedom from pain during the process have mainly been sought after in their treatment. In saying a few words regarding wounds, I would first direct your attention to the treatment of a wound twenty years ago, when I was a student, comparing it with its treatment at the present time. I necessarily, in my comparison, take the practice of the school with which I am most familiar. Its practice, however, has always been a pretty good gauge of the work of practical surgeons. I do not wish to say that it has been foremost, but certainly it has always been among the first to institute or adopt any improvements. Twenty years ago, as at present, there were differences of opinion in minutiae, but the practice of the majority at this period will be taken as the basis of our comparison. I will have no difficulty in showing that most remarkable alterations have taken place; and I will then ask you to look into the past history of surgery, and I think be able to show you that the present practice has been more than foreshadowed, and that much that is now done has been done long ago. In some minds there seems a tendency to dwell upon the so-called ignorance of our forefathers. I would assert the very opposite, and say that there were clear-headed, shrewd, and intelligent surgeons in those days who can most favorably be compared with the present generation. This assertion, if just, is a comforting one, and may encourage us to hope that any honest, truthful work that is now being done will be appreciated by our successors. If then I can show that the present practice of surgery is a revival of what was done in the past, it will be my endeavor in the next place to point out the real difference, and to show that, while surgeons formerly worked empirically, we are now working on a scientific basis.

The present practice and its results on general surgery will occupy our attention during the coming session. While I have no desire to prophecy concerning its influence in the future, or to predict its permanency, I would suggest, that if I can

show that the whole history of practical surgery has been more or less an empirical struggle to overcome difficulties and dangers, the primary cause of which is now clearly understood, then this fact encourages the belief that the present change, in so far as it is founded on a scientific basis, will be a permanent one. The practical details will most certainly change—are in fact daily changing—and will be improved while the great primary truth on which it is founded will always be our standard. There is a great law governing our physical and mental well-being—namely, that growth and development are accompanied by change, that to stand still and make no advance must necessarily soon be followed by physical and mental decay. Twenty years ago in the treatment of any large recent incised wound, the bleeding arteries were tied with well-waxed silk ligatures. The ligatures were left long and brought out at the corners, or at the most dependent part of the wound. Plenty of cold water was used to wash the wound; the edges were brought together with silver stitches, and a piece of dry lint was laid over the incision and retained in position by a bandage. As a rule this dressing was not touched till the second or third day, when it was removed in consequence of local uneasiness. This removal was always accompanied by a certain amount of pain, which was modified by soaking the lint with warm water before removal. Occasionally, in consequence of the absence of uneasiness, the lint was untouched for a longer period, and removed at the end of a week or ten days to find that union by the first intention had taken place, except at the point or points where the silk ligatures emerged. Sooner or later these ligatures became loose and were removed one by one, when complete healing occurred. The uneasiness complained of was due to local tension as evidenced by redness of the lips of the wound. This redness and uneasiness were relieved by bathing with warm water, or by the application of warm-water dressing (lint and gutta-percha), or by the removal of a stitch or stitches, when the confined discharge escaped as pus. If this pus had a disagreeable odor, then the cavity of the wound was gently washed out with a syringe filled either with simple warm water, or with warm water tinged with Condy's fluid. The wound was dressed night and morning, sometimes even more frequently, and gradual consolidation by means of union by the second intention took place. I make no allusion to the constitutional dangers of which every now and then sad examples occurred, sometimes sporadic, sometimes epidemic, except to say that the principal danger, termed pyæmia, was looked upon as in great part due to the constitution of the patients. The treatment of this danger was entirely curative—quinine, iron, and stimulants were freely administered. Prophylaxis did not occupy the practical mind, because the primary cause of the condition was unknown. Nowadays the treatment of a recent incised wound, as most of you know is very different. The vessels are tied with catgut instead of silk, the ends of the ligatures are cut short, and we see no more of them. The wound is thoroughly washed with an antiseptic lotion, and a drainage-tube, a hank of catgut or of horse-hair, is introduced to the bottom of the wound and brought out at a dependent point. The wound is stitched and a dressing is applied, the essential feature of which is that it contains some antiseptic. This dressing is not interfered with until the discharge soaks through it, or appears at its edges, or unless the wound is painful. This pain is due to an imperfect application of the drainage. The wound is never exposed to the air, but is examined under cover of a cloud of antiseptic vapor.

The wound, as a rule, heals without suppuration and without pain.

Here, then, we have two very different pictures: the main differences between them seem to be, ligatures of catgut instead of silk, free drainage, and antiseptic precautions. Are any of these methods really new? Physic, of New York, Astley Cooper, and others, used catgut; John Vigo and Ambrose Paré recommended drainage-tubes; Würtz alludes to drainage by means of a hank of horse-hair; Guy de Chauliac, Vigo, Arcæus, Würtz, Purmannus, Ambrose Paré, Colbatch, and others used various antiseptics—turpentine, alcohol, camphor, myrrh, and various resins. External dressings were applied containing antiseptics. Watson Cheyne, in his recent valuable work on "Antiseptic Surgery," speaks of Arcæus's treatment as "a fair antiseptic method, and not far removed from an aseptic one." These surgeons whom I have named flourished between 1350 and 1750. During these centuries we find, in the great majority of the surgical works, that much stress is laid upon putrefaction. We find, for example, that Guy de Chauliac, Vigo, and Woodall, define a wound as a solution of continuity—fresh, bloody, and free from putrefaction; and they speak of their remedies as of use in preventing and curing putrefaction. Not only do they mention putrefaction as an evil thing, but we find that Paré, Würtz, Magatus, Colbatch, Belloste, Heister, Benjamin Bell, Alexander Munro, and Abernethy, all considered that the entrance of air into the wound is in some unknown way associated with inflammation and unsatisfactory healing; while Paré and Magatus, in the beginning of the sixteenth century, tell us that the air is charged with miasms, and warn us to avoid such air. In consequence more especially of the teaching of John Hunter and John Bell towards the end of the last and the beginning of this century, these views with regard to the evil effects of the air were almost lost sight of. In consequence, more especially of the teaching of Syme and Liston, simplicity of dressing, such as I have described as made use of in 1860, was the rule in surgical practice. At the same time it is to be noted that the valvular openings recommended by Abernethy, the aspirator long ago recommended by Delacroix and Anel, and subcutaneous surgery generally, retained their place in the practice of surgery. In the beginning of the present century chemists, scientific men, having no knowledge of, and altogether apart from, the practice of surgery, began the study of fermentation, described the products of the process, and searched after the cause. Schwann demonstrated that the oxygen in the air was not the cause, and in 1836 he and Cagniard de Latour discovered independently the yeast plant, and its constant association with alcoholic fermentation. After a time this plant was shown to be the cause of the alcoholic fermentation. Pasteur, in 1858, made the next great step, and pointed out that putrescence is a form of fermentation, and brought forward the doctrine that this is due to organisms planted in a putrescible substance. This doctrine has, up to the present day, been termed the germ theory of putrefaction. This theory is now proved to be correct, and as we speak of Newton's Law of Gravitation, so I am of opinion that we are now in a position to speak of Pasteur's Law of Fermentation. All this work, it will be observed, was done by scientific men, apart from and apparently unconnected with the practice of surgery. For some years before 1860 there were various indications that this scientific work was soon to be utilized in surgical practice, and there can be no doubt that Lemaire the credit is due of having first seen the connection. He used coal-tar and carbolic acid as disinfectants in wounds. It is unnecessary to in-

quire the reason why the work of Lemaire did not gain general acceptance. The fact undoubtedly exists, that his ideas were not adopted by the majority, and that they were even abandoned by those surgeons who had given them a trial.

I would now direct your attention to a paper by Joseph Lister, in *THE LANCET*, in 1867. The paper is entitled, "A New Method of Treating Compound Fractures, Abscesses, etc." Lister, in this his first paper on the subject, gives us the keynote to the position which he then took up, and to which he has ever since strictly adhered. In that paper, after pointing out that the decomposition which occurs in a compound fracture is due to the access of the atmosphere, he says, "We find that a flood of light has been thrown upon this most important subject by the philosophic researches of M. Pasteur, who has demonstrated, by thoroughly convincing evidence, that it is not to its oxygen, or to any of its gaseous constituents, but to minute particles suspended in it, long regarded as merely accidental concomitants of putrescence, but now shown by Pasteur to be its essential cause." He then adds, "All that is requisite is to dress the wound with some material capable of killing these septic germs." Here, then, it will be noted that Lister from the first adopted Pasteur's law as the basis of his practice, and having adopted this law, he then searched out a substance by which he hoped to attain his object. He tells us that in 1864 he was much struck by the advantages obtained by mixing carbolic acid with the sewage of the town of Carlisle. This knowledge encouraged him to try carbolic acid. It is not my intention to dwell upon the gradual development of the practical details. In March, 1865, Lister made his first attempt to form an antiseptic crust, using lint soaked in carbolic acid. This was a failure. After many anxieties and by learning a good deal more from his mistakes than from his successes, always steadfastly holding to the primary doctrine, he experimented first in Glasgow and then in Edinburgh, until in 1871 he elaborated that dressing which is now associated with his name. During all these years Lister was doing a double work; he was trying to perfect the practical details, while he was at the same time working at the germ theory, and doing very much to strengthen the scientific basis of his practice. Many are now working at the practical details. The theory has now become a law. New antiseptics are being daily introduced, and when a more reliable one than carbolic acid for general use has been discovered, no one will more gladly use it than Lister. Much harm has been done by calling his method of treatment the "carbolic acid method," the sole object which he has always had in view being not the use of any special antiseptic or any special plan of treatment, but a method which will enable the surgeon to keep his wound aseptic, from the time it is inflicted until healing has taken place.

It will perhaps be as well here to tell you that in the treatment of wounds their asepticity is only one part of the problem which the practical surgeon has to consider. Lister found that the silk ligature was a source of irritation, and hence arose the reintroduction by him of the catgut ligature. The presence of pus in an aseptic wound directed his attention to suppuration caused by tension—although apart from putrefaction—hence the application of free drainage to all wounds and the avoidance of suppuration from tension. The catgut ligature and free drainage directly were the outcome of a study of aseptic wounds. Do not be led into the too common error that Lister's reputation rests only on his application of Pasteur's law to surgery. His work is threefold in its strength. Do not imagine that a surgeon, in accepting Lis-

ter's teaching regarding antiseptics, thereby necessarily forgets the words of John Hunter: "The first and great requisite to the restoration of an injured part is rest." Many of the most valuable improvements that have benefited mankind have been the result of years of patient and prolonged investigation. These investigations have followed two great lines; the practical man, working by experience and observation, and gradually arriving at some idea of what should be, thinking little of the why; the scientific man, with Bacon as his model, experiment as his mistress, working little by little without any idea of the practical value of his investigations, wading like the practical mind through errors and mistakes, correcting them himself, or having them corrected for him by a future worker, until at last a time is reached when the lines of thought approach one another; then a master-mind, necessarily with both practical and scientific knowledge, able to estimate at their proper worth the value of the sum total of both lines of workers, grasps the double work, and although at first seeing dimly, he steadfastly perseveres until at last he is enabled to establish some great law which will in the future enable the practical mind to work more intelligently, the scientific mind gaining at the same time encouragement to work on, with the knowledge that each little portion of truthful scientific work will in the future bring forth practical fruit. We have a good example of this in the history of the science of astronomy. After Copernicus had shown that the sun is the centre of our universe, Kepler, by a series of calculations demonstrated the elliptical pathway of the planet Mars. A hundred years after, Newton demonstrated the reason why the planet Mars could only move in an ellipse, and showed how all the other planets necessarily followed the same law. It is well known how Adams and Leverrier, using Newton's laws, and working in their studies, told the practical astronomer that if on a certain night he would look in a certain part of the heavens he would see a new planet, which we now call Neptune. While Jenner, by acute observation, discovered vaccination, so we now find Greenfield and Pasteur working on the basis of Pasteur's law of fermentation, and demonstrating by experiment that the bacillus anthracis, which is the cause of splenic fever, can, if modified by cultivation, be inoculated into healthy animals, and give rise in them to a condition which may strictly be likened to the vaccine fever, and which prevents in them the fatal splenic fever, just as the vaccine fever prevents the fatal small-pox.

If such results have been already obtained by careful experiment, is it not legitimate to expect that before long some general law may be discovered by which the poison germs of other scourges, more nearly allied to ourselves, may be modified so as to enable us to limit in no small degree the dire effects of scarlet fever, typhus, cholera, etc.? Pasteur's law, in consequence of Lister's application, has had a revolutionary influence on surgery, there is now good evidence before us that it is doing the same for obstetrics and medicine. Do we not, as citizens, learn from what I have said to-day that it is our duty and our interest to encourage scientific work? I can imagine a visit to Pasteur's laboratory about the year 1860 by a hard-headed successful man of business, who, judging by immediate results—a rapid turn over being the essence of successful trade—would certainly ask himself the question, What possible practical good can ever come to me or to my children from this investigation? As certainly do I feel that, in this utilitarian and practical age, he would leave that laboratory impressed with the

waste of energy displayed, while he would assuredly admire the patience and perseverance of the investigator. I ask this same man to go with me at the present day into an operating theatre, and he will undoubtedly, in all that he sees, be carried back to that former visit, and he will be the first to acknowledge that his former estimate was essentially short-sighted and hasty. If our countrymen could only be persuaded of the great immunity from pain, and the comparative freedom from danger which they can now command, and if it has been demonstrated that these results are directly due to scientific work, based upon experiment, then they would most certainly do everything in their power to aid in fostering the work and encouraging the worker. It must be a law that every truth will in the future bear good fruit. Let each one present remember that "we are all working together for one end, some with knowledge and design, and others without knowing what they do."

What lesson do we learn as workers from what I have said to-day? Let some time be given to the culture of the reasoning faculties, devote a certain portion of each day to self-instruction, self-questioning. Let each of us do a little piece of truthful individual work. Make a start; begin at once; get into the way of doing some special work, and like any habit—good as well as bad—it will grow upon you. If of a practical turn, you will work by experience and observation; if of a scientific turn, you will work by experiment. Both have their value; and even if you only take up the rôle of an overturner of false doctrine, or even a critic of true doctrine, you will all have your use, as Marcus Aurelius says: "Men co-operate after different fashions, and even those co-operate abundantly who find fault with what happens, and those who try to oppose it and to hinder it, for the universe hath need even of such men as these."

One word of warning. The simple treatment of a wound with water dressing was, we now know, imperfect; still the majority were satisfied. Accidents, local and constitutional, were smoothed off and excused by the too common phrase, We had done our best. Let us take care that we do not fall into this error with regard to our present work. As you work, be sure to fight against any temptation which may encourage you to suppose that our knowledge is now perfect. Perfection is not of this world. Is it too much to ask for encouragement for individual work? Some years ago I tried to show that our extra-mural school—a most important factor in our system of medical education—owes very much of its success to the encouragement which is given to the individuality of its teachers, everyone of whom has chosen that subject to which he has devoted special attention. May I now say a word for the individuality of the taught? May I plead toleration and assistance for the man who desires to develop his mental individuality, who desires to concentrate his mind on some special piece of work? There is need for someone to speak out, to "use plain discourse," and to say, that if the public are to require of every candidate for any public duty a universal knowledge, the acquiring of which needs all his energies, then any power which he may originally have had of doing some special work—his individuality, his physical and mental personality—will be crushed out of him. Even our schoolboys are nowadays required to pass a certain standard, the examination system is in full force even in our infant schools. Would we not have more "Lucidity" in the growth of our intellects was less fettered simply directed, rather than pruned and trimmed ordered to do this, forbidden to do that? Any unnecessary interference with the taught at once

tells on the usefulness of the teacher. What opportunity have our schoolmasters to develop any special talent in their pupil when their energies are fully occupied in polishing all their material—good, bad, and indifferent—to one standard? The schoolmaster seems now to have little pleasure in life, he is a mill-horse working round a pivot, a mill-wheel supplied with water to do one thing—namely, polish boys. Let the public see that they take care that those to whom they entrust the education of the medical practitioner are allowed some scope for their imagination, some opportunity to develop the individuality of their students. The essentially evil feature of centralization is its want of personality. Our medical schools still possess some personality; it will be a bad day when that is interfered with. This school to which we happily belong, will lose much of its brightness, will be hampered in its usefulness, if its teachers are compelled to degenerate into polishing machines. May I ever have before me, as an important part of my duty, the encouragement of the individuality of my students. May I be enabled ever to remember that I am dealing with men, each one of whom has some special ability, every one of whom has some special work. May I endeavor, as far as in me lies, to search out that special ability, to encourage and to direct that special work. Give me your help in the future as you have always done in the past; without your confidence I can do little, with it I will endeavor, by devotion to my duties as your teacher, to maintain the reputation of this school for honest work. Working together, let us day by day feel that something has been attempted, something has been done, and at the end of the session we will be able to look back with an inward feeling that, while far from what it should have been, some advance has been made, some problem has been solved. Remember that to everyone present a talent has been given. Let him look to it that he uses that talent aright.

Introductory Address

DELIVERED AT

UNIVERSITY COLLEGE, LONDON,

On the Opening of the Winter Session of 1882.

By MARCUS BECK, M.S., F.R.C.S.

(Concluded from page 415, Dec., 1882).

Thus, then, we have a large number of our students started on their medical education badly, and the consequence is that they spend a great part of their first year of study in learning how to learn, and doing that imperfectly. From want of training in generalization and classification, their knowledge consists merely of a mass of disconnected details, and the strain upon the memory becomes correspondingly great. A thorough and clear comprehension of a subject is essential for its easy acquirement; and without some knowledge of chemistry and physics it is impossible to understand a great part not only of physiology, but of medicine and surgery also. The evil habit of thought which is cultivated by this irregular training in the early part of study frequently persists throughout the whole course, and the difficulty experienced by the student in passing the primary examination is exaggerated in the final, as that includes no subject like anatomy, in which mere memory is of more value than logical thought.

In order to obtain a double qualification, however, the student has to present himself for this

examination at the College of Physicians or the Apothecaries' Hall, and it is very common for this to be done after the College of Surgeons is finished. Consequently we often find him preparing for examination in chemistry and botany some two or three years after he attended the classes on these subjects, and at a time when it is too late for him to derive that mental training from them which should have assisted him in his course of study. Some effort to remedy this evil has of late been made by the College of Physicians by the institution of the new examination to be passed at any time after registration. This, no doubt, is a step in the right direction, in so far as it encourages the student to pass his chemistry and botany at as early a period as possible of his medical study. But, on the other hand, it seems to be specially designed to encourage him to spend some time in a sort of modified apprenticeship before commencing his work at a medical school. Now if the object were to re-establish the old prescribing drug-gist, as he was before the apothecary developed into the general practitioner, nothing could be better; but if the future licentiates of the College of Physicians are to be educated as men of science, the introduction of a period of desultory work without any proper teaching between school and college can do nothing but harm. The botany also, which he is to learn, is defined as medical botany. Now the only justification for retaining botany in the early part of a medical curriculum is, that of all subjects it gives the best training in the accurate observation of simple facts and in classification, and unless it is taught as a science with this object, quite irrespective of its supposed utility in medicine, it might just as well be omitted altogether. Although, therefore, the examination is doubtless a relief to the student, by enabling him to get rid of some troublesome subjects during his first year, it is not likely to do much to improve his training from a scientific point of view, and I believe it is only by an improved training that we shall be able to diminish the lamentable proportion of rejections which forms almost a reproach to our medical teaching. Up to the present time, however, the attempt to meet the higher standard required at the examining boards has been chiefly by increased quantity of teaching, and at the same time the mode of teaching has become more practical and demonstrative. At the time I was a student here there were no demonstration classes in anatomy, the class of practical physiology had not been instituted, and there was no class of practical zoology. Voluntary classes in operative surgery and bandaging existed; but the practical surgery class, as we now have it, was not founded till ten years later. At the hospital the only practical instruction given in surgery was the bedside teaching, supplemented by a few clinical lectures, rather theoretical than practical. In the medical wards students wrote reports on cases which were corrected by the professor of clinical medicine, but no classes had been instituted for practical instruction in the rudiments of medical diagnosis. Now we have changed all this, and practical classes crowd upon each other till it becomes almost impossible to find time for them all in the nine hours of the day during which the college and hospital are open. The practical classes in medicine and surgery have no doubt become necessary to replace the teaching that the student formerly received during his apprenticeship; but in other subjects they have been instituted solely with the view of improving the quality of the teaching, and enabling the student to reach the higher standard of knowledge required of him. The result so far, however, has not been to diminish the number of rejections. These still continue in unabated num-

bers, and will continue, I believe, as long as the present irregular system of education is followed by so large a number of our students. While we expect students to understand the most complicated mechanism in creation without a knowledge of mechanics, to understand the eye and ear without optics or acoustics, or respiration without knowing the laws of atmospheric pressure; while we expect him to understand the chemistry of digestion almost before he knows the difference between an element and a compound, I do not think we can hope for any real improvement in the results of the examinations. It is, I believe, only by a better preparation in science, and by a rearrangement of medical examinations in accordance with the laws of scientific education, so as to train the student to think, and to think well, that we can hope to get any real improvement. To this course, however, many objections have been raised on the grounds that it would add more subjects to the medical curriculum, which, in the opinion of some, already includes more than are necessary; that it would lengthen the period of medical study, and would add another examination to those with which the student is already burdened. Finally, there are some still to be found who deny the utility of science and the value of mental training.

To take these objections in order. First, that it would add another subject to the medical curriculum. I have before said that zoology, although forming an extremely valuable training for those who have time to avail themselves of it, is not essential, and there would be nothing to justify adding it to the ordinary course of medical study. Physics would therefore be the only subject which would be added to those already in the curriculum. Now at the present time, students are expected to know at their examinations all those parts of natural philosophy which apply to physiology, and to the explanation of various morbid processes both in medicine and surgery. We cannot say therefore that it would be added as a new subject. It would be merely taught methodically, and would prove an assistance to the student in his course of study, rather than an increased difficulty. It is sometimes assumed by those who complain of the number of subjects in the medical curriculum, that the student is expected to learn each thoroughly. To learn any subject thoroughly is the work of a lifetime. All that can be expected from a medical student is, that he shall learn the general principles of the various sciences auxiliary to medicine, and shall attain such an amount of knowledge of each that he shall not be altogether lost when he has to apply them to practical medicine or surgery, and that if necessary he shall know what book to refer to for further information, where to look for what he wants, and when he has found it that he shall be able to understand what he reads. The objection therefore to a scientific course of study, that it increases the number of subjects in the curriculum, seems of but little weight.

With regard to the lengthening of the period of medical study, the objection also is more apparent than real. If the period of study were lengthened from four to five years, it need involve no hardship. The preliminary examination in general education may be, and very frequently is, passed at the age of sixteen. The most difficult of all the entrance examinations, the matriculation at the London University, is passed best by well prepared boys between sixteen and seventeen. Now all those who pass at this age must wait five years before they can obtain a license to practice. To these, therefore, it would be no hardship to spend a year in the study of the preliminary sciences. Moreover, if it were understood that a year had thus to be spent,

it would become the custom to send the candidate up for the entrance examination at the earliest possible age. Of course it is much better that the general education should be continued till seventeen or eighteen, but I am only discussing the case of those to whom it is of importance to gain a legal qualification at the earliest possible time, and for them the luxury of a prolonged general education must be dispensed with. It must not be forgotten in discussing this point, that a very considerable number of students are obliged through misfortunes at their examinations, to lengthen their period of study, sometimes to seven or eight years. The number of these unfortunates will probably in the future be greatly increased by the new regulation of the College of Surgeons, which places a compulsory interval of two years between the primary and the final examinations. To many of these, I believe, a period of compulsory training in science would prove a real assistance in shortening their time of study, by enabling them more easily to acquire the necessary knowledge. And supposing the period of study were actually lengthened by a year, we should still be only returning to the old period of apprenticeship which lasted five or even seven years. The student himself should, perhaps, be the last to complain of any prolongation of the time of study, for his time at college will probably be the pleasantest part of his life. An examination now and then no doubt forms a hateful incident during its course, but the real troubles of life begin when the last examination is passed. An examination is no great trouble to a student if he is properly prepared for it, and the addition of a simple preliminary examination in science would, I believe, for the reasons I have already given, tend to make it more easy to prepare for those that follow.

Lastly, we have to consider the objections still occasionally raised to the modern system of education, that the value of mental training is more an idea than a reality; that science is of no direct use to the ordinary practitioner; and that, on the contrary, a scientific education tends to make a man unpractical. To deny the value of mental training seems to me to be evidence of want of it on the part of the person who does so. The argument usually employed is that men are to be met with who go through a thorough course of scientific training, and come out at the end as illogical as they began; and, on the other hand, it is not uncommon to meet with those whose scientific education has been defective, and yet whose mental faculties are developed to a high degree. The fallacy of the argument lies first in the assumption that those whose scientific training has been defective would not have been better had their minds been more correctly cultivated; and, secondly, in drawing the general conclusion that training is of no use, from the exceptional cases in which it has failed to produce the desired effect. I feel myself no doubt whatever that those men learn their medicine and surgery more quickly and more thoroughly who have undergone a proper preliminary preparation in science. Those who manage to distinguish themselves at examinations, and yet remain illogical and unpractical, are, as far as my experience goes, those possessed of a memory of unusual retentiveness, a faculty which is not necessarily associated with a high order of intelligence. There is, I believe, at the present time a hopeless idiot in Earlswood's Asylum who possesses a memory of such extraordinary power that he could, if properly coached, be easily made to take first place in almost any competitive examination.

Of the value of science in the practice of medicine and surgery there can be no doubt. In the first place, to the ordinary practitioner chemistry,

and a certain amount of natural philosophy, are essential if he is to undertake intelligently the practice of hygiene—now as important a department as either medicine or surgery. The post of medical officer of health is one, at the present time, open to every medical practitioner, and often furnishes a welcome addition to the somewhat narrow income of the country doctor. In this post he will be expected to undertake the simpler tests for the adulterations of food and the purity of water, and he will be required to give advice on questions of ventilation, heating, and warming, and on numberless other subjects in which some knowledge of science is involved. But the innumerable applications of science to modern medicine and surgery are of no less importance. With regard to medicine I would not venture to speak, but I have no hesitation in saying that the wonderful advance which has been made in surgery during the last twenty years has been entirely due to the application to it of science and the scientific methods of investigation. During that period surgery has made more real progress than at any previous time in its history; and this progress has been chiefly due to the discovery of the nature and causes of surgical fever, and of spreading and infective inflammations. It commenced as late as 1866, by the application of Pasteur's discoveries to practical surgery by Mr. Lister. For centuries before this time the necessities of cleanliness in wounds had been well known, and antiseptics had been employed by all surgeons in their treatment down to the early part of this century; but so little were their properties understood, and so doubtful had been the advantages derived from their use, that at the time I was first a dresser in another hospital, twenty years ago, they had been almost completely abandoned, and wounds were treated either by the application of a dry dressing, which was removed when the smell became intolerable, or by placing over them a piece of lint soaked in simple water and frequently changed. Water alone, without the addition of any antiseptic, was used to wash away the discharges. It was only when the discoveries of Pasteur showed us that so-called clean water is in fact one of the dirtiest things in nature, that this treatment was abandoned. Yet while this treatment was being adopted, and it was possible to tell by the smell alone whether you were in a medical or surgical ward, surgeons were constantly insisting upon cleanliness as the most essential feature in the treatment of wounds, so little idea then existed of what true cleanliness is. Dirt at that time, in the form of putrefying discharges, was considered inevitable; cleanliness consisted in clearing away the decomposing matter: the higher scientific idea of cleanliness, as consisting in the absolute prevention of decomposition, was impossible till Pasteur's discovery had shown to what decomposition is due.

About the same time that Mr. Lister was introducing the antiseptic system of treating wounds, Bergmann and others were, by carefully devised experiments, proving the fact that the high fever which then almost invariably accompanied all large wounds and severe injuries was due to the absorption by the surface of the wound of the chemical products of putrefaction contained in the decomposing discharges. The investigations into inflammation and the allied processes were at the same time establishing as a pathological fact the absolute necessity of an abundant decomposable exudation from the raw surface of a wound during the first few hours after its infliction. To provide a sufficient exit for this discharge by a proper system of drainage became, therefore, an essential feature in the scientific treatment of wounds.

Drainage, like the use of antiseptics, was nothing new. Tubes made of metal, and tents of various kinds, were used centuries ago, but, as with the antiseptics, their use was not founded upon scientific principles; and in the anxiety to avoid the introduction of foreign bodies they were completely abandoned, so that twenty years ago such a thing as a drainage-tube in a fresh wound was hardly thought of. Empirical surgery had tried both antiseptics and drainage, and had abandoned them as useless. Scientific surgery showed their real value, and although the present methods will undoubtedly undergo modification, these two great principles must remain as essential features of every mode of treating wounds. It is to the scientific mode of treating wounds that we owe all the marvellous progress of surgery during the last sixteen years. This progress is not to be judged of by the number of new operations that have been introduced into practical surgery, nor by the heroic nature of some of those recently performed, but rather by the improved results of the common operations, and the greater success that attends the treatment of common injuries.

The study of the unhealthy processes in wounds is still advancing in the hands of Koch and others, but there still remains much to be done. Unfortunately in this country the means of carrying on such investigations are surrounded by so many legal difficulties that we are obliged to trust chiefly to foreigners for new matter, but we can take our share in applying the discoveries of foreign pathologists to the practical treatment of diseases, and to prepare us for this a proper scientific training is a necessity.

That a scientific education tends to make the student unpractical is another argument sometimes used. It is but a poor compliment to our profession to assert that those practice it best who know least about the nature of the diseases they undertake to cure. The complaint as to the want of practical knowledge in the students educated on the modern system comes chiefly from the general practitioner, who asserts that the present student fresh from his college and hospital is of but little use to him as an assistant. If called upon to dispense he is ignorant of how to make his mixtures pleasing to the eye and palate, his pills are too big, his plasters too thick, and the parcels he makes up are badly folded and inelegant, and his knowledge of book-keeping is even more limited than his acquaintance with pharmacy. When a patient has nothing the matter with him he tells him so in so blunt a manner that he immediately seeks out another medical man, who will be a little more sympathetic with regard to his supposed sufferings. He looks upon every patient too much as a case, and fails in all those legitimate arts which are necessary to win the confidence of that most selfish and unreasoning of beings. A still more serious failing often shown by the modern student is, an ignorance of the various infectious diseases which are not admitted into general hospitals. There is no doubt, therefore, that the general practitioner has just cause to complain when asked to give a hundred a year to a man who, however well trained in medical and scientific knowledge, is totally ignorant of the business element which necessarily forms a part of our profession. He finds that he has to pay a man for learning from him that which in the days of apprenticeship he was handsomely paid for teaching. The only remedy for this seems to me to be in the hands of the general practitioner himself. He should refuse to give more than board and lodging to any man who has not had six months' experience of actual practice. Six months of such experience would be quite sufficient, and at the end of that time, I have

little doubt, the modern student would practice his profession none the worse for possessing a better knowledge of the principles which guide his treatment.

One advantage of a proper scientific training, to which I have not yet alluded, is that it tends to fit every medical man to take his part in advancing medical knowledge, should he feel the inspiration to do so. The general practitioner is placed in circumstances which enable him to observe certain points in clinical medicine and surgery much better than the consulting physician or surgeon. He sees most of his cases from beginning to end; he can observe those preliminary symptoms which indicate the approach of grave disease; and he has the opportunity of verifying his own conclusions and those of such consulting physicians or surgeons as the patient may have seen. He has unusual opportunities of studying the influence of heredity, of occupation, and of locality on disease, so that, should he feel inclined, he has no lack of opportunity of prosecuting original investigations. A proper scientific training will teach him the method of conducting such investigations, the precautions necessary to avoid error and the utter worthlessness of opinions formed merely as the result of experience, and unsupported by accurately recorded observations. Such original research would be of all the more value, as it would, in most cases, be spontaneous, and undertaken purely from the love of the work, and not, as is so much that is done in the present day, merely with the view to say or do something new in order to obtain promotion either in a hospital or medical school.

Supposing it then to be granted that the best training for every student should include a preliminary education in science, how could such a scheme be carried out? In the first place, it is absolutely necessary that the examinations should correspond to the course of study. Taking sixteen as the age at which a boy could pass his preliminary examination in general education, he could then immediately turn his attention to science. There is no reason why this should not be done before leaving school. At Epsom Royal Medical College students are now prepared for the preliminary scientific examination of the University of London, and there ought to be no difficulty in preparing for a similar examination of a lower standard at any good school. If there were a demand for such education the supply would soon be abundant, and after passing the entrance examination the boy could, if necessary, be moved to some school where the required instruction was given; or, if his parents preferred it, he might at once enter at a college, and enjoy the advantages such institutions naturally possess. The examination in science might take place at seventeen. The subjects of the examination would be chemistry and natural philosophy, and either botany or zoology, or both. After passing this the student could commence regular medical study with a much better chance of making good progress from the very beginning. At the end of the second year, and at the age of nineteen, would follow the examination in anatomy, physiology, and materia medica, and perhaps in applied chemistry, and the remaining subjects at the end of the fourth year of study, when the student had reached the age of twenty-one. Part of his last year of study might doubtless with advantage be spent in receiving instruction from a general practitioner.

There seems nothing impracticable in such a scheme as this, but in order to carry it out it is absolutely necessary that the present disjointed system of examination so often followed, in which some subjects are passed before one examining

board, and others before another, should be in some way made impossible. The conjoint scheme does not seem, however, to be as yet within the range of practical politics. The report of the Royal Commission which has just been sitting seems, in the absence of compulsion, to leave us much where we were before. In fact, the idea of a harmonious conjunction between bodies so different in tradition and in character as the University of Oxford and the Society of Apothecaries is, perhaps, somewhat Utopian. It is not, however, necessary for the whole seven licensing bodies of England to conjoin to produce the desired result, so far as the student is concerned. The universities have already expressed a willingness, and are, in fact, empowered to cease giving their graduates a legal right to practice. That they should thus be ready to give up one of their most ancient privileges makes it more to be regretted that they were not equally willing to renounce any direct part in the appointment of examiners, and in the management of the proposed conjoint examination. If the universities retired we should have left, as far as England is concerned, only the three corporations; and it at first seems rather surprising that these three bodies find it so difficult to sink their differences, and unite for the purposes of examination. This surprise will, however, be somewhat lessened if we look back at their history; and it may not be uninteresting to you if, in conclusion, I try, as shortly as possible, to trace how these three bodies have arisen, where we only want one, as I think a review of their history may tend to suggest a remedy for the evil.

In the early part of the reign of Henry VIII. the medical profession consisted of physicians who had received licenses to practice both medicine and surgery, either from the bishop of the diocese or from the Universities of Oxford and Cambridge, but who were not united into any corporate body, and of "two several and distinct companies of surgeons, one called the Barbers of London and the other the Surgeons of London," the former having been incorporated as far back as the year 1461. Outside the profession were the apothecaries who kept drug shops. These were under the control of the Grocers' Company, and had no legal right to practice medicine. In 1518 Henry VIII. granted letters patent, constituting the College of Physicians. From its very foundation it was a body of great dignity and power. The Physicians held a social position much higher than the surgeons. Most of them had received an academic education, and were possessed of some degree of culture. The surgeons were as often as not rude uncultured men, their professional education consisted entirely of an apprenticeship to some freeman of the company of barbers or surgeons. About twelve years after the foundation of the College of Physicians, the two companies of the barbers and surgeons were joined into one; yet curiously enough, any single member of the company was forbidden to practice both the mysteries of barbering and surgery at the same time, unless he was the domestic servant of some great man. This was to prevent their spreading disease, by opening foul abscesses and shaving with the same instruments. The surgeons were kept closely confined to the mechanical part of their art, and if they ventured to order a dose of medicine, they were fined and imprisoned without mercy by the President of the College of Physicians.

For a short time they had, however, the satisfaction of tormenting the apothecaries in their turn, if they ventured to undertake the care of surgical cases. But this happy time for the surgeons was of short duration, for three years after the two companies were joined, an Act was passed, in the

preamble of which they were accused of "vexing divers honest persons, as well men as women, whom God had endued with the knowledge of the nature of herbs, roots and waters;" of "extorting money from the diseased," and of "having so small cunning, that by reason thereof, they did sometimes impair and hurt their patients rather than do them good." Wherefore, it was enacted, that practically anyone might practice surgery who thought he had a gift in that direction.

For a long time after this, the physicians had the pleasure of tyrannizing over both the surgeons and the apothecaries. The apothecaries had the advantage of the assistance of the powerful Company of Grocers, of which they formed a part, until the reign of James I. Then for the first time they were incorporated, but it was not till a few years later, in 1616, that they were definitely separated from the grocers and established as an independent company, under the name of the Society of Apothecaries of London. They were not, however, free from the College of Physicians. Either the President, or some physician delegated by him took part in the examination which had to be passed before an apprentice could be made free of the company, and the duty of inspecting and destroying adulterated drugs, which was transferred to them from the grocers, was carried out in conjunction with, and at the command of, the physicians. The apothecaries were the pharmaceutical chemists of that time, and, like the chemists of the present day, seem to have taken every opportunity of prescribing as well as of dispensing medicines. At first the College of Physicians resented this, and summoned many apothecaries before them, and fined some and "excommunicated," or, as we should say in the present day, "boycotted" others. Still the practice grew, and at last the apothecaries claimed the right of prescribing as well as dispensing. The struggle between them and the physicians was long and bitter, and it was not finally settled till a judgment was given in their favor in the House of Lords in 1708. During this time the surgeons and barbers remained united, and it was not till 1745 that they finally parted company, the surgeons establishing themselves independently in Surgeons' Hall, as the Corporation of Surgeons of London.

In 1748 the apothecaries obtained an Act of Parliament which confirmed their power of prescribing medicines, gave them additional powers of examining, and made it illegal for any man to dispense medicine within seven miles of London without their license. It now became common for medical men to hold both the licenses of the apothecaries and surgeons, and thus arose the so-called surgeon-apothecary, and in his hands was the greater part of the practice of the country. After they were beaten by the apothecaries the power of the physicians rapidly declined, and they seem to have retired into a state of sulky and offended dignity, and not to have taken the part they might have done in controlling the education of the lower grades of the profession. At the end of the last century the Surgeons' Corporation seems to have died a natural death, and now was lost the great opportunity of uniting the physicians and surgeons, which will probably never return. The College of Physicians has always maintained that surgery is only a branch of medicine, and that their license entitles its holder to practice both; and it is much to be regretted that they did not act upon this assumption. At the time when surgery was practiced chiefly by illiterate men, who also undertook the trade of "barbery," any union between the ignorant barber-surgeon and the cultivated physician was out of the question. But in 1800 things had changed, and the physicians need

not have felt it beneath their dignity to welcome within their body a class of men amongst whom had but recently been Percival Pott, Cheselden, Sharp, and John Hunter. Yet although many surgeons also recognized the inseparability of medicine and surgery, the idea of uniting the physicians and surgeons seems never to have been entertained, and the College of Surgeons in its present form was founded. Possibly if this desirable union had taken place, the encroachments of the Society of Apothecaries might have been withstood. As it was the surgeons became rather the allies of the apothecaries, and upon the surgeon-apothecaries fell the task of raising the lower grades of the profession to a higher and more dignified position. Under their influence was passed the Act of 1815, which gave the apothecaries further powers of examining, and extended their jurisdiction to the whole of England and Wales. This Act was evidently intended to perpetuate a lower grade of the profession, who should combine the trade of the druggist with the practice of medicine. That this was so is shown by the fact that the apothecary was bound under heavy penalties to prepare prescriptions ordered by a physician. It was also intended that the chemist and druggist, who was now arising as an independent tradesman, should not be allowed to prescribe. The apothecaries were not, however, content with this inferior position, their ambition being to grant a license on equal terms with the College of Physicians. They consequently limited their apprenticeship to five years, and made attendance at a medical school compulsory; and it cannot be denied that at this time they did more to raise the general standard of knowledge in the medical profession than any other body. While doing this, however, they neglected their proper business, and allowed their influence in the drug trade to slip from their hands till, in 1841, a separate society—the Pharmaceutical Society of Great Britain—was established, which relieved them from their last duties in connection with that trade. Finally, the Act of 1858 practically made the licenses of the two Colleges and the Apothecaries' Society equal. At the same time some of the evils that it was intended in 1815 to correct have reappeared in an aggravated form. By the destruction of the old apothecaries, who sold their drugs and gave their advice for nothing, the field has been left open to the chemist and druggists, who now probably do about as much practice as the legitimately qualified medical men. The apothecaries are thus as it were "hoist with their own petard." They have raised the general practitioner till the College of Physicians has at last condescended to take notice of him, and arrange a suitable examination for his benefit. They have lost every trace of influence in the drug trade, and their license confers no special privilege on its holder; and it need not be said that few would not prefer the letters L.R.C.P. after their names to L.S.A. Consequently, all reason for their continued existence has disappeared. It is useless to plead as an extenuating circumstance, that they did good work in raising the general practitioner sixty years ago. They have forgotten that it is said "Be not weary in well-doing," for they seem soon to have wearied, and practically for the last quarter of a century they have done less to improve medical education than any other body in this division of the kingdom, the University of Oxford perhaps excepted. But it is not likely that they will retire from the false position into which they have thrust themselves; it could hardly be expected from human nature. To call in the aid of the State would be a great calamity for the medical profession, which has so far managed its own affairs. There is, however, another alternative and that is,

the union of the two colleges for the purpose of examination. The College of Surgeons now holds a position of nearly equal, if not equal dignity, with the College of Physicians. To this it has arrived by the improvement of the science and art of surgery, which it represents. It has, perhaps, done its duty better than either of the other corporations. It has never allowed the control over surgical education, from the highest to the lowest grade, to slip from its grasp, nor has it until quite recently undertaken any duties properly belonging to another body. The union for the purpose of examination of such a body with the physicians ought to present no difficulties, and if it were effected the Apothecaries' Society would probably before long die a natural death. No further conjoint scheme would be wanted for England. At present something is urgently required; not so much to protect the public from ignorant practitioners, for that I believe is sufficiently done by all the examining boards, but for the protection of the student from the present irregular, unscientific course of education which he is so often allowed to follow.

Introductory Address

DELIVERED AT

ST. THOMAS'S HOSPITAL,

On the Opening of the Winter Session, October 2nd, 1882.

By SEYMOUR J. SHARKEY, M.A., M.B. Oxon.,

Assistant-Physician, Joint Lecturer on Pathology, and Demonstrator of Morbid Anatomy at the Hospital.

(Concluded from page 418, Dec., 1882.)

Of course it remains a question of degree whether improvements in the treatment of diseases have kept pace with the increase in our knowledge of them. But that great improvements have been made admits of no doubt. One of the most important outcomes, however, of our advances in physiology and pathology and the natural history of disease is that we have recognized the following facts: that many affections are incurable, that they depend upon certain definite causes, and that these causes are often avoidable. Hence the importance of what is now termed "preventive medicine." In our treatment of chronic diseases we place our patients, as far as we can, in conditions which arrest the progress of the morbid changes which are going on in their organs. But why not prevent these changes altogether? This must evidently be our aim both now and in the future; though it is very questionable whether people will ever have the wisdom to submit to restrictions and rules of life in order to avoid miseries which they have never tasted.

There remains yet another department of therapeutics, to which the profession may point with feelings of legitimate satisfaction, and that is the application of surgical methods to cases upon which the administration of drugs or any other treatment whatsoever can necessarily have but little effect. The diseases referred to are abscesses in some of the large parenchymatous organs, collection of pus in serous cavities, the various forms of acute and chronic intestinal obstructions, the partial or complete removal of diseased organs, etc. The possibility of treating such affections depends of course upon our ability to diagnose, or at least suspect, their presence. And it is the increasing power which the progress of our science in various directions has given us of

localizing disease which has made these surgical procedures in any degree feasible. But the most important factor of all in these modern improvements has been the introduction of antiseptic surgery. Whatever may be the true *rationale* of Lister's method, whether the details he recommends need to be carried out in their entirety or not, or whatever may be the opinion of individuals regarding it, every unbiased man must confess that it has produced a revolution in that department of surgery which was formerly the field of the most unsatisfactory and fatal operations. The comparative impunity with which antiseptic surgery allows us to manipulate the peritoneum and other delicate and sensitive structures has not only resulted in the successful treatment of many patients, who would formerly have perished under the same ordeals, but it has likewise emboldened the surgeon to attempt operations which he would not have dared to do before, and even to make explorations in cases where life is threatened by obscure conditions.

To sum up, then, what can be said for the principles of modern treatment? We have thrown down the idol of universal specifics, which men had hewn out of false conceptions of disease. We have set up in its place rational scientific treatment, founded upon the knowledge of physiological processes in health and in disease; and we aim, as far as drugs are concerned, at the discovery by observation and experiment of the physiological action of substances which can then be used with greater precision in therapeutics. And although this rational pharmacology is still in its infancy, we already possess some drugs the action of which we fairly well understand. We have a few remedies which appear to have just claims to the title of specifics, and we still harbor a probably legitimate hope of discovering others, which may be effectual in certain diseases before they have produced serious organic lesions. Great strides have been made in medical surgery, and we seem likely to advance still further in this direction. But our grandest aspirations lie in the path of preventive medicine, a department which should not only embrace attempts to exterminate some diseases, and to diminish the number of persons who fall victims to others; but must likewise include efforts to prevent the extension of morbid processes which have already begun in the organs of our patients, by regulating their lives in accordance with the teachings of physiology.

It will now be evident to you, gentlemen, that if the general view I have put before you of the principles of modern medicine be correct, there is an interdependence between all the subjects which are embraced in the medical curriculum, such as did not exist in former times. Clinical medicine has to be studied in the light of pathology, pathology in the light of normal anatomy and physiology, and the latter in the light of chemistry and physics. Nor must it be forgotten that what has really given medicine a claim to be placed among the sciences is the recognition of physiology as its basis, and what has given physiology itself precision is the experimental method of investigation. We do not for a moment assert that without vivisection there would be no physiology; but the irreconcilable opponents of the former cannot even be convinced of the great advantages which have resulted to physiology and to medicine alike from the practice of experimenting upon living animals. The fault, however, lies with the anti-vivisectionists, and not with us. For the foundation of medicine is physiology, and one of the essential factors in accurate scientific physiology is experiment. To appreciate these propositions one must first realize the facts and history

of physiology and of medicine. But this cannot be done, though some insist that it can, by people who have little or no knowledge of these sciences. The answer to those who would suppress vivisection altogether lies not in quoting individual useful applications to medicine of facts which have been discovered entirely by vivisection, but in pointing to the comparative precision which pervades the whole of modern physiology, and which is gradually being introduced into practical medicine, a precision which we owe to experimental methods of research.

True scientific principles are as old as Hippocrates, but the field of observation has been widely extended. With all our increase in scientific knowledge, however, it is no easier, probably harder than ever, to become a good practitioner. A man might know everything and yet be a very bad doctor. Now, as of old, no amount of book-learning will make up for deficient dexterity in the examination of patients, or for the want of clinical experience. All methods of investigation must be carefully learnt and skilfully applied. Stores of knowledge must be at command, and the reasoning powers must be called into play to a degree probably not surpassed in any other profession. The best means of ascertaining what is really the scientific method of medical practice is to watch the work of a good physician by the bedside. A few years ago this school had to mourn the loss of one of its brightest luminaries, Charles Murchison, an eminent scientific physician and consummate teacher. His wide and varied knowledge of anatomy, physiology, and pathology, which he applied with such ability by the bedside, his splendid powers of observation, his keen logical acumen, his clear and easy exposition, and his contagious enthusiasm, formed a whole the charm of which has rarely been equalled, and can never be forgotten by his pupils. Nor can we mention Dr. Murchison without being reminded of another loss which we have this year sustained in Dr. Peacock, long a member of our staff, whose methodical and accurate observations have placed him among the highest authorities in more than one obscure region of pathology, and whose lively interest in medicine was shown by the eagerness with which he clung to the duties of his profession up to the last moments of his life.

But it may be asked, Have the modern methods been productive of good unalloyed? Are there no evil tendencies to be striven against? The increasing power of localizing disease, with which we have just reason to be satisfied, frequently leads practitioners to look upon the body as a number of separate organs, each of which has its own peculiar affections and its own proper methods of treatment. The grand object often seems to be to diagnose the disease, and then to prescribe drugs said to be beneficial in it. But if physiology has taught us one thing more certainly than another, it is the intimate union of the individual parts of the body to form a concrete whole. One organ cannot be deranged without altering the conditions which surround the others, and interfering with the healthy composition of the blood and with the normal course of nutrition. Moreover, some organs are united by even closer bonds, in the form of nerve communications; or they have some similarity of function, which enables them to a certain extent to act vicariously for each other. Consider the innumerable derangements of health referable to almost every part of the body, which may result from the physiological cessation of the functions of the uterus and ovaries at the climacteric. In this instance energetic factors in the production of the vital equilibrium suddenly cease to exert their influence. The patient has lived

long enough to have alterations of an abnormal kind produced in some of her tissues. These, if they are not fanned into a blaze by changes which then take place in their nutrition, are at least productive of functional disturbances within the area which they occupy. This is a typical instance of a condition which affects not one organ only, but the whole vital equilibrium, and the re-formation of the latter on an altered basis sometimes takes years to effect, sometimes is the source of never-ending ill-health. In any case a rational and effectual treatment must rest, not on a consideration of the state of one organ alone, but of all the physiological processes which take place within the body. Nor is this an isolated example. A very large proportion of local diseases produce widespread effects on the organism in general, and cannot be rationally treated by confining our attention to the part which is most conspicuously at fault.

Another offspring of modern medical thought is the tendency to scepticism—a tendency which we must not sweepingly condemn. It has arisen mainly with regard to the treatment of disease by drugs, and is the natural result of increasing knowledge. When a medical man studies disease from our present point of view, and is brought face to face with the wreck which it makes of the most vital structures, he must indeed be illogical if he does not rapidly cease to believe in the efficacy of any drugs whatsoever, either to repair the damage done, or to act as a substitute for the diseased organ in the economy. This scepticism regarding the possibility of finding specific cures for diseases in general is a most laudable trait, and shows an appreciation of the principles of modern therapeutics which is likely to lead to a far more effectual treatment of the patient than any blindly empirical administration of remedies.

But, gentlemen, you must not misunderstand me, and suppose that I have less confidence than I really have in our Pharmacopœia. I believe it to be composed of—first, a small number of very useful drugs, the physiological action of which is known, and the application of which to diseased conditions is of incalculable value; secondly, it contains a considerable number of remedies, the efficacy of which has been proved in many abnormal conditions, though the *rationale* of their action is still unknown; and, lastly, it contains a host of articles which some people assert to be useful for one thing, some for another, but about which very little of any value is known. Now the sceptic, who seems to me to be culpable and unscientific, is not he who has no belief in, and consequently discards, the motley collection of substances contained in the third category, but he who declines to use any drugs except those of the first, the physiological action of which is well understood, and for the administration of which he can see a *rationale*. Such a one will not use those medicines, the properties of which have been ascertained by a long series of observations, while their mode of action is obscure. This is an illegitimate and reprehensible scepticism. For although it must be the aim and glory of medical science to add constantly to those drugs the physiological action of which is known and the application of which to disease is so much the more certain; still the medical art must always remain one of observation and experience, and it is rational and scientific to act upon the results of these, though we may have long to wait for an explanation of what occurs.

It has often been remarked that the best physicians use few drugs, and, compared with the whole contents of the Pharmacopœia, the rational scientific sceptic will have only a small number of remedies which he cares to prescribe; but making

himself by constant observation more familiar with their action, and with the conditions to which they are applicable, he will use them rather as arms of precision, and his treatment will be to the point and effectual; while what may be called the "mitrail-lense" system of the less sceptical practitioners of former days relied rather upon the number of substances which were mixed together in the hope that some might hit the mark.

In the short account which I have presented to you of what appear to me to be some of the leading principles of thought in the medicine of to-day, I have implied that we are entitled to feel a certain degree of satisfaction in the progress which has been made. But let us remember that what we now know, and what we can accomplish by our art, is but a very small fraction of that which will one day be achieved by our successors. Let us make a modest estimate of the present state of science, and not give anyone in future times the opportunity of quoting boastful utterances of ours, as I am now about to quote a surgeon who flourished some three centuries ago. Ambrose Paré wrote thus—"God is my witness and all good men know that I have now labored fifty years with all care and pains in the illustration and amplification of my art, and that I have so certainly touched the mark whereat I aimed, that antiquity may seem to have nothing wherein it may exceed us beside the glory of invention, nor posterity anything left but a certain small hope to add some things, as it is easy to add to former inventions." Let that be a warning to anyone of us who is inclined to exult in the present state of science, which may have made more progress at the end of the next three centuries than it has since the time of Ambrose Paré.

In days gone by many a sect, many a system of medicine has flourished and decayed, and whatever truth existed among their errors has been built into the scientific fabric of to-day. Homœopathy alone remains. But even homœopathy has discarded many of the absurdities of its founder, Hahnemann. It professes to accept and be guided by the data of modern science, and to differ from us only in the treatment of disease. It seems to me, too, that many professed homœopaths have practically retired even from this position, and have faith no longer in "dynamization" and infinitesimal doses, but hold merely to the theory "*Similia similibus curantur*." This dictum is a distortion of a truth, and should express nothing more than this—that if we give drugs in large poisonous doses, we ascertain by the symptoms produced the organs on which they act, and we then administer them in smaller quantities when we wish to elicit their physiological action in cases of disease. The truth which is really involved in "*similia similibus curantur*" is nothing more than the elective affinity of certain drugs for certain organs, and the fact that if given in poisonous doses they derange the action of these organs. But this is not a method of experimental pharmacology which is characteristic of homœopathy, but one which has long been used in ordinary common sense medicine. Those homœopaths who differ from us in little more than this theoretical question, as to why certain drugs are indicated in certain diseases, have no right to place themselves under the banner of another sect, thereby deceiving the public, who are led to believe that their imposing name implies a *bonâ-fide* difference in practice. But the rest of the homœopaths, if there really be a remnant, who can plead that they honestly believe in infinitesimal doses, in the dynamization of drugs by trituration and dilution, and in other palpable absurdities, may practice upon a deluded section of the public, but cannot possibly be received as the colleagues of

reasonable men. No, gentlemen, the day has long gone by when systems of medicine were admissible. There is but one system—the scientific,—which rests upon observation and experiment, and upon the application of science in general as a guide to the knowledge and treatment of disease. Therefore avoid being led astray by the seductive theories of any sect whatever. Be neither homœopaths, nor allopaths, nor antipaths, nor any other "paths," but scientific medical men. And if you really are such, you will secure one of the greatest sources of happiness through life, one of the greatest consolations in its many uncertainties—an enthusiasm for your profession. And having that, you cannot fail to feel also a love and enthusiasm for the school where you first became imbued with the principles of scientific medicine.

ABSTRACT OF A

Clinical Lecture

ON

HÆMORRHAGE INTO THE CAVITY OF THE ARACHNOID:

ITS SURGICAL AND MEDICO-LEGAL ASPECTS.

Delivered at the Middlesex Hospital, on Jan. 17th. 1882.

By HENRY MORRIS, M.A., F.R.C.S.,

Surgeon to, and Lecturer on Surgery at, the Hospital.

THE subject of hæmorrhage into the inter-arachnoid space has been one of the battle-fields of pathologists. The source of the blood is generally difficult to trace. It has been thought at one time to proceed from one of the vessels of the dura mater, at another from the pia mater; or, again, from one of the small veins which cross between the brain and the large venous sinuses of the dura mater. Probably it rarely comes from a vessel of the dura mater, because blood from such a source, whether the skull be fractured or not, is far more likely to separate the dura mater from the bone and escape into the space between. When the brain is lacerated and the visceral arachnoid torn, the blood found in the inter-arachnoid space is pretty sure to have come from the pia mater. Such cases are comparatively common. But if there be no fracture of the skull, no injury to the dura mater, no tear in the visceral arachnoid, and no bruising or laceration of the brain, it is impossible to say whence the effused blood is derived.

Then as to the state of the effused blood. It may be liquid or solid. If solid, it may be coagulated in clots, or in a thin membranous layer covering more or less of the convexity of the cerebrum. If in the form of a membrane, it may become a bond of union between the visceral and parietal arachnoid; or it may be adherent to the arachnoid covering the dura mater, but free on its under surface; or it may be quite non-adherent on both its aspects. In either the fluid or the solid state, if it retain all or nearly all the natural color of the blood, and if it have none of the characters of false membrane or of a cyst, there is no room to doubt as to its nature. But when in the inter-arachnoid space there have been found layers looking like false membrane with more or less altered blood in them; or when these layers have consisted of yellowish fibrine only, with or without effusions of recent blood, in the form of small cysts, between them; or, again, when, as in some extravasations of old date, the mass has assumed the appearance of a single complete cyst containing blood, and has

perhaps fallen out entire from its position—much questioning has arisen. In all such cases, the question has been whether the cyst-like membrane has been formed from the extravasated blood itself; whether the blood causes the false membrane by inflammation, and thus an exudation of lymph surrounds the extravasation; or whether a vascular false membrane yields the blood by bleeding.¹

The blood may become so firmly attached to the arachnoid surface of the dura mater as to appear like a thickening of that membrane. Or it may be so closely fixed to it by a smooth and glistening serous-like covering as to look as if the blood were effused between the dura mater and the parietal arachnoid; but such can be proved not to be the case by peeling off this false membrane, and thus exposing the parietal arachnoid, roughened and discolored it may be, but still adherent to the dura mater.

Ample evidence has been produced by the French pathologists, and by Sir George Burrows, Mr. Prescott Hewitt, and Dr. Wilks in this country, that all these various appearances result from extravasation of blood between the layers of the arachnoid.

But besides their great interest to the pathologist, these interarachnoid effusions are of much importance to the practical surgeon. They have been met with after blows and falls upon the head, sometimes associated with fracture of the skull, sometimes with brain bruising, sometimes with both, at other times with neither. They give rise to no symptoms which are pathognomonic, or which even suggest, with any definiteness, their presence. The symptoms, as coma and paralysis, which they excite, may be delayed for an indefinite period, and are liable to intermissions dependent upon recurrence of hæmorrhage, or in old cases upon the more or less rapid absorption and effusion of the cyst fluid. Even when immediate symptoms of compression occur, neither the nature of the accident nor the character of the injury to the head affords any clue whatever to the exact locality of the blood. Nor does the apparent slowness of the hurt, or the entire absence of symptoms, exclude the probability of meningeal apoplexy; neither is there any evidence to show that the evil consequences of these extravasations are hastened or delayed by the observance or otherwise of absolute rest, regulated diet, and medicinal treatment, after the accident which has caused the hæmorrhage. This is much to be regretted; for although in many cases surgical interference would be useless, yet in others could we with certainty tell the exact situation of the effused blood, the well-timed employment of the trephine might make all the difference between restoring the patient to health on the one hand, and of early death from compression, or prolonged years of constant headache, impaired senses, altered disposition, epilepsy, and even insanity, on the other.

To the surgeon, moreover, these inter-arachnoid effusions have a very important medico-legal bearing, for he may be called upon to express an opinion as to whether the hæmorrhage is the result of violence or not; and the life of an accused person may largely depend upon the surgical evidence. Now, as it is with regard to the source of the hæmorrhage and the condition of the extravasated blood, so it is with regard to the cause of the hæmorrhage. There are cases in which there is scarcely room for doubt, but there are others in which opposite opinions might plausibly be advanced. Extravasations of blood in the arachnoid occur from injury, but, as Mr. Prescott Hewitt has

said, they "are generally met with in cases where there has been a decided determination of blood to the head by whatsoever cause produced. I have met with them in cases where there has been great anxiety of mind, in poisoning of opium, in drunkards, in delirium accompanying phthisis, in maniacal patients, and in aged people, in whom I think these effusions depend oftentimes upon the atheromatous deposit in the arteries of the brain and its membranes."²

In the Guy's Hospital Reports for 1859³ Dr. Wilks has reported in abstract eight cases of sanguineous meningeal effusion (apoplexy), in some of which the extravasation into the arachnoid cavity was certainly spontaneous, the result of Bright's disease or anæmia, in others as certainly due to a blow; whilst in others the cause was dubious, because, though violence had preceded death, there was such a diseased condition as might of itself have given rise to the hæmorrhage.

In dubious cases two questions may be raised in defence of a person accused of murdering the subject of an inter-arachnoid hæmorrhage. 1st. Was not the hæmorrhage the result of a diseased state of the blood or tissues of the deceased, or of over-excitement? 2nd. If disease or excitement was not the immediate cause of the hæmorrhage, was it not a strong predisposing cause, and would the same amount of violence have excited fatal hæmorrhage in a perfectly healthy person?

No question of the sort arose in the case I now am going to relate, because the scalp wound was caused by a fall, but had it resulted from a blow or from something thrown at the deceased, with intent to injure him, one or both of these questions would have been put to the surgeon. And like so many other questions, it would have been much easier to put than to safely answer them.

CASE 1. *Scalp Wound, Delirium Tremens, Extravasation of Blood into the Arachnoid Cavity; Death.*—James J—, aged thirty-one, was admitted into Brodrip Ward on the 14th of December, 1881. He had been spending a fortnight in dissipation at Brighton, during which he was more or less drunk (generally more) every day. On the morning of December 14th he arrived in London, staggered along Oxford-street to Regent's-circus, where he fell heavily, striking the back of his head against the kerb. He was picked up in a half-conscious state, taken to the police-station, and subsequently brought to the Middlesex Hospital. On admission, he was in a very muddled state of mind, and smelt strongly of drink. There was a small scalp wound, slightly to the left of the occipital protuberance; it did not extend to the periosteum. His pupils were regular and acting; his respiration and pulse natural; there was no symptom of any fracture of the skull. The stupidity of manner which was attributed to alcohol passed off after several hours, and for the next three days he lay quietly, perhaps drowsily, in bed. All this time he remained quite sensible, answered questions readily and intelligently, though in rather a subdued voice, and gave a very clear, though a most discreditable account of his recent proceedings. He looked pale, took very little of the milk and beef-tea diet to which he was limited, and complained of frontal headache and double vision. On the morning of December 17th, he was sick, complained of having passed a very restless night, and appeared to be on the verge of delirium tremens. Later on the same day the symptoms of delirium tremens became marked, and he was removed to the delirium ward. The urine voided this day was examined, and found free of albu-

¹ Vide Prescott Hewitt, Med. Chir. Trans., vol. xxviii., p. 67; and Wilks and Moxon, Pathological Anatomy, p. 197.

² Prescott Hewitt, Med. Chir. Trans., vol. xxviii., pp. 80, 81.

³ Series III., vol. v., pp. 120, et. seq.

men. He was treated as all cases of delirium tremens under me are—viz., no opium was given, no undue or irritating restraint allowed, but enemata of two ounces and a half of strong beef-tea, with half an egg, were to be administered every three or four hours if he refused to take sufficient by the mouth. For fifty-eight hours he continued delirious, talking a good deal and having illusions. His other symptoms were subsultus tendinum, small and very compressible pulse, a moist, furred tongue, and clammy skin. He was very tractable, and neither violent or noisy. At the end of fifty-eight hours he slept soundly and for a long time. On the morning of December 22nd he was brought back into the general ward, and seemed quite well, though weak. So he continued, and on Christmas-day he went to the church service; but he complained of feeling rather drowsy, and of having pain in the back, for which a liniment was ordered by the house-surgeon. During the night the nurse noticed how restless he was. After a time, however, he fell asleep, and in the morning (Dec. 26th) it was impossible to wake him, and he was found to have passed his urine in the bed. At 10 a.m., when seen by the house-surgeon, he was lying in a comatose state, with unequal pupils, the right being widely dilated and the left very much contracted, neither pupil responded to light, and the conjunctivæ were insensible. The pulse was 100, very small and jerky. The skin was acting freely. There was slight twitching of both upper limbs; but it was very slight, and if more marked on one side than the other it was on the left. There was neither hemiplegia, paraplegia, nor facial palsy. At 1.30 p.m. he was in the same condition; the urine had all been passed into the bed, but two ounces of highly colored urine were drawn off by the catheter, and was found to be nearly solid on boiling. The pulse was 100, and very small; temperature 101° 6'. There was no œdema around the scalp wound, but a little purulent discharge from it. Firm pressure around the wound produced no symptom. At 7 p.m. one-eighth of a grain of pilocarpin was given by hypodermic injection, and in less than half an hour the patient was perspiring profusely. At 8.30 p.m. five grains of calomel were given in butter placed at the back of the tongue. He sweated freely all night, and the bowels acted several times, and abundantly. On the following morning (Dec. 17th) he was better; he answered when spoken to, and he could swallow beef-tea and milk. The pupils were unequal, as before, but the conjunctivæ were sensitive; there were less stertor, but otherwise the respiration and the pulse were the same. The temperature kept above 100° F. The urine was still very highly charged with albumen. The hot-air bath was employed at 1 p.m., and at 2.30 p.m. half a drachm of compound jalap powder was taken by the mouth. During the following day (Dec. 28th) and the early part of the day after (Dec. 29th) his general condition was about the same, but the quantity of albumen had diminished, and was now about half. Later on the breathing became more stertorous again; he could neither speak nor swallow, the pupils were still inactive and unequal, the right being dilated and the left contracted. At 9 p.m. the temperature shot up to 104° 2° F., and at 3.10 a.m. the following day (Dec. 30th) he died.

Autopsy.—The post-mortem examination was made by Dr. Fowler twelve hours after death. The following is an abstract of his report:—The body was well nourished. There was considerable post-mortem congestion. To the left side of the occipital protuberance there was a wound dividing the integuments, but not laying bare the bone. The wound was oblique in direction, one and three-

quarters of inch in length, and slightly irregular. The tissues around the wound were infiltrated with a little blood for about an inch in each direction. The tissue of the ventricles of the heart was pale but firm, but there was a considerable quantity of subpericardial fat. The mitral valve was thickened and fibrous at the edges, but competent. The aortic valves were competent; there were some spots of atheroma just above the attachment of the valves. The lungs were emphysematous, and there was a good deal of hypostatic congestion. The liver was moderately congested, and spleen was normal. The kidneys were large, and the capsules in places adherent; beyond swelling of the cortex, possibly from slight infiltration, there was no evidence of disease. The ureters were normal and the bladder healthy. On removing the calvaria, which was thick and very dense, no fracture could be found, nor was there any fracture of the base. The right half of the dura mater covering the convexity of the brain appeared somewhat distended. On reflecting this half of the dura mater blood-clot was found spread out beneath it. The clot was most abundant over the frontal bone and in the anterior fossa, but there was also a considerable quantity beneath the parietal eminence and over the occipital convolutions. The ascending frontal and the parietal convolutions were depressed and flattened. The blood was of mahogany tint, the concula were soft and adherent to the under-surface of the arachnoid covering of the dura mater. The source of the hæmorrhage could not be ascertained, but probably it was from a vessel behind the upper end of the right ascending parietal convolution. The dura mater separated easily from the bone. There was a small clot on the left side, immediately beneath the wound, which had compressed the occipital convolution over an area the size of a shilling. There was a small amount of extravasation within the meshes of the pia mater over the left half of the cerebrum. The venous sinuses contained some black clots. The arteries of the base were normal. The substance of the brain appeared normal, except that the depressed convolutions were pale. The left lateral ventricle was considerably dilated, the posterior horn reached three-quarters of an inch further backwards than the right ventricle. There was no blood below the tentorium. The cerebellum was normal.

In this case the scalp wound was not accompanied by a fracture of the skull, nor by lesion of the brain substance, nor was the effusion of blood most extreme beneath the seat of the wound, or the supposed source of the bleeding on the diametrically opposite point to the scalp wound, as might be expected if caused by counter-stroke. Moreover, the man was a drunkard, and had just previously to the injury undergone a prolonged debauch, whilst a few days subsequently he had suffered from an attack of delirium tremens. Then followed two or three days of apparent convalescence. These points might have furnished a strong case in favor of the theory that the injury had nothing to do with the cause of death, and that the extravasation occurred either before the injury, as the result of the congestion of drunkenness and excitement, or after it as the immediate effect of delirium tremens. Nor would the character of the blood-clots have disproved any of these suppositions. Their color and consistence corresponded, doubtless, with the date of the injury—viz., sixteen days before death; but the changes in

⁴ Possibly in this condition we have the explanation of the contracted left pupil, the distortion of the ventricle by traction keeping up irritation of the third nerve. The dilatation of the right pupil was doubtless due to pressure by the blood-clot, which flattened the cerebral hemisphere.

effused blood vary with the locality and with many other conditions, and are neither so regular nor so accurately known as to justify anyone in asserting that the age of the clots could not have been eighteen, twenty, or even twenty-five days on the one hand, or ten or twelve days only on the other. The late Dr. Taylor exposed the fallacy and danger of relying too much on the state of the blood as a means of asserting the length of time it has been effused. Two men were tried at Derby in 1859 for manslaughter. Within fourteen days after the assault the injured man was convalescent, but in four weeks more he was dead. The prisoner's counsel asked the witness—"I can produce evidence to show that deceased fell down some steps into a cellar, upon his head, three weeks before his death. Do you not think it more likely that death was the result of this fall rather than of the beating three weeks prior to the fall?" The surgeon at once said "Certainly not; there could not have been the effusion of lymph I describe after an accident in so short a space of time as three weeks." As Dr. Taylor remarks, reasons justifying such a strong opinion were not forthcoming, and he goes on to prove by another case that there was nothing in the description of the clot in question to show that the effusion had taken place more than three weeks before death.* This and other cases quoted by Dr. Taylor warn us how unwise it is to dogmatize on this subject. But, it might be urged in opposition, there was no Bright's disease, no anemia, no disease of the vessels of the brain or its membranes, in this man; and, though there was no fracture of the skull and no bruising of the brain, there was a little blood effused beneath the seat of the scalp wound, and the most extensive effusion was in the situation where it would be looked for if caused by contre-coup. Moreover, it might be added, there was frontal headache and double vision. Such points should, of course, be allowed their proper weight, for they are of considerable significance in making up one's mind as to the more probable cause of death. But they do not dispose of the facts (1) that blood poisoned by alcohol may produce much the same effects as Bright's disease—e.g., the convulsions of renal disease, and the epileptiform convulsions of intoxication;⁶ and (2) that the prolonged toxic effects of alcohol may produce a diseased condition of the brain and its membranes such as will lead to the occurrence of epilepsy, delirium tremens, or hæmorrhage even during the periods of comparative or entire abstinence from drink.

What I have desired to point out by these remarks and by this somewhat extraordinary case is:—1. That spontaneous effusions into the cavity of the arachnoid—i.e., effusions of blood from disease or excitement—are very often not distinguishable from traumatic effusions. 2. That post-mortem examination does not always explain the cause or the source of the effusion, and that the state of the blood-clot is only a very rough test as to the age of the effusion. 3. Extravasation of blood between the dura mater and bone, as also extravasations beneath the visceral arachnoid, accompanied by brain bruising, are almost certainly traumatic, whether fracture co-exists or not. Extravasations into the substance of the brain and into the ventricles are almost certainly spontaneous when no fracture and no brain bruising co-exists, and are probably so even when fracture without bruising of the cerebral surface is found. 4. Spontaneous effusions may occur without there being any naked-eye evidence of disease of the cerebral

or meningeal vessels. 5. Spontaneous effusions into the arachnoid cavity from disease or excitement have occurred as early as the twelfth year of life, and at all ages subsequent to puberty. Inter-arachnoid hæmorrhage occurs at any age from violence. 6. In slight injuries to the head, such as small scalp wounds without fracture of the skull, or bruising of the surface of the brain, the surgeon should be extremely cautious in attributing inter-arachnoid extravasation to a blow, and more especially when, as in the above case, the injured person is of intemperate habits.

Original Papers.

CLINICAL OBSERVATIONS ON THE TREATMENT OF ENLARGED TONSILS.

By GORDON HOLMES, M.D.

1. *Excision.*—That excision is the most fitting remedy for enlarged tonsils is a proposition from which few authorities or none would now be found to dissent. The theory, however, that removal of the tonsils has some adverse effect on the generative system has gained some currency amongst practitioners. Those who practice the throat speciality will scarcely attach any importance to this hypothesis, as they have the opportunity of observing numerous cases of females who have borne large families, although the tonsils were excised in youth.

The condition of the tonsils at the time of operating is a point which deserves attention. As a rule, when the patients first present themselves, the organs are in a state of acute or subacute inflammation, which is the immediate cause of treatment being sought. Under these circumstances, some practitioners are in the habit of operating at once, whilst others wait until the tonsils have regained their ordinary condition of indolent chronic enlargement. In order to decide this question, the arguments to be drawn from clinical observation are rather in favor of delay. It is no doubt well for the patient to be relieved at the soonest from the diseased glands, and the excision, with the attendant hæmorrhage, may abridge, or render abortive an attack of quinsy. If, however, the tonsillitis is very acute, the pain of the operation may be excruciating, and it may even be difficult to open the mouth wide enough for the accurate introduction of the instruments. But the most important consideration is that after the inflammation has subsided, and a few weeks have been employed in general tonic and local astringent treatment, the tonsils may return to nearly their natural size. Of course should the history of the case indicate clearly a permanent hypertrophy, we need not hesitate to operate immediately when other circumstances are favorable. It is, indeed, by no means uncommon to see even cases of mild subacute or chronic tonsillitis, in which a considerable swelling undergoes spontaneous involution in the course of a month or two, according as the general health improves. Such instances are very likely to mislead the practitioner into the belief that a cure has been wrought by the aid of some really impotent local application. It is also interesting to observe that in a series of such attacks, where the subsequent involution is always less and less complete, we can perceive the origin of chronic tonsillar hypertrophy. And most probably there is no other way in which the disease arises, unless in those cases where the enlargement is apparently congenital.

* Taylor, A. S., Medical Jurisprudence, 1865, p. 530.

⁶ Vide Dr. Robertson's evidence in a recent trial for murder at Glasgow.

With respect to the method of operating, the tonsillotome has almost superseded the bistoury and tenaculum, owing to the ease and rapidity with which it can be used, and the little suffering it causes the patient. The rare case of a tonsillar calculus alone remains in which the tonsillotome is inapplicable. The instrument known as Physick's is preferred by some, that of Fahnstock by others, the majority; both models being of American invention. Physick's pattern has the advantage of allowing more force to be applied in fixing it firmly on the tonsil, as it is grasped by a stout handle, whilst the convex cutting-blade can also be pressed down with great power by the thumb. Fahnstock's, on the other hand, is an instrument to be employed with dexterity rather than force, as it is manipulated by the thumb and first two fingers only, each of which is accommodated with a separate ring. It is, however, a much surer instrument than Physick's, which often fails to excise the tonsil, even in the hands of the most practiced operators. This is mainly due to the aptness of the convex blade, which enters at one point only, to press the tonsil outwards, and glide over or merely lacerate its surface, even when sharpened to perfection. The tonsil is, in fact, often very gristly, and requires to be jammed very firmly against the blade in order to be cut directly through. But the lunated edge of Fahnstock's cutting ring is much less likely to swerve from the straight course, as it begins by being in contact with the whole surface to be incised, whilst the organ is steadied and drawn into the tonsillotome by the transfixing prongs.¹ As Fahnstock's instrument is therefore almost certain never to miss the tonsil, it is more under the command of the operator, so that a larger or smaller portion can be removed according to the requirements of the case; whereas in using Physick's, owing to the necessity of fixing it as deeply and firmly as possible over the tonsil, the amount to be taken must mainly be left to chance. For the practitioner who seldom has occasion to excise the tonsils, Fahnstock's is decidedly the model to be recommended. In all cases it is advisable to support the tonsil during the operation from the outside of the neck, either by the hands of an assistant or by grasping the throat in a fork formed by the left thumb and forefinger of the operator.

As regards hæmorrhage after tonsillotomy, it is usually very trifling and ceases spontaneously in a few minutes, or after gurgling with cold water. In rare cases (probably about 1 per cent.) it is troublesome and must be controlled by ice and strong styptics. Considered in this relation the tonsillotome is safer than the bistoury, as the dragging of the tenaculum displaces the parts so that the knife may inadvertently cut deeper than intended by the operator.

2. *Caustics*.—Although excision is the standard remedy, cases are constantly met with in which the patient or his relatives, if a child, steadfastly refuse to permit the performance of the operation. Frequently also it happens that the enlargement is not so pronounced as to render the excision strictly necessary. It is of great importance therefore that we should be in possession of some mild measures, which, aided by time, can effect a reduction of the tonsils. For the purpose astringents (such as strong solutions of perchloride of iron, chloride of zinc, etc.) or caustics are our only resource; but the former, however useful in promoting spontaneous resolution in cases of temporary subacute engorgement, are totally powerless in the face of a true hypertrophy. Hence the only means that can be adopted with any clear prospect of success is to

destroy small portions of the tonsils in slow succession by repeated cauterizations carried on for a lengthened period. This object is generally carried out by the application of solid nitrate of silver, chloride of zinc (in the stick), Vienna paste, London paste,² or the galvano-caustic to a limited area of the surface of the tonsil every two or three days. Of these remedies the nitrate of silver is very valuable when the superficial substance of the gland is in a softened and raw state, as it can be rubbed freely over the whole organ, usually without causing any suffering to the patient; but it is of slight avail in reducing the volume of the toughened mass of connective tissue which generally constitutes the bulk of the permanently enlarged tonsil. Nor can it be said that the stronger caustics are much more potent in this way, for they can only be used in this position so as to destroy very minute portions at a time, and hence the progress is mostly so slow and tedious that few patients will persevere until positive results have been attained. If any exception can be made to this statement, it must be in favor of the galvano-caustic³ (a small loop of wire raised to a white heat by electricity as soon as placed in contact with the surface to be cauterized), for it kills immediately the part touched and leaves a clean ulcer, which soon heals almost unfelt by the patient. On the other hand, the London paste, etc., often give rise to considerable congestion round the sloughing point, attended with aching and pain on swallowing for many hours.

There is, however, another method, very much more effective, of applying the common caustics to the tonsil, which appears to have remained hitherto unnoticed. The tonsil, as the anatomist knows, is permeated by several rather large channels around which the follicles are collected, opening on the pharyngeal side of the gland, whence its characteristic cribriform aspect. Their orifices, about seven to fifteen in number, are sufficiently evident to be counted on the healthy tonsil *in situ*, whilst in the hypertrophied condition these lacunæ increase greatly in calibre and depth, and can be ascertained by a probe to vary from one-eighth of an inch to half an inch in length, with a diameter capable of admitting a style of ordinary size. These observations, then, afford a valuable indication for treatment: for through these natural canals a way lies open for us to attack the heart of the gland in a most efficacious manner with our caustics. Thin, pointed sticks of nitrate of silver or chloride of zinc can easily be pressed into the lacunæ and worked round for a few seconds. Small sloughs are thus formed which are soon discharged, and in the progress of this treatment the tonsils are hollowed out in one direction whilst being contracted into much smaller bulk by the subsequent cicatrization in another. Two or three channels in each tonsil can be cauterized daily or on alternate days, and we can thus act on a comparatively large surface whilst causing but slight external soreness and little or no suffering to the patient. In practicing this method, although the stronger caustics may be used, I do not think it will be necessary to have recourse to anything more potent than nitrate of silver, which acts much more effectually on the more tender internal structures of the tonsil than when applied to the comparatively callous pharyngeal surface.

Finsbury-square, E.C.

² Equal parts of powdered unslaked lime and caustic soda made into a paste with water as required (Mackenzie).

³ Now coming into general use, chiefly owing to the advocacy of Dr. Capart, of Brussels.

¹ The prongs are sometimes fitted to Physick's model.

A CASE OF INTRA-ORBITAL ANEURISM

FOLLOWING FRACTURE OF THE ANTERIOR FOSSA OF THE BASE OF THE SKULL AND MENINGITIS; LIGATURE OF THE COMMON CAROTID SIX DAYS AFTER ACCOUCHEMENT; EXTIRPATION OF EYEBALL; RECOVERY.

By WALTER E. LLOYD, L.R.C.P. Ed. and L.F.P.S.G.

Cases of intra-orbital aneurism are of somewhat rare occurrence. Statistics show that the majority of the cases that do recover are those treated by ligature of the common carotid. A case recently reported by Dr. Wolfe, of Glasgow, which had been operated on by that devoted surgeon, the late Dr. Foulis, adds another to the list of successful cases treated by this method. Although the case I am about to relate differs somewhat from Dr. Wolfe's, happily the same result was secured. In my case the aneurism was first intra-cranial, and then, progressing gradually through the sphenoidal fissure, became intra-orbital. The history of the case shows it to have been entirely traumatic.

Mary Jane W—, aged twenty-nine, the wife of a journeyman baker, on July 21st, 1881, was driving in a two-wheel cart with her husband, delivering bread in the country; while returning home through the village of Long Ashton the horse fell down, and the man, his wife, and a child were all thrown out on to the road; the man and the child were uninjured, but the woman pitched on to the left side of her head. I happened to pass the scene of the accident about five minutes after, and was requested to attend to the injured woman. She had been lifted into the cart and I found her in a semi-conscious condition, bleeding slightly from the nose. I ordered her to be at once removed to her home, and shortly after went there and was able more thoroughly to examine her. I found her in bed lying on her back with symptoms characteristic of concussion. When spoken to loudly she opened her eyes and attempted to answer, but was unable to do so. The bleeding from the nose still continued; there was subconjunctival ecchymosis of both eyes, but most marked on the left side; the pupils were normal and acted when stimulated by light. I ordered her to be kept on milk and beef-tea. I found her to be six months pregnant. The next morning symptoms of meningitis appeared, and by the evening (twenty-four hours after the accident) she was in a state of violent delirium, the assistance of three or four persons being required to keep her on the bed. I ordered the head to be shaved, and an ice-cap applied. The bleeding from the nose had ceased, but the subconjunctival vessels were very much gorged with blood, those of the left side being somewhat more so than the right. The delirium continued for three days, when she gradually recovered consciousness, and from that time she made good progress. I kept her in bed, and after about six weeks it was noticed that the left eyeball was becoming more prominent. She found the sight was going from the left eye, and complained of a loud whirring, "like the noise of a mill," in the left ear, also of deafness on the same side. It became at length evident that these symptoms were due to an intra-orbital aneurism. On applying the stethoscope, a loud bruit was heard over the frontal and left temporal bones, and there was distinct pulsation of the left eyeball, both of which ceased when the left common carotid was compressed.

Now arose the question of treatment, and the complication of her being seven and a half months

pregnant was a grave one. In consultation with two of my surgical friends, it was decided that it was best not to attempt an operation until after accouchement, but to keep her in bed, give ten-grain doses of iodide of potassium three times a day, and when the labour came on to deliver her as speedily as possible, so as to avoid the consequences of straining during labour; this was the treatment adopted up to the time of her confinement.

On Oct. 14th I was sent for at 9 A.M., and attended immediately. I found she had been in labour about two hours, the os uteri was dilated as large as a crown, the pains were forcing, and as I found the head did not make speedy progress, I at once applied the long forceps, and delivered her in a few minutes of a remarkably large living male child. The prominence of the eyeball was not affected by the labour.—15th: Doing well, the condition of the eyeball not altered at all.—16th: Doing well as regards the confinement, but complains of great pain in the head, and that the noise is much louder than it has been hitherto; the conjunctiva is much more injected, and the eyeball more prominent. Ordered iodide of potassium and bromide of potassium, ten grains of each, every four hours.—17th: The protuberance of the eyeball much increased, as is the œdema of the conjunctiva. She cannot sleep, the pain and noise in the head are also increased.—18th: All the symptoms are still more aggravated. Pulsation very marked, and the eyeball still more protruding; the sight is now quite gone from this eye.—19th: The prominence of the eyeball still much more increased, and the œdema of the conjunctiva much more marked, projecting one-eighth of an inch beyond the cornea; cannot distinguish light from dark. Says the pain in her head will drive her mad. Pulse weak, about 60; temperature normal; going on well as regards the confinement. I was sent for hurriedly at 8 P.M., as it was thought she was dying. My friend, Mr. W. H. Harsant, surgeon of the Bristol Royal Infirmary, saw her in consultation with me, and we decided that the only chance of saving her life was to ligature the common carotid. She was then very faint; anxious expression of countenance. Pulse hardly perceptible. Ordered brandy, and the following mixture—tincture of opium, ten minims, with compound spirit of ammonia, twenty minims, every four hours. Owing to the extreme delicacy of the operation, and the many difficulties which presented themselves, there being no gaslight and having no assistants, etc., we postponed the operation until the following morning, hoping also that she might be better able to take the chloroform.—20th: Her condition is slightly improved, the pulse being somewhat stronger. Chloroform having been administered by Mr. Harsant, whom I cannot sufficiently thank for his very valuable assistance, I proceeded to ligature the common carotid. Making an incision three inches and a half in length along the anterior border of the sterno-mastoid, and carefully dissecting, I divided the different layers of tissue on a director. There was no special feature in the operation, except that the artery was overlapped by the internal jugular vein, which had to be drawn aside by a retractor, the carotid being found directly underneath it. The needle, being carefully passed from without inwards, was then threaded with a stout carbolized catgut ligature, which having been tied and the ends cut off short, the wound was brought together with six horse-hair sutures, and covered with boracic lint. I was most ably assisted by Mr. W. A. Jones and Mr. H. M. Powell, students of the Bristol Medical School. During the progress of the operation there was very slight hæmorrhage, one small vessel having to be

secured by torsion. 7 P.M. (four hours after the operation): Frequent vomiting from the chloroform. Ordered ice to suck. Says she feels much better; the pain in the head is much less, and the whirring noise is gone. The oedema is already much less, the pulsation has disappeared, and the bruit cannot be heard. She says that now she can see me quite distinctly.—21st: Has been vomiting during the night. The bruit is slightly audible; there is no pulsation. She says she has been much relieved by the operation, and feels quite different. The wound is looking healthy, but there is some pain at the top of the head (neuralgic). Pulse 80; temperature normal.—22nd:—The vomiting has ceased. She still complains of the neuralgic pain. About three drops of pus came from the lower end of the wound when I dressed it to-day, but it is looking healthy. Pulse and temperature normal.—23rd: Mr. Harsant saw the case with me to-day. There is a most marked improvement; the protrusion of the eyeball is rapidly receding, and the fold of the eyelid is seen when the eye is open; the sight is perfect, the oedema of the conjunctiva is much less, and she is able to use the muscles of the eye, and rotate it on any axis. The wound is looking healthy, but, as there is some pus coming from the lower end, I removed the lowest suture, and about a drachm of pus exuded. Otherwise she is doing remarkably well. The bruit is still slightly audible.—28th: The oedema of the conjunctiva very much less. I removed the last three sutures from the wound, which has healed, except at the lower end, from which the pus escapes. Ordered fish diet. She says the whirring noise has almost gone. She was quite deaf on the left side before the operation was performed, but can now hear quite distinctly on that side. The prominence of the eyeball has most markedly decreased. There is now no pulsation, and the bruit is hardly perceptible. The wound completely healed after a few days.

The progress of the case has been somewhat remarkable. At times there has been acute pain in the head, referred to the back of the left eyeball, relief from which could only be obtained by large doses of opium. The sight of the left eye has become gradually destroyed, the crystalline lens has become opaque and the eyeball pushed forward by what appears to be a large organized blood-clot; the bruit is still heard very distinctly, but, whereas before the operation it was heard loudest over the orbit and temporal fossa, it is now heard loudest over the mastoid process and the occiput. The sight of the right eye being threatened by the condition of the left, I determined to extirpate the left eyeball.

July 6th: Mr. Harsant having kindly given chloroform, I extirpated the eyeball. It was with great anxiety that I commenced this operation, fearing that during its progress I might possibly cut into the aneurism and the patient die from hæmorrhage. Happily my fears were not realized; there was hardly any bleeding. After removing the eyeball I passed my finger carefully into the orbit and could feel a firm but somewhat elastic mass at the back. The wound rapidly healed. The patient has been into the country and has returned home in perfect health, and able to perform her domestic duties; she is about to have an artificial eye in the place of the one removed.

I believe this to be the first case reported in which the common carotid artery has been ligatured six days after a woman's confinement. Although the operation was of so grave and complicated a character the result clearly justified the means, as this woman's life was undoubtedly saved by the operation. In conclusion, I would call at-

tention to the rapid healing of the wound, notwithstanding the fact that the operation was not performed antiseptically.

Bristol.

A CASE OF EXTREME CYANOSIS IN AN ADULT, PROBABLY OF CONGENITAL ORIGIN¹.

By JUDSON S. BURY, M.D., B.S. Lond.,

Honorary Assistant Medical Officer to the Clinical Hospital and Dispensary for Children, Manchester.

MARY F—, aged twenty-one years, was quite well during infancy and childhood, the only ailment she ever had was an abscess in the thigh. Her mother states that she was not a delicate child, was not more easily tired than other children, and did not differ in color or in any other respect from a healthy child. The blueness set in suddenly about two and a half years since. The patient had "hurried a good deal" and felt pains in the chest and back and a choking sensation, and the woman with whom she worked remarked that "she was as blue as a whimberry." The blueness disappeared the next day but returned in a few weeks, and has since persisted. Menstruation began shortly after the first appearance of the cyanosis. When the patient was between nineteen and twenty years of age she was regular for the first year; then the catamenia stopped for about nine months. They now occur regularly, but are very scanty. There is no family history of rheumatism, and the patient had never had pains in her limbs or other symptoms suggesting a rheumatic diathesis.

Present condition.—Patient is of short stature, being about 4 ft. 7 in. Facial expression somewhat dull; skin muddy and dusky, the lips are blackish-blue; the conjunctivæ injected and of a light-claret color; nose and cheeks purplish; the tongue, inside of the mouth, and throat present a dark-purple, congested appearance; the ends of the fingers and toes are clubbed and livid; extremities cold; no oedema; the urine is high-colored, deposits urates, and contains a trace of albumen. On inspection of the chest, a distinct bulging is visible; it involves the second, third, and fourth left rib cartilages; there is some tenderness over the sternum. The jugular veins are not distended, but there is a distinct pulsation of the carotid arteries. The heart's impulse is diffused and heaving; it is felt in the third, fourth, and fifth spaces, as far out as the anterior border of the left axilla, but it is not felt near the sternum nor is there any epigastric pulsation. The maximum point of the impulse is in the fifth space in the nipple-line; no thrill. The cardiac dulness is much increased, and laterally rather than vertically, extending from about one inch to the right of the sternum to almost the middle of the left axilla; the third rib marks the upper limit of superficial dulness, though the first two spaces are higher pitched than those on the right side; the sixth rib is the lower limit. On auscultation a high-pitched, systolic, whistling murmur is heard at the base, of maximum intensity over the first piece of the sternum; it is well conducted down this bone, being also well heard at the right sterno-clavicular articulation, and faintly in the carotids. A vertical line from the middle of the left clavicle marks its extreme left limit, and the murmur is gradually lost as the stethoscope is moved towards the apex; it is not heard behind; the sounds at the left apex are quite pure. The second sound is accentuated

¹ Case shown at the Medical Society, Manchester, October 4th, 1882.

over the pulmonary cartilage, and is louder than at the aortic cartilage. The pulse is regular in rhythm, but not quite regular in force; it is equal on the two sides, and is felt in the femorals and in other arteries.

Remarks.—The striking feature of the case is the comparatively sudden onset in an adult of intense and permanent cyanosis, unpreceded by any illness, and found to be associated with extensive heart disease. If the latter were the result of endocarditis entirely acquired after birth, we should expect to have marked signs of engorgement of the general venous system; indeed the absence of dropsy alone points strongly to some congenital malformation of the heart, and also proves that cyanosis cannot be completely explained by the theory of venous congestion. The bulging of the chest may be taken as an indication that the enlargement of the heart occurred at an early period, when the chest walls are soft and yielding. By far the commonest cause of congenital cyanosis is contraction of the pulmonary artery as a result of foetal endocarditis; the first consequence of this contraction is hypertrophy of the right ventricle, the second a permanent communication between the two sides of the heart; and if stenosis is extreme it may prevent the closure of the ductus arteriosus. Thus there is compensation for the strain on the right ventricle; the venous blood passes into the aorta and is conveyed to the lungs either by enlarged bronchial or other arteries, or by a dilated ductus arteriosus. These safety valves prolong life and diminish or prevent cyanosis. In contraction of the pulmonary artery the duration of life varies directly, the cyanosis probably inversely, with the degree of patency of these foetal passages. It is now indeed well established that the mere intermixture of arterial with venous blood is not sufficient to produce cyanosis, the essential element for this condition being, as Dr. Lewis Smith puts it, the hindrance to "the free and regular flow of blood to, through, or from the lungs." The physical signs in the case before us are somewhat complicated. In pulmonary stenosis we expect indications of hypertrophy and some dilatation of the right ventricle, together with a basic systolic murmur of maximum intensity at the junction of the third left costal cartilage with the sternum, conducted towards the left clavicle and not audible in neck arteries. In the patient the murmur is loudest at the top of the sternum, is conducted to the right as well as to the left, and is heard in the carotids. There is increase of dullness to the left as well as to the right, and there is no epigastric pulsation, but a heaving impulse in the left mammary region. Most of these signs point to disease at the aortic orifice rather than at the pulmonary; but this as a result of foetal endocarditis is very rarely met with, not because (as Rauchfuss points out in Gerhardt's Handbuch) the aorta is less frequently affected with endocarditis than the pulmonary artery in foetal life, but on account of the very short duration of life, only one-eighth of the cases collected by Rauchfuss survived the second week of life, only one case the first month. Dr. Sansom, in a lecture reported in the *Medical Times* for 1879, relates a case of congenital stenosis of the pulmonary artery where the basic murmur had an aortic conduction. Although the aorta after death was found to be quite normal, he thinks that this was due to the coexistence of a hæmic murmur. Dr. Peacock says that the septum of the ventricles being usually defective when there is a considerable contraction of the pulmonary artery, "the aorta derives its supply of blood from both ventricles; and if so, a systolic murmur may probably be produced by the meeting of the

two columns of blood in the ascending aorta, which may modify the signs observed.

In spite, then, of aberrant physical signs, it seems probable that the origin of the pulmonary artery was affected with endocarditis in foetal life, that the effects of its obstruction were compensated for by the persistence of communication between the two sides of the heart, and, perhaps, also by a patent ductus arteriosus; and, according to Rauchfuss, the loud second sound at the pulmonary cartilage would favor a patent duct. But about puberty, as the body became more developed and the volume of the blood greater, the insufficiency of the heart first made itself apparent. It is possible, too, that a fresh endocarditis was lit up about this time, and affected the aortic valves, for, as Dr. West has pointed out, congenital malformations of the heart predisposed to inflammation of the valves.

Manchester.

CASE OF ACUTE RHEUMATISM, OCCURRING IN A NEWLY-BORN INFANT, TREATED WITH SALICYLATE OF SODA.

By F. ERNEST POOCK, M.D.

ON May 25th I was called to see Mrs. A—, who had been ill for two days. I found her suffering from acute rheumatism, with a temperature of 106.5°. She was pregnant with her second child, and, as far as I could gather, within about a month of her confinement. I ordered twenty grains of salicylate of soda every hour for six doses, and then every two hours. On Tuesday morning, about thirty hours after seeing her for the first time, the rheumatic pains left her entirely, and labour pains came on, resulting in about four hours in the birth of a sturdy male child, who appeared perfectly healthy. The rheumatism returned immediately the child was born and she could not bear it put to the breast. The milk was dispersed by belladonna, and Mrs. A— made a fair recovery in about five weeks, but unfortunately with considerable valvular mischief.

The child was a very cross one, and cried very much, which the nurse and the mother attributed to flatulence and want of food. However, dill-water, aniseed, etc., having no effect, I was sent for about twelve hours after the birth. The child was decidedly feverish, with a moist skin and an acid smell about him. I noticed that he appeared to cry more loudly whenever his right arm was moved. On removing the dress, his right shoulder and elbow were found reddened, and on moving either joint he cried lustily. On using the thermometer I found his temperature 103.5° and his pulse 170, as accurately as I could count it. Under the circumstances, it occurred to me that he might have the rheumatic poison in his blood, and that in fact I had to do with a case of congenital rheumatic fever. As Mrs. A— was unable to nurse him, and we thus could not give him any medicine per matrem, I determined to administer the salicylate in a direct form. Four grains were given in a little sweetened water every two hours for six doses. The pain then seemed less, and it was given every four hours. However, the restlessness returned, and the temperature was found to have risen to 104°, and it was therefore continued every two hours for four doses more, and then the interval increased to three hours. By this time (about forty hours from birth, or twenty-eight from the commencement of the salicylate) the temperature was reduced to 101° and the pulse to 140. In another twenty-four hours the interval between the doses was increased to four hours, and in another

day to six hours or three times a day. When about 180 grains had been taken, and the child was nine or ten days old, the drug was stopped for twenty-four hours, but given again at the end of that time in four-grain doses two or three times a day as occasion required for a fortnight. After this a tea-spoonful of cod-liver oil was rubbed into the skin twice a day for three weeks, when the child appeared perfectly well. The temperature had gradually and steadily diminished since it had risen to 104°, which was when the child was thirty hours old, down to the eighth day, when it was normal, and never rose after. Nestle's milk food was given as sustenance, and a few grains of mercury with chalk as occasion required. I was unable to detect anything abnormal about the heart sounds all through.

This is, as far as I know, a unique case, and I trust it will be of interest to the profession. It seems to show that the salicylate does not deserve quite all the hard things that have been said and written about it; and that even in the case of a newly-born infant it may be pushed almost to an extreme without producing the head symptoms which have so often been laid to its charge. May not these latter, in many reported cases, have been due to the rheumatic blood circulating through the brain, and not to the drug?

St. Mark's-road, North Kensington.

THE FIRST FIVE YEARS' WORK AT THE LIVERPOOL SEAMEN'S DISPENSARY FOR VENEREAL DISEASES.

By FREDERICK W. LOWNDES, M.R.C.S. Eng., and
ARMAND BERNARD, M.B. Dub.,

Surgeons to the Dispensary and to the Liverpool Lock Hospital.

THAT merchant seamen suffer severely from venereal diseases is too well known to require proof. It is also well known that it is among them the advertising venereal quacks find many victims. These two circumstances induced the committee of the Liverpool Sailors' Home, upon our suggestions, to open in February, 1877, a self-supporting dispensary, in connection with the home, for the treatment of venereal diseases among all seamen in Liverpool, whether British or foreign, and whether inmates of the home or not. It was decided from the commencement to limit the practice of the dispensary to cases of venereal disease, and that the dispensary should be self-supporting, each patient paying one shilling for each attendance, receiving for this advice and medicine. The result of the five years' working, ending December 31st, 1881, will be of interest, and may be an encouragement to those who advocate self-supporting dispensaries. The lock hospital here has twenty-five beds for male patients, which are constantly full; there is no out-patient department at it nor any of the general hospitals, except the Stanley Hospital, which is a long way from the Sailors' Home. The nearest general dispensary (the South) is also some distance off, and the hours of attendance are very inconvenient ones for sailors; hence the dispensary supplied a want without adding to free medical charities or doing any injustice to the latter. It also brought medical advice and medicine within easy reach of the sailors, whose nearest advisers had hitherto been the advertising quacks. We have restricted the practice of the dispensary as much as possible to men before the mast, though we occasionally see stewards, cooks, boatswains, carpenters, etc. Suitable premises were found contiguous to the Sailors' Home, and the dispen-

sary was opened on February 26th, 1877. The following table shows the results:—

Year.	Patients.	Attendances.	Remarks.
1877	847	2363	Only ten months.
1878	1002	3246	Whole year.
1879	853	2823	Ditto.
1880	944	3512	Ditto.
1881	848	3276	Ditto.
Total ..	4494	15,220	—

For the first year we were unable to keep so accurate a register of cases as we could have wished; but since Jan. 1st, 1878, a most careful and, so far as is possible, a most accurate register has been kept, from which we are enabled to give the following summary:—

	1878.	1879.	1880.	1881.	Total.
Simple sores.....	226	173	229	205	833
Gonorrhœa.....	364	321	330	294	1309
Gleet.....	200	169	184	136	689
Primary syphilis...	112	101	115	107	435
Secondary syphilis.	95	83	79	96	353
Tertiary syphilis...	5	6	7	10	28
	1002	853	944	848	3647

Of the total of 3647 cases, 816 were case of syphilis, or 22·374 per cent.

Simple Sores.—Our diagnosis has often to be made on the eve of a sailor's departure to sea; hence it is possible that some of these might eventually prove to be the initial manifestation of syphilis. As a rule these simple sores healed up readily, especially with iodoform ointment. Merchant seamen are by no means cleanly in their person, a fact of which we have daily evidence. Hence we have many cases of balanitis, and simple sores are much aggravated by this want of cleanliness.

Gonorrhœa and Gleet.—For these the old copaiba mixture still holds its own, and with a few exceptions answers very well. In obstinate cases an injection of sulpho-carbolate of zinc, two grains to the ounce, is ordered as well. Our chief difficulty is to induce patients to abstain from intoxicants until after they are thoroughly cured.

Bubo.—These occur very frequently among sailors in conjunction both with simple sores and gonorrhœa. As a rule, after being opened they heal rapidly, especially if this has been done in good time. But in many cases there has been much delay, especially when the disease has been contracted immediately before sailing; in these cases there is much undermining and disorganization of the parts, and the healing process is much retarded. In these cases, again, we have found iodoform most beneficial, sometimes in the form of powder dusted over the part, or as an ointment (forty grains to the ounce) with or without operative treatment.

Syphilis.—The practice of this dispensary affords favorable opportunities for observing the variable periods of incubation, which average from fourteen days to eight weeks. It is true that we cannot place absolute reliance on the statements of our patients, especially as, with the uncleanly habits already noticed, an indurated sore might easily escape notice amidst a mass of smegma. On the other hand, there is the fact that in the case of sailors this incubative period can be determined with more accurate data than in the case of lands-

men. A seaman discovers that he is infected some weeks after sailing, and therefore some weeks after the possibility of impure sexual intercourse. In a certain number of these cases, the patients being of superior intelligence, we have been able to ascertain the period with great exactness. Primary ulcers are generally situated on the prepuce or in the furrow between the prepuce and the corona glandis, involving frequently both these parts. Induration is generally well marked, and especially in those cases where the disease has been in existence for some weeks without any treatment. In the treatment of syphilis we find it necessary to administer mercury in a very mild form and in small doses, the reckless habits of seamen in exposing themselves to wet and cold, their too frequent intemperance and impaired constitutions, making it imperative to exercise great caution in the administration of this drug. We require them to attend every second day, and supply them with sufficient medicine to last two days. A pill containing two grains of grey powder with three of Dover's powders, made up with confection of roses, is the form we mostly prefer. We also give the biniodide of mercury in mixture, and sometimes mercury by inunction. Our chief difficulty is the short time allowed us by the patients' stay in port, many men proceeding to sea in an unfit state, as will be seen further on. To those who are fit to proceed to sea, but require a continuation of the treatment, we give extra medicines, with every necessary precaution. Our experience here confirms that of most workers in this special line of practice—viz., that syphilitic diseases are most amenable to treatment if taken in proper time, and if the treatment be not interfered with by any untoward circumstances.

The following extracts from our register afford melancholy proofs of the unseaworthy state of many sailors; these being only a few out of many which might be given, and only an infinitesimal proportion of the probable whole number of seamen leaving English ports infected with venereal disease:

March 15th, 1878.—T. D.—. Phimosi ulcers of prepuce, and indurated glands. To sail next day.

April 23rd.—C. W.—. Indurated ulcer of corona, indurated glands; a very severe case. Going to sea in the morning.

April 27th.—C. W.—. Indurated sore of corona, indurated glands and secondary eruption. Sails on the 4th May.

May 10th.—J. P.—. Large indurated sore of corona, indurated glands. Going to sea in the morning.

May 14th.—J. H.—. Papular eruption on back, loins, arms, forehead, and legs. This man is saturated with syphilis. Going to sea to-morrow.

May 30th.—G. G.—. Ulcer of prepuce, gonorrhoea, suppurating bubo. Arrived to day; unable to work last five days; sent to lock hospital.

Nov. 6th.—J. C.—. Syphilitic disease of testicle. Going to sea next day.

Dec. 4th.—J. J.—. Orchitis and gonorrhoea. Going to sea next day.

Dec. 18th.—J. Q.—. Suppurating bubo; ulcers of prepuce. Just come from sea. Opened bubo.

Dec. 19th.—J. F.—. Indurated sore of prepuce; indurated glands; secondary eruption; disease of three months' standing. Going to sea on the 21st inst.

Jan. 13th, 1879.—T. L.—. Phimosi; ulcers; suppurating bubo. Going to sea. Seen subsequently on March 20th. A very bad case of syphilis.

July 6th.—J. B.—. Paraphimosi; ulcers of prepuce; indurated glands. No room in lock hos-

pital; refused admission to workhouse. Compelled to go to sea.

In some cases we have been able to induce men not to go to sea, but to remain ashore until cured.

As regards the financial success of the dispensary, it will suffice to say that from the very commencement it has paid its way, the receipts from patients enabling us to pay rent, taxes, drugs, dispenser's salary, etc., and to leave a small and we hope increasing balance for honoraria, in accordance with the original rules. The members of the Committee of the Sailors' Home have individually and collectively shown us the greatest kindness and assistance, and the same remark applies to the energetic and indefatigable secretary, Mr. Thomas Hamner.

Liverpool.

THE DIFFERENTIAL DIAGNOSIS BETWEEN HYSTERICAL PARALYSIS AND POLIO-MYELITIS ANTERIOR.

By A. HUGHES BENNETT, M.D.,

Physician to the Hospital for Epilepsy and Paralysis, Regent's Park; and assistant-Physician to the Westminster Hospital.

In the experience of every practitioner there must have occurred cases of paralysis in women upon which he has been called upon to decide whether the affection was due to serious organic disease of the nervous system, or to that more protean disorder to which we give the name of hysteria. In many such instances there is often the greatest possible difficulty in arriving at a satisfactory conclusion, and the perplexity of the medical attendant is proportionate to the responsibility he assumes in expressing an opinion, and the important issues upon which his verdict depends. That grave errors in judgment on this complicated problem have frequently been made, must be within the knowledge of all, resulting in misfortune to the patient, discredit to the profession, and a triumphant harvest to the charlatan.

Polio-myelitis anterior, or, as it is more commonly called, "infantile paralysis," is more especially liable to be confounded with hysteria, as the symptoms and progress of the case are very similar in both. The paralysis resulting from this serious organic disease of the cord attacks the adult, both in its acute and chronic forms, much more frequently than is generally believed. It is obvious that to make a clear distinction between these two disorders is of the highest importance, as the treatment suitable for the benefit of the one would be useless, or even injurious, if applied to the other. A consideration of this question appears at the present time to be worthy of discussion, as recently there has been a revival of certain energetic measures in the treatment of paralysis of a supposed functional and emotional origin; and Drs. Weir Mitchell, Playfair, and others have recorded successful cases of great interest and importance. Although it is admitted that certain procedures were followed by the most satisfactory results when employed by competent physicians, in properly selected cases, it must equally be granted that the same treatment would in different instances be followed by the most disastrous effects. The writer has not infrequently seen young women condemned to a couch for years, supposed to be suffering from spinal or uterine affection, which a little energy and determination on the part of the physician would have cured in a few weeks. On the other hand, not less often has he met with unfortunates who were scoffed at and otherwise ill-treated as being nervous and

hysterical, or imagined to be exaggerating or feigning disease, when in reality they were suffering from an organic lesion of the nervous system. This confusion has arisen from the extreme difficulty in many cases of accurately diagnosing between paralyzes, arising on the one hand from organic degeneration of nervous structure, and on the other as the result of emotional or so-called hysterical causes. It is assumed in text-books and by the profession generally that the differentiation between these is easily defined, but as a matter of fact even when the greatest care is taken this is not always the case, and after the fullest investigation much doubt remains.

With the view of illustrating this position let us take a case which not infrequently occurs in practice. A young woman suddenly or gradually becomes paralyzed in the lower extremities. This may, in a few days, weeks, or months, in different cases, become complete or remain partial. There is no loss of sensation, no muscular rigidity, no cerebral disturbances, or any affection of the bladder or rectum. The patient's general health may be robust, or it may be delicate. She may be of emotional and hysterical temperament, or, on the contrary, of a calm and well-balanced disposition. At first there is no muscular wasting, but as the disease becomes chronic the limbs may, or may not, diminish in size. The entire extremity may be affected, or only certain groups of muscles. Finally the disease may partially or entirely recover, or may remain almost unchanged for years. With such a clinical picture before us we have to ask, What is the diagnosis of such a paralysis? The description applies with equal fidelity to either hysteria or polio-myelitis, and by depending on symptoms alone it is in such doubtful cases that the decision of the question seems to depend on the accidental fancy of the medical attendant, and which so frequently results in an erroneous view being taken of the case. It is granted that the problem is a difficult one, and even a careful analysis of the symptoms does not appear greatly to assist its solution. The patient when attacked with the paralysis may be in perfect health, or the reverse; she may, or may not, be hysterical; there may be some assignable cause, or not. In all these circumstances the loss of motion may be either due to polio-myelitis or hysteria, as the former occurs with equal frequency in the robust and in the delicate, and the latter as often appears in apparently the most healthy persons as in the most nervous; the first is as likely to be present in hysterical subjects as in the reverse, and the second may follow a cold, injury, or other supposed origin of organic disease. In short, although it is true that hysterical paralysis frequently occurs in persons evidencing other nervous or emotional symptoms, these are by no means necessary to establish the diagnosis, as some of the most intractable forms of this affection have occurred in women of apparently phlegmatic temperament and well-balanced minds. Again, polio-myelitis is as likely to attack the hysterical subject as any other, and thus further complicate the inquiry. The paralysis appearing suddenly, or very gradually, applies equally to polio-myelitis or hysteria. As in the acute form of the first, the loss of motion may ensue in a few hours, and in its chronic form it may proceed very slowly and insidiously. In both the process may be partial or complete. It may attack one or more limbs, or only part of an extremity; indeed, special muscles, or irregular groups of these alone, may be affected. All these particulars equally apply to both forms of paralysis under consideration. In each the sensibility may be intact, the intelligence and special senses unimpaired, and the functions of the rec-

tum, bladder, and other organs of the body healthy. If muscular atrophy existed to a marked extent at an early period of the disease we might exclude hysteria, but in many instances in this respect there is nothing definite to be observed. The limbs in both forms of paralysis may for a long time appear of natural size. Muscular wasting, if it exists, may be obscured by an increased deposit of fat, and the hypertrophy of other structures. Again, if paralysis has existed for any length of time, the limbs may become smaller, not necessarily due to degenerative atrophy, but to simple emaciation from functional disease. Thus, as in paralysis resulting from both hysteria and polio-myelitis, the symptoms and general progress of the disease are in many cases identical, it becomes a serious practical difficulty to definitely determine whether in a given case answering to the description already detailed, it is due to degeneration of the anterior cornua of the cord, or to that less formidable affection, hysteria.

To solve the problem, as in other branches of medicine, we must not depend on symptoms alone, but, as far as possible, should bring physical phenomena to our aid for the accurate determination, demonstration, and measurement of facts. Exactly in proportion as we thus supplement our senses, so do our powers of precise research and investigation succeed. Although important advances have been made in other fields of medicine by the utilization of optics, acoustics, and other practical sciences, as evidenced by the employment of the ophthalmoscope, speculum, stethoscope, thermometer, etc., in diseases of the nervous system such methods of exact inquiry have hitherto been conspicuous by their absence. In recent times, as this want has been appreciated, endeavors have been made to supply the demand. The most successful of these is the employment of electricity as a diagnostic agent; and although our knowledge of its properties is not as yet fully developed, we have even now at our disposal such information on the subject as proves of invaluable service in the differentiation of many nervous disorders. It has already been pointed out that by symptoms alone we are not able, in many cases, to distinguish between paralysis resulting from organic disease of the anterior cornua of the cord and that due to hysteria. When we turn to physical signs, we find that there are at least two which give us definite information on the subject. These are—(1) the reflex actions following cutaneous irritation or percussion of tendons, and (2) the effects of electrical stimulation.

1. *The Reflex Actions.*—When polio-myelitis involves any reflex arc, the reflex motions associated with the track interfered with are destroyed. In the case, therefore, of paralysis of the lower limbs, resulting from this disease, all the cutaneous and tendon reflexes are absent. In hysterical paralysis, on the other hand, these phenomena are not abolished. They are usually normal, and not seldom are actually exaggerated in degree, so that not only are those which naturally exist much increased in intensity, but new reflexes not found in health are developed. Here, then, is a marked distinction between hysteria and polio-myelitis. Although this rule applies generally, it must be admitted that it is not without exception. Reflex acts vary somewhat even in healthy persons, and in rare instances have not been obtainable. Again, it is just possible that in degeneration of the anterior cornua certain parts of their substance might be preserved, and although paralysis existed, certain reflexes might be elicited. In hysteria also the reflexes are sometimes absent for reasons not easily explained. Such cases, however, are extremely rare, and the general law holds good that in par-

alysis from polio-myelitis the reflexes are impaired or abolished, while in that from hysteria they are normal or increased.

2. *The Electrical Reactions.*—These are for the most part definite and conclusive. In acute polio-myelitis the excitability of the affected nerves is very rapidly lost, so that in from a week to ten days after the onset of the paralysis the response is altogether abolished to the electric stimulus. Very soon afterwards the muscles are affected, and then ensues all the characteristic quantitative and qualitative changes met with in neuro-muscular affections. In the chronic forms of the disease the same takes place, but in a more gradual and progressive manner. In hysterical paralysis, on the other hand, the electrical reactions remain practically normal. In some cases there may be quantitative increase of response, indicating hyper-excitability of the nervous system, but these changes are slight in degree, and there are never qualitative alterations. In very chronic cases also, in which the patient has been bedridden for years, there may be quantitative diminution of response due to prolonged disuse of the muscles, or to increased resistance to the current from an augmented deposition of subcutaneous fat as the result of want of exercise. In such cases the loss is never complete, and the change is one of degree only, and not of character.

Thus in electricity we have an agent which enables us in the large majority of cases to detect with accuracy and certainty between polio-myelitis and hysteria, and so far as my own experience has gone, I have never met with a case of the former which did not present some characteristic abnormal reactions, nor an instance of the latter in which these were developed.

It is to be observed that great care and much dexterity and experience are necessary for profitable electrical investigation. It cannot be exactly asserted that an expert alone is necessary for this purpose, but certainly it cannot be satisfactorily conducted except by those who, through knowledge and practice, have overcome the technical and manipulative details necessary for its successful performance. The system of wildly dabbing sponge electrodes on the skin without a definite method, is absolutely useless as a means of deducing trustworthy diagnostic data, and it is the popular use in this way which has hitherto been so fruitless and brought a valuable physical agent into discredit. A novice, ignorant of the use of the stethoscope, would hear little or nothing on applying it to the chest, and still less would he deduce those important conclusions which the experienced physician would recognize. Precisely in the same way is electricity a means towards an end, which can only be put in successful operation by a practical knowledge of the agent employed, with dexterity and experience in its administration.

It would be out of place here to describe either the method of procedure or the particulars of the reactions found in the two forms of paralysis under discussion. These have elsewhere been considered in full detail.

The general conclusions to be drawn from the foregoing remarks are:—(1) That, judging from the history, symptoms, and progress of the case, in a large number of instances it is difficult or impossible to diagnose between paralysis from hysteria or from polio-myelitis; (2) that a correct differentiation between them is of the highest importance, as the treatment successful in the one is useless or may be injurious in the other; (3) that in order to arrive at a true diagnosis, we must as far as possible apply physical agents in their investigation; (4) that in the diseases under consideration

the conditions of the reflexes, resulting from physical manipulations, afford us valuable information, although open to certain exceptions; and (5) that electricity supplies us with an agent which, in the large majority of cases, will definitely enable us to correctly decide whether a given paralysis is due to organic disease of the anterior cornua of the cord, or to that affection to which we apply the term hysteria.

ON BONE-SETTING (SO-CALLED).¹

By R. DACRE FOX, F.R.C.S. Edin.,

Surgeon to the Manchester Southern Hospital, Surgeon to the Manchester Police Force, Chief Medical Officer to the Manchester, Sheffield, and Lincoln Railway, etc.

THIS is the first time in the history of the British Medical Association that so-called bone-setting has been seriously discussed, and I think it is matter for congratulation that we have at last set ourselves impartially to examine the practice, notwithstanding that it is almost exclusively employed by a class of persons who are without our pale. The literature of bone-setting is scanty. Dr. Wharton Hood's handbook, giving an account of the late Mr. Hutton's method of setting free stiff limbs, is, so far as I know, the only attempt at a systematic exposition. There are, in addition, some papers scattered through the various journals, by Mr. Adams, Mr. Howard Marsh, and others, stating their opinion as to what cases are most likely to be benefited by the forcible bending of joints, and giving instances of ill results that have followed such treatment in unsuitable cases. For nearly three years I was assistant to the late Mr. James Taylor, M.R.C.S., of Whitworth in Lancashire, the last direct descendant of a family that had practiced bone-setting in that village for more than two hundred years, and I think I may perhaps be able to throw some light on the subject of this discussion.

Much misconception exists as to the practice of bone-setters; many of the methods of treatment popularly attributed to them have no other existence than in the imagination of ignorant patients, whose stories we as a profession are perhaps rather too ready to believe. It is certain that some families—notably the Taylors, Huttons, and Masons—have by their manipulative and mechanical skill justly acquired a great reputation. In what has their practice consisted? First, in the treatment of fractures, recent dislocations and sprains; secondly, in the cure of stiff joints, re-setting of fractures, and correction of deformities. The general impression appears to be that the bone-setter's art consists of nothing more nor less than the forcible and reckless "cracking up" of stiff joints so as to make the lame man walk as if by a miracle. The practice at Whitworth was a large one, furnishing constant employment for at least two active men, and consisting chiefly of the cases I have mentioned. Speaking from memory I do not believe that fifty points of all sorts were "cracked up" during the time I was there; but it was not an uncommon event to have to put up half a dozen fresh fractures and twice as many recent sprains in a single morning. In the North of England the origin of nearly all the men who are fairly good at bone-setting can be traced to the Whitworth surgery, and while, so far as I know, the Taylors in their various settlements at Whitworth, Todmorden, Lockwood, and Oldfield

¹ Abridged from a paper read at a discussion before the Surgical Section of the annual meeting of the British Medical Association at Worcester, 1882.

Lane were the only qualified surgeons who practiced bone-setting; amongst the hills and dales of Lancashire, Yorkshire, and the Lake district, there were many who did so without being qualified, some of whom, I must in all fairness say, put up fractures uncommonly well. But apart from the legitimate credit they have won by the skill displayed in their handicraft, they owe some of their success to the carelessness or indifference of the general body of practitioners, who are apt to overlook little injuries which often become very painful and troublesome. It sometimes seems to me that it is beneath the dignity of the ordinary practitioner to employ any active treatment whatever for a sprain. It is hardly fair then to gauge the work of bone-setters solely by their method of treating diseased joints (probably the most unsatisfactory class of cases in the whole realm of surgery), but we ought also to take into account the patience and skill they display in the treatment of injuries for which they are not unfrequently consulted by the patients of qualified practitioners. I have no desire to hold a brief for every idle fellow who calls himself a bone-setter, but I am anxious to give credit where credit is due, and to explain that the art of bone-setting is not what it is often thought to be, a mere mixture of charlatanism and good luck.

I purpose chiefly to consider that class of cases to which Mr. Adams and Mr. Marsh have more particularly referred. Dr. Hood (*loc. cit.*) has made out a somewhat extensive list of causes for stiff or weak joints, but I think he had in his mind rather what was *likely* to come to the bone-setter than what actually did come. From my own experience I should classify weak joints as follows:—

1. Those that have become stiff from enforced rest.
2. Those that have become stiff from chronic disease.
3. Joints stiff from injury to the bones entering into their formation.
4. Joints stiff and weak from sprains, including displacement of tendons and partial luxation.

Apart from the previous history of the case, and the evident existence of constitutional disease, there are some external appearances which help to distinguish cases and to afford indications for treatment, and of these the bone-setters have learned by experience to avail themselves.

1. In the first class I have mentioned, the stiffness of the structures about the joint impeding its movements is the result of purely mechanical causes, is in fact simply due to prolonged disuse. No cause for functional activity exists, and consequently the elasticity, the flexibility, and power of adaptation to movement in the parts about the joints not being required, they become stiff and rigid. No degenerative changes, however, take place, and they are capable of being recalled into activity unimpaired. In such a joint the bony points and the outlines of the tendons and ligaments about it, seem unnaturally prominent, probably from absorption of the adipose and connective tissue; the rigid ligaments impart a sense of hardness, and if the limb be flexed to its utmost it shows considerable resiliency. Such joints may, I believe, be "cracked up" without fear of consequences, and this constitutes one of the successful operations of bone-setters. My own recollection carries me back to some apparently almost miraculous results. I am convinced that *suddenness* ought to be insisted upon in doing this; the advantages derived from it being, I believe, mainly due to the fact that it is less likely to set up any irritation in the joint than the "dragging" of gradual extension.

2. In the next class of cases, in which stiffness

is due to degenerative changes, the external appearances are exactly reversed, the outlines of the joint are more or less gone. In these cases, no matter the character of the disease, manipulative interference is positively vicious; and while it is in them that ignorant bone-setters do so much mischief, the better informed, by the use of splints and well-applied pressure, are highly successful in their treatment.² I am sorry to say very many cases of this kind come to bone-setters which have not been properly treated before, owing to their not having been recognized, especially hip-joint disease.

3. In the third class of cases, in which a fracture has taken place into the joint, causing stiffness, the condition is due to disturbed relationship of the bones from faulty setting, and is recognized by comparison with the bony landmarks of the sound limb. In these cases forcible treatment does good, though of course the result is in proportion to the amount of bone-displacement, but it should be supplemented by passive movements for some time. In joints stiff after diagonal fracture through the condyles of the humerus, so common in children, I have seen many most gratifying results; one in a boy about twelve years old, whose elbow had been stiff three years, is especially impressed upon my mind.

4. In the fourth class of cases, and those to which I would draw particular attention; I include lameness and weakness, the result of the various forms of injury, which we group together under the general term "a sprain." I affirm most unhesitatingly, from an experience of some hundreds of cases, that nothing has done more to lower the prestige of regular practitioners, and to play into the hands of unqualified bone-setters, than the way in which so many practitioners tamper with a sprained joint. Sprains, of course, vary greatly in severity; they may be broadly divided into two kinds, of which one consists merely of a temporary over-distension of the parts around a joint, which rest and anodyne applications soon cure, while the other involves pathological results of a much more serious nature. A severe sprain is the sum of the injuries that the parts in and about a joint sustain, when, by their passive efforts, they exercise their maximum power of restraint to prevent luxation. Under such conditions I conceive the following changes to take place in the integrity of a joint. In the case of the synovial membrane, temporary hyperæmia accompanied by pain, and some slight effusion into the cavity of the joint. In the case of the tendons, overstretching and loosening of the lining membrane of their sheaths, more or less disturbance to the adjacent cellular tissue forming the bed of the tendon groove, and hyperæmia with exudation of plastic fluid, subsequently forming adventitious products. In the case of the non-elastic fibrous ligaments—firmly attached at either end to the adjacent periosteum—overstretching, mostly involving partial rupture, with swelling, softening, and disintegration of their structure. It is beyond the purpose of this communication to draw attention to the plan of treatment adopted by bone-setters under these circumstances: it is, however, described in a paper of mine, of which an abstract is given in the *British Medical Journal* of Sept. 25th, 1880. The stiffness of a sprained joint is *partial*. The surface is generally cold, and more or less oedematous, and each joint has one particular spot in which pressure causes acute pain; the bone-setters have learned by experience the situation of these spots, and this fact has done more than anything to strengthen the popular faith in their intuitive skill; they certainly form an important guide

² Rheumatic cases sometimes do well for a time, but invariably relapse.

to treatment, since they indicate the seat of greatest injury to the ligaments and point out where their power of passive resistance has been most severely tested, and where adhesions are most likely to have formed. Dr. Hood, in his record of Mr. Hutton's practice, has enumerated some of these painful spots; the chief of them are as follows:—

1. Over the head of the femur in the centre of the groin, corresponding to the ilio-femoral band of the capsular ligament (which is most severely stretched when the thigh is over-extended, as when the trunk is flung violently backwards, the commonest cause of a sprained hip).

2. For the knee-joint, at the back of the lower edge of the internal condyle—in other words, at the posterior border of the internal lateral ligament, where it blends with Winslow's ligament, and where the semi-membranosus tendon is in intimate relation with it. These parts suffer most because, as Mr. Morris says, "During extension they resist rotation outwards of the tibia upon a vertical axis," and a sprained knee is almost always caused by a twist outwards of the foot.

3. For the shoulder at the point corresponding to the bicipital groove, because in nine cases out of ten a man sprains his shoulder to prevent himself from falling, his hand grasps the nearest support, the body is violently abducted from the arm, the long head of the biceps is called upon to exert its utmost restraining power, the bicipital fascia is over-stretched and the tendon very often displaced.

Again, for the elbow the painful place is at the front of the tip of the internal condyle; the fan-shaped internal lateral ligament has its apex at that point, and it is most stretched in over-supination, with extreme extension of the forearm. On the front of the external malleolus, at the apex of the plantar arch, the tip of the fifth metatarsal bone, the styloid process of the ulna, the inside of the thumb, and the annular ligament in the front of the wrist, are respectively the most painful spots when those joints are severally sprained.

The manipulative part of the treatment of joints stiff from being sprained may be briefly said to consist in pressure over the part most injured, and momentary extension of the limb, followed by sudden forcible flexion. The method of doing it varies with each joint, and I can with confidence refer you to the descriptions given by Dr. Wharton Hood, as being faithful word-pictures, supplemented, too, by very accurate drawings.

The following are some of the lesser injuries the non-recognition of which has frequently come under my notice at Whitworth. In the upper limb: Fracture of the tip of the acromion; partial luxation of the acromio-clavicular and sterno-clavicular joints (often happening to men who carry weights on their shoulders); partial dislocation of the long head of the biceps, with over-extension of the bicipital fascia (common in men who throw weights or use a shovel, as malsters or navvies). Dislocation of the head of the radius forward on the condyle, which is very common in children, and has a marked tendency to cause stiff elbows; fracture of the tip of the internal condyle; overlooked Colles' fracture; partial luxation of the head of the ulna (impeding supination of the hand, and having a tendency to gradually grow worse); severe sprain at the carpo-metacarpal joint of the thumb (very common in stonemasons, and caused by the "jar" of heavy chisels).

In the lower limb: Fracture of the fibula just above the malleolus and at its tip (these are fruitful sources of lameness, often overlooked, and, if of old standing, very troublesome to treat); partial rupture of the ligamentum patellæ at its insertion into the tubercle of the tibia, which is much more

common than is ordinarily supposed;³ neglected over-stretching of the ligaments of the plantar arch, and tearing of the plantar ligament at its insertion into the os calcis; rupture of the penniform muscular attachments of the tendo Achillis, and muscular hernia in the calf.

I trust I shall be forgiven if I have dwelt too much on the *étouderie* of some of us, but I am sure so-called trifling injuries deserve more attention at our hands, since living at the high pressure men do nowadays, with every part of their bodies tested to its utmost capacity, the slightest impairment of the mechanism of a limb must be an incalculable source of personal annoyance, discomfort, or disability.

CONGENITAL CYSTIC HYGROMA.¹

By EDMUND OWEN, F.R.C.S.

Surgeon to St Mary's Hospital.

In the volume of the Transactions of the Medical and Chirurgical Society for the year 1839 is a paper by Mr. Caesar Hawkins upon the subject of the present communication. It is, so far as I know, the first treatise that we have upon these cystic growths, and I very much doubt if any matter of importance, either as regards their pathology, diagnosis, or treatment, was left by Mr. Hawkins for future writers to fill in.

Congenital cystic hygroma is by no means of unfrequent occurrence, and it is strange that so little notice is taken of it in our works on general surgery.

The first case to which I will direct attention is that of the little girl that has just been examined by the meeting. She is now between three and four years old. A few days after birth her mother noticed a swelling under the right side of the tongue, which, on being shown to the doctor who attended her, was called a "ranula." He refused, however, to interfere with it. The suppurated ranula grew, extending across the floor of the mouth and amongst the muscles behind the symphysis of the maxilla, until a definite tumour appeared against the angle of the jaw. The little patient was then brought to me, when I told the mother that nothing was to be done to the tumour, which, as it was growing rapidly, might entail serious consequences. My impression is that this enormous mass has now ceased to grow. It is certainly harder than it was, though its cystic nature is still quite evident. It is not tender, nor does it apparently interfere with the child's health or with the nutrition of the skin. I am still content to watch and wait.

The second case is that of a boy of five months who was under my care at the Children's Hospital. He had a cystic hygroma of the size of a walnut in each subclavian region and in each axilla; it was doubtful whether the upper and lower tumours were in communication. Mr. Thomas Smith saw the child with me, and we agreed that no active treatment should be undertaken. When I next saw the little patient, after an interval of three weeks (the mother lived at a distance, and was not led to expect much from treatment), the upper pairs of tumours had almost met across the episternal region; there was difficulty on swallowing, and commencing oedema of the eyelids and of each upper extremity. Translucency showed the cystic nature of the superficial part of the subclavian masses. A week afterwards the mother came to

³ I have seen almost complete rupture unrecognized; while tearing of the ligament from its extensive insertion into the surface of the tibia is very frequent.

¹ Read before the Medical Society of London, Nov. 6th, 1882.

tell me that the child had died on the previous day, and that the tumours had gone on growing so that at last the child could hardly breathe. She said also that the oedema of the hands and arms had gone on increasing until the day before the death, and that the legs and thighs had towards the last days also begun to swell. Her opinion was that death was caused by suffocation. No post-mortem examination was made.

Here, then, are reports of two cases of, so far as one can tell, a similar pathological nature, in one of which fatal complications brought on a sudden termination, whilst in the other a quiescence which one hopes is genuine seems to point to the fact that activity of growth has given place to spontaneous degeneration or atrophy. It is impossible to say what course a cystic hygroma may take; whether it is about to undergo immediate or future growth, or whether it is about to undergo interstitial changes which shall reduce it to a "loose pendulous bag of fat." Inflammation of the tissues, either spontaneous or induced, will at times determine their atrophy, and from the increasing hardness in the case of the little girl, I suspect that such a change is at hand. As Mr. Hawkins remarked, some of these tumours look as if they could be easily dissected out, but to remove one from the neck the operator may have to work around the carotid vessels and possibly behind the pharynx. I once dissected such a tumour from the side of the chest, and even then I had to root it out from beneath the border of the latissimus dorsi. Mr. Hawkins suggested that their treatment should consist in puncture of the larger cysts, and in the application of pressure and counter-irritants. To which one might perhaps add that in certain cases atrophy may follow the inflammation caused by the presence of one or more setons through the mass. Probably spontaneous inflammation is their most desirable complication.

In conclusion, I would remark that, as in the first case, a congenital cystic hygroma in the sublingual region may be mistaken for a ranula, an error in diagnosis which is more likely to lead to disappointment than to damage. That in whatever situation it may occur it is apt to be mistaken for a subcutaneous naevus, or for one beneath the mucous membrane; and, lastly, that at times the resemblance to a fatty tumour is extremely close.

A second child exhibited possesses the remains of a hygroma on the arm. The patient has been three years under observation, but the mass, which now resembles a diffuse fatty tumour, was, when first under observation, of evident cystic formation. This is the only instance which I have seen of a congenital cystic hygroma situated upon an extremity; their favorite seat is the armpit and the floor of the mouth.

Seymour-street, W.

PENETRATING WOUND OF THE ORBIT, INVOLVING THE BRAIN; NO MARKED SYMPTOMS UNTIL THE THIRD DAY.

By ENOCH DUE PRIDEAUX, L.R.C.P., M.R.C.S., etc.

W. T—, aged twelve, was playing with two other boys on the morning of Feb. 24th. The boys had hazel sticks about two feet long and half an inch in diameter, pointed at one end and cleft at the other, and in the cleft they fixed stones. One boy in alighting the stone let the stick slip, which went off with the stone and struck the patient in the right eye, entering by the pointed end. The boy pulled the stick out and walked home, about a mile, and told his father he had been

struck in the eye. His mother bathed the eye, which appeared uninjured, and thought no more about it. They remarked that blood came from his nose and mouth. However, the boy remained well until the following Saturday. When he got up that morning his eyelids were so swollen he could not open them, he complained a good deal of pain. His eye was poulticed, but he was not kept in bed. He took his meals; and beyond complaining of the pain was not otherwise affected. In the evening, after he had taken his tea and gone to bed, he was found insensible, and I was sent for. When I arrived the boy was quite unconscious and very restless, turning over and over. Pulse 120, regular; temperature 101°. The eyelids were so much swollen I could not open them. A little pus was oozing out at the inner angle of the eye and some coming down the nostrils. He was quite unable to swallow. I placed a little calomel upon his tongue. The next morning he was quieter; his attention could be arrested by shouting to him. I got him to swallow a few spoonfuls of milk. Pulse and temperature the same. He died the same night, becoming more and more comatose during the day.

I made a post-mortem examination, and found a small external penetrating wound at the inner angle of the eye, but all the structures of the eyeball were quite uninjured. Internally I found a small ragged hole, large enough to admit the little finger, at the junction of the sphenoid and ethmoid bones. The under surface of the anterior lobe of the right cerebrum was completely destroyed. On placing the brain in water it all washed away, leaving a large ragged cavity the size of a duck's egg, and in which were two pieces of bone each as large as a threepenny piece. The whole brain was highly congested, with a patch of fresh lymph as large as a shilling under the dura mater at the vertex.

Wellington, Somerset.

NOTE ON THE USE OF BOROGLYCERIDE IN THE TREATMENT OF WOUNDS.

By HENRY A. LEDIARD, F.R.C.S. Eng. and M.D. Ed.,

Surgeon to the Cumberland Infirmary.

ON March 19th of this year I was some distance from home, consulting with Dr. Walker, of Stapleton, in this county, and he mentioned to me that a new antiseptic (boroglyceride) was creating some stir in Germany, and offered to provide me with some if I would use it and record my experience. Accordingly a few weeks ago I received four ounces, which were dissolved in water and used in the strength of 1 to 20 and 1 to 40. In appearance boroglyceride is like large cakes of isinglass, of the color of gum acacia, sticky as toffee, and has a slightly warm taste of indefinite and transient character. In solution it is colorless and almost tasteless.

We are now in possession of a few facts in reference to the use of this new antiseptic as applied to wounds, many of which have been treated with it, but owing to the supply from Dr. Walker having scarcely kept pace with the demand, the trial has not been as complete as could have been desired. A case of Syme's amputation for ankle-joint disease was treated with boroglyceride from the first—i. e., the flaps were washed with the solution, and the stump wrapped in lint steeped in 1 to 40 solution; the subsequent dressing consisted in washing out the cavity and using lint as before, the result being as excellent as, but not more excellent than, I have seen in similar cases treated with dry lint. The

stump kept sweet to the nose, but the drainage-tube and pus squeezed from the stump were not so. It is probable that we used the solution too sparingly; and allowance must be made for this, for occasionally we had to wait for the arrival of a fresh supply. Another case of railway smash of the foot (Syme's amputation also) which was not healing kindly (Listerism having been relinquished on account of putrefaction), was treated with boroglyceride, and although healing was neither interfered with nor accelerated, yet smell was unquestionably kept down. Several wounds, the result of either accident or surgical operation, have also been treated with boroglyceride with satisfactory results, and the conclusions I have arrived at so far are as follows: For open wounds or wounds with open cavities boroglyceride in solution will be found to be a non-irritating and powerful antiseptic, in no way interfering with natural healing processes, and in no degree troubling the skin around a wound; but where shut cavities exist, as in stumps after amputation, although syringing with the solution be adopted, yet the discharge collecting within is not kept sweet. I feel sure that much remains to be done to develop the use of this new antiseptic, which, on account of its non-irritating properties, will prove of much value in the treatment of wounds. To claim for any antiseptic a value beyond one's experience would be to court distrust, and I prefer to speak hopefully rather than positively.

Mr. Barwell's paper in *THE LANCET* recently certainly supports our experience of the value of boroglyceride, but we have not succeeded in preventing rises of temperature, any more than we have succeeded in obtaining union without one drop of pus, neither have we seen remarkable results as to healing by first intention; in fact, the results may seem to be *nil*. I think the use of stronger solution than 1 to 40 or 1 to 20 may be tried, and the lint around the wound should be kept constantly moistened with the solution. As far as I am aware boroglyceride is innocuous, a matter of great moment, when one recollects how many patients have been poisoned by doses of carbolic acid by inadvertence, how many untoward symptoms have been put down to the use of the carbolic spray and absorption of carbolic acid.

I hope on a future occasion to add more to this brief note, which must conclude with an acknowledgement of thanks to Dr. Walker, who manufactured the boroglyceride himself.

Carlisle.

THE INTRA-VENOUS INJECTION OF FLUID FOR SEVERE HÆMORRHAGE.

By C. EGERTON JENNINGS, L.R.C.P. Lond.,

Resident Accoucheur, and Formerly House-Physician, at the London Hospital.

(Concluded from p. 367, Nov., 1882.)

STUDENTS, with smiling faces, are rapidly leaving the theatre of one of our metropolitan hospitals. The most brilliant operator of the day has just performed immediate transfusion with the greatest success. By means of a very beautiful instrument, the most complex and ingenious that modern science has as yet produced, a skilful surgeon has transfused half a pint or perhaps a pint of blood from a healthy individual to a fellow-creature profoundly collapsed from the effects of severe hæmorrhage. Some little difficulty was experienced prior to the operation, as one of the many stop-cocks of the transfusion-apparatus was found to work stiffly, but this error was quickly rectified by

a mechanic in attendance. Towards the close of the operation the blood-donor, a powerful and heavy young man, swooned. Two porters carried him on a stretcher into an adjoining room, his wounded arm being bandaged up, *secundum artem*, by energetic dressers. Diffusible stimuli were exhibited by the mouth, nostrils, rectum, and skin. The man rallied in due course, being well cared for by a group of students and nurses deputed to look after him. The wound in his arm will probably heal speedily, or a few weeks later he may possibly apply at the out-patient department of the hospital, presenting an ugly-looking pulsatile tumour, associated with a thrill and rasping bruit, connected with the vessels in the cubital triangle—a most unfortunate accident having clearly happened here, of which a record promptly appears in the columns of *THE LANCET*.

Time rolls on, and a spectator of the duplex operation, possessed of an instrument such as he had seen employed, finds himself at midnight, in a lone house in the country, face to face with an alarming case of post-partum hæmorrhage. He has adopted the modes of treatment recognized as judicious for the condition before him. He has employed active hæmostatic agents, and finally that potent but highly dangerous syptic, perchloride of iron. His patient is blanched and collapsed to the last degree. Are not her blood-vessels so thoroughly drained of blood that there is not sufficient of that element circulating in the uterine walls to stimulate to *permanent* contraction its muscle fibres? Is not this the very case for transfusion? The accoucheur puts his apparatus in order (he may not have it with him, and be obliged to send home for it) and selects a blood-donor. He has little time or opportunity under the circumstances I have depicted to find an adolescent, healthy beyond a doubt; little time has he to eliminate the existence of syphilis or of other specific communicable diseases by a well-planned examination of the youth, nor to obtain a knowledge of his previous history and mode of life. The operation is commenced; the blood-donor faints; the friends of the patient, the necessarily improvised assistants to the accoucheur, faint also. The operation is abandoned, and it and he who proposed it fall into disrepute. But there may fortunately have been time to summon a skilled assistant. The veins both of blood giver and recipient may have been dexterously opened, and transfusion commenced. Still, accidents may even now happen; a small coagulum may form within the apparatus, or a little air gain access through some contingency to the veins operated on.

The picture is carried far enough. Is the operation of immediate transfusion, as taught and elaborately performed in hospital practice, where there is every means of ensuring success, one of universal application? Is it one that can always be performed when most needed—under urgent circumstances and at a moment's notice, often in the night, at Land's End, John O'Groats's house, or Ratcliffe-highway, and by an unaided operator, with everything against him?

If the practitioner have not at his command, when circumstances indicate its employment, a transfusion apparatus, what can he do? Imitating Treves, he may file down the bone nozzle of an aural syringe, and through this rude but efficient cannula administer an intra-venous injection.¹ No satisfaction can possibly be greater than, under compulsion, to have operated successfully in such a manner. But would it not be far better were some simple method known, which, being of

¹ *THE LANCET*, 1877.

ready application, and not requiring complex, expensive instruments, difficult to manipulate and otherwise objectionable, might be employed by every medical man in the kingdom with ease, expedition, and safety? This question forced itself upon me very strongly when, in the case I have recorded,¹ I administered, with the three-ounce metal transfusion-syringe of the London Hospital (as represented by Fig. 1), an intra-venous injection, the procedure being, in my estimation,

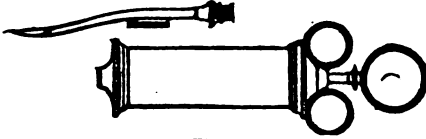


Fig. 1.

fraught with the risk not merely of admitting air while detaching the body of the syringe from its nozzle by means of a screw, for the purpose of refilling the instrument, but also with the danger of injuring important structures adjacent to the vein selected for operation (in the case of the median basilic vein, the brachial artery) with the point of the nozzle; for the syringe being many times heavier than the nozzle it was impossible for me to hold the latter steadily during the proceeding. Fig. 2 illustrates an instrument which, to obviate the objections I have mentioned, has been made for me by Maw & Co., and has been briefly described in my preceding paper. It is essentially a syphon, consisting of five feet of elastic tubing, one extremity culminating in a vulcanite bell-shaped opening guarded by a metallic grating, the other joining a silver stopcock, to which a cannula can be attached. A short distance from this extremity the continuity of the syphon is interrupted by a small glass tube, inserted for purposes of observation; a few inches higher still is an exhausting bulb, by which the air present in the instrument can be expelled prior to use. A semicircular canal of vulcanite protects the rubber tube where it passes over the edge of the vessel containing the solution for injection. The cannula is serpentine in form—following in this respect Treves's pattern,

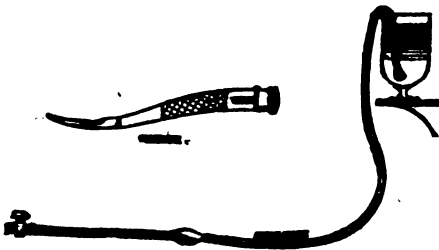


Fig. 2.

compressed a little laterally and embossed at the part where it should be grasped by the operator's fingers. It gradually tapers to a blunt extremity, at a distance of half an inch from which is an oval aperture for the transit of the vivifying fluid. This aperture can be closed by the pulp of the index finger whilst the point of the cannula is being inserted into the vein; as the finger is withdrawn the cannula is simultaneously pushed onwards; the possibility of the entrance of air into the vein, if this method be adopted with ordinary care, being certainly avoided. The cannula is grooved fifteen-

sixteenths of an inch from its point, by which means it can be secured with a ligature and maintained *in situ* when fairly within the vein. Always mindful of the fact that it must become the duty



Fig. 3.

of every surgeon at some time or other to perform transfusion, like tracheotomy, entirely unassisted, or his patient must succumb. Fig. 3 represents an automatic retractor, which, being capable of almost instantaneous application, might often be very serviceable.

In conclusion, I beg leave to acknowledge many valuable suggestions I have received in reference to this syphon from Dr. Palfrey and Mr. Fenton-Jones, and to express the hope that by the substitution of simple for complicated methods of transfusion or intra-venous injection, every instrument devised for its performance being safer and surer in its mode of action than those which have preceded it, the operation will at length be elevated from the dazzling but delusive position it at present occupies to one of true utility to mankind.

CASE OF CARIES OF THE ATLAS AND AXIS.

By JOHN DEARDEN, M.D., F.R.C.S.E.

THE following case appears to present some features of interest, which I have thought worthy to place before the readers of THE LANCET.

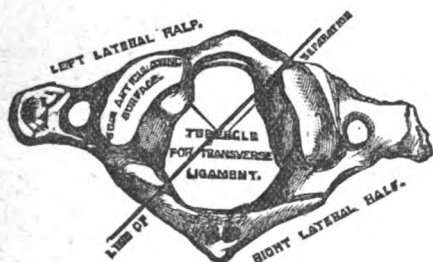
On Dec. 26th, 1881, I was called to attend B. H—, aged forty-two. He is of medium height, tolerably well-developed, pulse and temperature normal, lungs and digestive organs apparently healthy, and of temperate habits. He complained of acute, darting pains up the left side of the neck, extending to the head, taking the course of the trapezius muscle of that side; he also complained of a dull, aching pain on the top of the head, about the junction of the occipital and parietal bones. The pain in the neck was aggravated on the slightest movement of the head. There was enlargement of two of the cervical glands to about the size of a walnut, also considerable rigidity of the muscles of the neck. No difficulty was complained of either in swallowing solid or liquid food, of which he took a fair quantity. The head was drawn slightly forwards and towards the right side; the intellect was quite clear, and there was no impairment of muscular movements in any part of the body. His only complaint was the "excruciating" pain already referred to, and which rendered it difficult to raise himself from the recumbent to the sitting posture, the head having to be steadied by both hands.

The patient stated that he lived in Australia eleven years ago, and had frequently "camped" out on the open ground; also that he had a severe fall from a considerable height (fifteen feet), alighting upon his back, but "thought he got completely over the effects." He first noticed "the pain" about three and a half years ago, but had been able to attend his business, that of a grocer, up to the time of my first visit. He stated that he never had syphilis. On the date first mentioned he was not confined to bed, but was able to be up and about, taking short walks. In March, 1882, as there had been no improvement he expressed a

¹ *Ibid.*, Nov., 1882, p. 366.

wish for change of air, so he went to Blackpool. After a short stay he went to Buxton, and placed himself under hydropathic treatment. Finding himself getting weaker and the pains considerably increased, he returned home, arriving on May 23rd. From that date he was not able to sit up more than a few minutes at a time, and that at intervals of nearly a week. On June 23rd the voice became squeaky, and diminished in resonance daily until the termination. Bilious vomiting occurred at intervals; increased secretion of mucus about the fauces and pharynx, which was got rid of with some difficulty; dribbling of saliva from the right angle of the mouth; the above symptoms indicating that the pneumogastric and recurrent laryngeal nerves were implicated in the disease. On June 30th he was seized with violent muscular contraction, raising himself suddenly to the sitting posture, the legs being shot off the bed quite rigidly. He immediately expired.

By his special request the head was examined (Dr. Ruttle, of Accrington, kindly assisting). On removing the calvaria extensive adhesions were found existing between the dura and pia maters, chiefly situate at the apex; the brain appeared healthy throughout. On looking into the foramen magnum the bare and roughened surface of the top of the odontoid process was visible. An opening was then made along the posterior border of the sterno-mastoid muscle. A large collection of pus was found on the anterior surface of the spinal canal, but not opening into it, the theca spinalis being whole. The left lateral half of the atlas was



extensively necrosed and completely separated from the other portion (the dotted line in the diagram showing the separation), and could be easily removed by the fingers. The right half was represented by only small pieces of necrosed bone, both articulating facets of the occipital bone, and all those of the atlas, were also found to be necrosed; the transverse ligament of the atlas was absent.

It does not need any lengthy description or vivid portraiture to see what the effect of violent and sudden contraction of the sterno-mastoid muscles must be. The head would be drawn forwards, the transverse ligament being absent allows the odontoid process with the axis to slip backwards, crushing the medulla oblongata against the posterior part of the foramen magnum in this case, as there was little of the atlas left—ergo, instant death.

The treatment had been various, chiefly iodide of potassium at one time, quinine at another, now counter-irritation to the nape of the neck, again sedative applications. The only medicine I gave him was quinine with gelseminum and a liniment composed of equal parts of chloroform, tincture of opium, belladonna, and aconite, which he used freely, and expressed himself relieved by it, at least for a short time.

He had been seen and attended by several gentlemen, but the (apparently hidden) nature of the

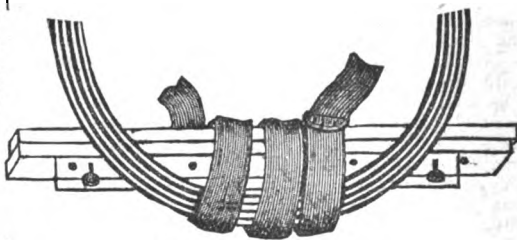
disease was, I think I am right in saying, never discovered during life. I thought the symptoms pointed either to aneurism of a basilar artery or abscess at the base of the brain.

Church, near Accrington.

A NEW CRADLE, SPECIALLY ADAPTED TO FIX EITHER TO A BACK-SPLINT OR TO THE LIMB, AS REQUIRED.

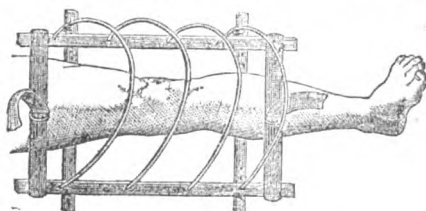
By WM. THOMAS JACKMAN, M.R.C.S., etc.

THESE small cradles will be found of great service to surgeons where it is desired to keep the bed-clothes raised from an inflamed joint, either to avoid pressure or to increase the efficacy of evaporating lotions, by allowing above the limb a space into which evaporation can take place. They can be fixed securely to a back-splint, or to the limb if no splint is being used, by means of a broad strap of webbing; the space between the limb and the



The cradle packed for carrying.

hoops of the cradle can be regulated as required. The cradles for the knee and ankle are made of wood, and consist of four movable cane hoops three inches and a half apart, capable of being fixed at any desired height over the limb into side bars of wood sixteen inches long. The cradle is further secured by means of two sliding laths



The cradle for the knee, adjusted.

which pass under the limb and are fixed by pegs; these being adjusted, assist in the regulation of the height of the hoops. The whole apparatus is very portable, light, cleanly, and of easy adjustment. The length of the cradle is such that only the inflamed joint is protected from the clothes, thus avoiding discomfort to the patient, which the large cradles resting on the bed, as at present used, necessarily cause. The cradles, being really one with the splint or limb, can be conveniently used in cases where the limb is slung. The small space the cradle takes up in the bed is a great convenience. For the elbow-joint light angular cradles of stout iron-wire are more suitable; these are fixed to the splint or limb in the same manner as the wooden cradles. Messrs. Ferguson & Co., of Smithfield, are the makers.

Coggeshall, Essex.

CASES FROM COUNTRY PRACTICE.¹

By H. MALLINS, M.B., M.Ch. T.C.D.

CASE OF TUMOUR OF THE CEREBELLUM.

ANNE L.—, aged sixty-one years, a laborer's wife, the mother of a numerous family, first came under observation on March 15th, 1881. Her family history is very good; her mother is still alive. With the exception of some gouty attacks, she has enjoyed good health until about a year ago, when she commenced to complain of headache. She was considered to be suffering from migraine, and improved somewhat under treatment directed against that affection. The pain in the head, however, did not entirely leave her, and towards the end of July it again became very severe, radiating from the occipital region forwards all over the head, attended with frequent vomiting and extreme tenderness of the scalp. Double vision was now noticed for the first time. No paralysis could be made out, but a condition of general muscular debility was well marked. From this time to the date of her death she was confined to her bed. When able to walk no tottering gait had been noticed. The diagnosis of a tumour of the cerebellum was now made, grounded chiefly on the two symptoms of persistent pain in the head and constant vomiting.

Nov. 1st: The pain is now referred more to the right frontal region than elsewhere. Since last report the sight of the left eye has been completely lost; both pupils are normal. There has been no vomiting for the last two weeks.—7th: The sickness has returned. There is slight left strabismus. The sight of the right eye is becoming affected. The conjunctivæ of both eyes are injected, and are the seat of much "pricking and watering."—14th: The pain, which is as severe as ever, is now described as being of a pulsatile character, and is felt all over the head. The sight of the right eye is a little improved. A feeling of numbness is felt over the whole body when she assumes the standing position, which she cannot do without assistance. The vomiting continues, though occasionally ceasing for a few days. The tongue is coated with a thick whitish fur, and has been so for several months past. She complains very bitterly of the unpleasant taste in her mouth. The bowels are obstinately constipated, and only respond to a sharp purgative.—19th: The sight of the right eye is nearly gone. Her hearing seems affected now. When spoken to she turns her head away from the speaker, as if the voice seemed to come from a point opposite the real one. The intellect seems to be getting clouded. The general muscular paresis is more pronounced.—22d: Both pupils dilated and insensible to light. Convergent strabismus of eyes, more decided on left side; the oscillation of both eyeballs prevented a satisfactory examination with the ophthalmoscope. She can still see, but very imperfectly, with the right eye; still complains of a nasty stinking taste in her mouth. Pulse 72, intermittent. Respiration very slow, 12 in the minute. A numb feeling of "pins and needles" in both hands and feet, accompanied by a sensation of cold in the parts, is now complained of.

Jan. 31st, 1882: Pain of head continues. It now extends down the back of the neck, accompanied by stiffness of the latter. The sight of both eyes is now gone.

Feb. 16th: The vomiting has ceased since last report. Beyond a tendency to delirium at night, there is no change to record.

March 5th: Intellect more clouded; keeps talk-

ing to herself, though sensible enough when roused. The pain in the head now comes on in paroxysms, attended with slight muscular contractions of the limbs.—31st: Slowly getting worse; passes everything under her; vomiting very rarely occurs now; she has great difficulty in moving either upper or lower extremity as she lies in bed. Bedsores are beginning to form over the sacrum.

April 12th: Complete paralysis of both upper and lower extremities; has great difficulty in swallowing; is almost unconscious, answering yes to every question.—20th: Sank quietly at 1 p.m.

Autopsy, twenty-eight hours after death.—Head alone examined. Dura mater slightly adherent to calvaria in the left fronto-parietal region. Upper surface of brain healthy in every respect. On viewing the base of the brain, however, the eye is at once struck by a tumour of a dark reddish-blue color (very like a piece of placenta), lodged between the pons Varolii, whose substance it has deeply indented internally, the left lobe of the cerebellum posteriorly, and the cerebral mass anteriorly and externally. Irregularly roundish in shape, about two inches in diameter, of soft, friable consistence, it seems to spring from the upper surface of the left lobe of the cerebellum, with the pia mater of which it has a very intimate connection. The tumour was examined by a special committee of the Norwich Medical and Chirurgical Society, and pronounced to be a glioma.

Watton, Norfolk.

AN EVACUATOR FOR THE BLADDER.

By JOHN H. MORGAN, F.R.C.S. Eng.,
Charing-cross Hospital.

In a lecture published in *THE LANCET* in 1882, Sir Henry Thompson describes an aspirator which had been made according to his own design, and another modification of the same principles carried out by Messrs. Weiss & Sons, and he lays down some points as essential in the construction of an efficient instrument. The first of these principles is that "it should be light and small, so as to be easily grasped and governed by one hand"; the second requires that there should be a tap at the top for the exit of air and the introduction of water. To fulfil these conditions is not an easy matter, since any apparatus of india-rubber which is to support above a heavy tap and be attached below to a cylindrical glass receiver in which fragments are caught, and to which a catheter is attached, must be of such density and size as to be with difficulty grasped, much less compressed by a single hand, at all events many times in succession. In other words, if the continuity of the bulb is broken at two points, its resiliency must be supplied by greater thickness. This objection is practically found in the case of both these instruments. At the late meeting of the Medical Congress in London, Professor Bigelow explained that "the new and essential part of the evacuating apparatus is the large catheter, whether straight or curved," and went on to describe the various apparatus which he has contrived to extract fragments from the bladder, and at the same time to prevent the possibility of their return. These instruments were figured and described in the *Transactions*, but that Professor Bigelow is hardly yet satisfied is shown by the fact that at a recent meeting of the New York Academy of Medicine he exhibited the evacuator which he has "finally settled down upon as being the best," adding that the ball-valve and strainer which formed part of his former instrument were a "little complicated" and "apt to clog."

¹ Read before the Norwich Medical and Chirurgical Society.

Adhering to the principles laid down by these two eminent lithotritists, I have been at some pains to contrive an apparatus which should at once be effective in action, but of simpler construction than those hitherto invented. The result of my efforts is an instrument which is figured below. It consists of an india-rubber bulb (A) of moderate resiliency, and capable of containing about twelve ounces of water. This is of the shape of an inverted pear, and its narrow portion is fixed to a metal ring, which can be attached to or removed from the central portion of the apparatus by means of a screw. This is only required for convenience of carriage or for the purpose of cleaning the apparatus. In order to allow a better view of the glass-receiver, the bulb is attached at an angle slanting backwards to the rest of the apparatus, which hangs perpendicularly. The central portion is of metal, and forms one with the bulb above, and is attached by a bayonet-joint to the glass-receiver below. In front projects a short tube (D), into which the catheter—the largest of Bigelow's sizes—fits when the instrument is in use, but which can accommodate catheters of a smaller calibre. Running diagonally downwards in the interior of this portion of the apparatus, and fixed above, just at the entrance of the passage of the

the solid portion and inclined slightly backwards, the pressure of the atmosphere is sufficient for this purpose. The india-rubber bulb must not, of course, be touched until the tube (D) has been adjusted to the catheter. It will then be found that the weight of the upper and lower portions is so evenly balanced (when full) as to make all manipulation easy, and entirely under the control of one hand, so that water can be injected into the bladder and withdrawn as rapidly or slowly as is wished, and the position and direction of the catheter altered.

In using this, and all other instruments for a similar purpose, it is well, after forcing water into the bladder, to pause for a second or two before relaxing the pressure on the bulb. By so doing the fragments which have been set in commotion can settle at the bottom of the bladder, and thus come nearer the eye of the catheter, and are withdrawn by the returning current of water. In this apparatus the fragments striking against the metal disc are at once thrown down into the glass-receiver, where they remain undisturbed in any position of the instrument. The apparatus has already been used and approved by several London surgeons.

Chapel-street, Park-lane, W.

THE TREATMENT OF GONORRHOEAL OPHTHALMIA.

By CHARLES BADER,

Ophthalmic Surgeon to Guy's Hospital.

THE uniformly favorable success of this new treatment, and the serious nature of the disease, will, I hope, justify the publication of the following cases, which have occurred in the present year.

CASE 1.—Miss S—, aged eight, when seen on Jan. 21st with Dr. Harter, of Artillery-place, Finsbury-square, suffered from gonorrhoeal ophthalmia (fifth day) of the right eye, probably through a servant with gonorrhoea using a towel in the child's room. The anæsthetic was necessary for examination, the child being most troublesome; this Dr. Harter had to repeat each time when injecting the ointment. The purulent discharge, redness, and swelling of the lids were very great, and even under the anæsthetic only a glimpse of the lower margin of the opaque cornea was obtained. Similar examination on Jan. 24th and Feb. 7th showed the lower third of the cornea opaque. The ointment was injected once daily, and the eyelids kept bound with lint smeared over with it, changing the lint several times during the day. The left eye, which remained unaffected, was only bound up with lint and ointment, taking care to attend to this eye before the other was touched. The injection of the ointment was discontinued on Feb. 7th when the lids opened sufficiently to see the entire cornea. When the child was seen in March, the surface of the cornea was smooth, and the opacity reduced to a small nebula.

CASE 2.—Mrs. E. B—, aged thirty-four, was admitted into the eye ward of Guy's Hospital on March 3rd, with gonorrhoeal ophthalmia of both eyes. The lids of the right eye were too much swollen to admit of a view of the cornea; that of the left eye, on raising the red drooping swollen lid, was found to be transparent. The sister of the ward injected the ointment at 9 A.M. and 4 P.M. daily; both eyes were kept bound up with lint thickly covered with ointment; fresh lint was applied after each injection.—March 14th: Injection of the ointment at 9 A.M. only; the lids open fairly;



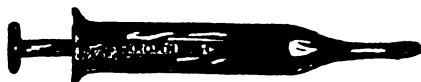
tube (D), is a perforated metal disc, which is placed in such a position that anything carried through the tube (D) must directly impinge upon it, and be thrown downwards. The glass-receiver (C) is made to fit closely to the central portion, and is shaped like the handle of a pistol, with two objects—partly because by this curve an interruption is made of any current of water carrying with it fragments of detritus, and partly because in the forepart of this transparent bowl the size and quantity of the fragments can be seen and estimated by the operator.

In order to fill the apparatus, the receiver (C) must be detached and filled, and the air driven out of the upper portion under water. The two pieces being filled, must be fixed under water, which can be done in a large basin or bucket, and for security the forefinger should be placed over the mouth of the tube (D), to prevent the escape of any water, although if the instrument is held by

the lower margin of the right cornea is opaque.—
 11st: Discharged. Advised to smear some of the ointment among the eyelashes at bedtime.—April 4th: All discharge ceased; right corneal opacity barely noticeable.

CASE 3.—Mr. H—, aged twenty, when seen on April 26th, 1882, with Dr. Blades, of Kennington-park-road, was suffering from gonorrhœa and from gonorrhœal ophthalmia of the left eye. No inspection of the cornea was possible, the swelling and tension of the eyelids being too great; there was much purulent discharge, pain, and intolerance of light. Right eye not affected. Dr. Blades injected the ointment daily (about 11 and 4 o'clock) beneath the upper eyelid of the left eye; both eyes were kept bound up with lint and ointment.—April 30th: Less pus and swelling; eyelids of a dark blue-red hue; the lower part of the cornea, as far as visible, opaque. On receiving a telegram the next day that the right eye was also inflamed and discharging, I replied, "Inject both eyes." Five days later the discharge from the last attacked eye had greatly subsided. As the lids opened and discharge and swelling became less, the injection was made once daily, but the bandage with lint and ointment was discontinued. On May 25th the ointment was continued and weak alum lotion used for bathing. In July I saw the patient: both cornea were clear, and the eyes well in all respects.

Remarks.—The ointment consists of one grain of the red oxide of mercury (supposed to destroy the contagious matter), of one-fifth of a grain of daturin or atropin (to combat iris complications), and of one ounce of vaseline (as the best vehicle to touch and saturate the entire surface of the conjunctiva with the remedies). In no case, however



great the swelling of the eyelids and conjunctiva, has any difficulty been experienced in injecting the ointment. For injection a small glass syringe, figured above, is used (made by Messrs. Krohne & Sesemann) with a flat nozzle, to pass readily beneath the margin of the upper eyelid. The ointment, passing beneath the margin of the upper eyelid, escapes, generally with some pus, at the inner canthus. About two drachms of the ointment suffice for one injection. No pain whatever is felt when manipulating gently.

NEW SPLINT-REST FOR SYME'S AMPUTATION.

By HENRY A. LEDIARD, F.R.C.S., Eng., etc.,
 Surgeon to the Cumberland Infirmary.

THE accompanying woodcut represents a splint-rest which has been made for me by the infirmary joiner under the direction of Mr. A. Proffitt, our house-surgeon at present. I have remarked that the ordinary straight back splint, although most valuable in many amputations, fails to give support, if necessary, to the heel-flap in Syme's amputation. I allude to cases where the stitches are subjected to strain, and to cases where union of the flaps is delayed from some cause, and where adhesive plaster is employed after the stitches have been taken out. Again, in the usual dorsal position of the body after Syme's amputation, the cut end of the tibia tends to project somewhat from the drooping of the heel-flap, which is some-

times more bulky and heavy than at others, according to the nutrition of the patient and amount of tissue available. I have lately tried the effect



of a wooden splint so shaped as to fit the end of the stump and support its side and end. In order to promote drainage and to relieve tension, my old master, the late lamented Professor Spence, was in the habit of placing his Syme's amputations upon their sides and bending the knee. The discharge would thus drain through the outer angle of the flap, near where the tip of the external malleolus had been. This is an excellent method in some instances, if the lateral posture is tolerated, but the stump has occasionally a tendency to slew round, and to require readjusting with plaster. I consider, then, that the splint-rest figured will afford another step towards that rest and freedom from pain so essential in the treatment of wounds, which Hinton and Callender both taught and practiced.

There are some Syme's amputations which do not require a thought from the moment of the completion of the operation, even strapping after removal of the stitches being wholly unnecessary; but it is not so in all, and whether the latter are treated with Listerism or the open method, I think that in a few cases my splint will be found serviceable. It will be observed that the splint is hollowed for the calf, as well as shaped for the stump end.

Carlisle.

A NEW INTRA-UTERINE STEM, COMBINED WITH AN INSTRUMENT FOR KEEPING SEPARATE THE LIPS OF THE CERVIX AFTER INCISION.

By J. BERESFORD RYLEY, M.D.

It will, I think, be admitted without question that dysmenorrhœa and its wide-spreading effects solicit the attention of the profession more frequently than all the other diseases of the uterus put together. Any new mechanism therefore that has for its object the further alleviation of a malady so distressing, on account of its physical, physiological, and psychological consequences, will, I feel sure, be received with that consideration which its importance deserves. The idea of making the cervix uteri the *point d'appui* or fulcrum for an intra-uterine stem, instead of the vagina or a



point outside the body as has hitherto been the case, had been present to my mind in an indefinite shape for a long time, and is only the extension of another which had for its object a contrivance for keeping separate the lips of the cervix after incision. Those who have been called upon to perform this operation and all who have written on the subject are aware and assert that a successful issue depends altogether upon the tedious after-treatment and is but little affected by the mode of

operating. Dr. Atthill, of Dublin, than whom no one has written more practically upon this point, says in his "Diseases of Women," "Passing the uterine sound daily for at least two or three weeks subsequent to the operation and at intervals for some time longer, I find to be usually sufficient to prevent the divided surfaces from uniting." If one will but pause for a moment to consider the almost unbearable distress to the patient and the humiliating tedium to the practitioner involved in such a proceeding, it will not be wondered at that so many should have pronounced this operation to be most unsatisfactory. I have examined the cervix uteri after operation by most of the well-known gynecologists in London and elsewhere, and have usually found that after a time its canal and outlet had contracted back to their originally abnormal conditions, and that the history of the majority of the patients was that they had had more or less relief for a few months after operation, but that the pre-existing symptoms had returned as severely as ever. Again, those who have had any experience in the application of the various forms of uterine pessaries must very often have felt extremely disappointed with their general results, and will, I think, agree with me that not one-tenth of the patients for whom they are used obtain any marked benefit therefrom. Intra-uterine pessaries undoubtedly give much better results, but their mechanism hitherto has been so complicated and imperfect as to render their introduction and retention both difficult and distressing. I hope, however, that the instruments that I now submit to the profession will be found to obviate all the difficulties and distresses that I have enumerated. Their mode of application is so easy and the principle on which they are based so simple, that a glance at the diagram will be sufficient to indicate this without any tedious details on my part. It may be objected that an intra-uterine stem as applied in this manner will not alter any abnormal axis of the uterus; but I do not think that this is a matter of any great consequence, because the chief objects, I think, to attain by this mode of treatment are to straighten the organ in question and keep its canal pervious. It also may be thought that the metal pins on which the instruments are based might set up irritation at the points of puncture and easily tear through the structures, but I can answer from experience that neither of these objections will be found to be realized in practice, and that they can be worn for months without inconvenience. I hope that those who, like myself, make a special study of the diseases of women will give these instruments, which are made for me by Messrs. Krohne & Sesemann, of Duke-street, Manchester-square, a fair trial, and kindly acquaint me with the results of their experience.

Finsbury-square, E. C.

NOTES ON MEASLES.

By WALLACE B. CROSBY, L.R.C.P.I., etc.

I HAVE before me notes of many cases of measles which came under my own observation, and having taken those notes with the special object to, at one time, define clearly for myself, and possibly for others, special points in the disease, I think that I might now draw attention to the points I arranged my notes to make clear. The first points in the disease to which I wish to call attention are the slight amount of exposure to contagion necessary to contract it, and the early period at which infection may be given off.

W. C—, the son of a medical man, was sitting at home when his father entered the room, having come straight from a case of measles. The latter, forgetting that he had omitted to take the usual precaution to disinfect his hands, bent over the son and stroked his face several times. Suddenly he remembered the case he had just left and his sin of omission, and at once passed over the boy's face a towel sprinkled with a solution of carbolic acid. W. C— sickened in ten days with measles. This case will illustrate the slight amount of exposure necessary, and the communication of the disease through a third person. C. D— drove in the same cab with W. C— to school; on the same day W. C— came home early, shivering, and with a temperature of 101°. On the morning of the fifth day, or ninety-six hours after invasion, the rash of measles developed on W. C—. In the course of ten days C. D— sickened. This will illustrate exposure on the very first day of invasion, followed by the communication of the disease. I have had many cases which came under my observation before the eruption where, suspecting measles coming on, I had complete isolation with the usual disinfecting precautions observed, and yet the disease developed in due course among other members of the family.

Period of Incubation.—I have seen various statements as to this, some writers on the subject giving a much longer time than I have yet observed. In the great majority of my cases nine to ten days after the exposure the premonitory symptoms set in. I have some where eleven days, and a few where twelve days, elapsed before the disease showed itself. I am disposed to think that the long period is where the patients have more resisting powers, as my cases of twelve days, whether accidental or otherwise, were the parents who took it from their children. I think the one exposed to contagion, after a quarantine of fourteen days, may, in the vast majority of cases, be declared to escape the disease, if he or she has a normal temperature and none of the symptoms after the lapse of that interval.

Period from Invasion to Eruption.—This period I consider full of interest, the special points being the temperature and the day of eruption. The disease occasionally sets in with a temperature of 101° or higher. Frequently on the second day, especially in the morning, the temperature has gone down to normal; so that at this stage, when sometimes the other symptoms are badly marked, the ailment may be declared—unless one has considerable experience in the course of measles—to be simply a feverish attack now passing off. On the third day, however, the temperature again rises, and the symptoms become more obvious. The highest temperature is usually reached about twelve hours before the eruption, at the eruption, or twelve hours after the eruption begins to come out. A temperature of 103.5° I should set down as the average at this period, though I have frequently seen 104°, and occasionally 105°. I have watched several cases from day to day, and have notes of two cases where no eruption whatever appeared till the morning of the fifth day, or ninety-six hours after the first rise of temperature was observed. Occasionally, however, I have seen it make its appearance at the close of the third day, but much more frequently on the morning or evening of the fourth day—that is, from seventy-two to eighty-four hours after invasion. I have dwelt on these two points more especially, as one does not often see cases of measles till the eruption has already appeared, and my object has been to show that, notwithstanding the temperature occasionally falling to normal twenty-four hours after invasion, or notwithstanding four entire days elapse—

ing without rash, still measles is in no way contra-indicated.

Eruption to decline.—The temperature generally falls rapidly once the eruption has well appeared. In from twelve to twenty-four hours after the highest temperature has been reached I have seen a fall of from three to four degrees frequently, with possibly a subsequent rise of a degree or two twelve hours after. Normal temperature in an uncomplicated case is reached on the seventh or eighth day after invasion. The respiration should always be counted as the time for eruption approaches, and for a day or two after it has already approached, and the chest occasionally examined. The respiration about this period may number thirty, thirty-five, or even forty, without any bronchitis or pneumonia being present; but any greater number, unless the temperature is very high, will usually indicate some chest complication. I say unless the temperature is very high, because I have seen from fifty to sixty respirations per minute due to a temperature of 105°, where no abnormal condition of the lungs or bronchial tubes existed.

Isolation.—This, with the usual disinfecting precautions, ought to be commenced as early as possible, and carried on for some time after the eruption has disappeared. I generally advise at least a week to elapse after the fall of the temperature to normal, or the entire disappearance of the rash, before I allow my patient to see anyone other than those engaged in nursing. During this interval the patient has a couple or three baths, using carbolic soap freely. I think, then, after the room and clothes have been disinfected, all contagion is gone.

There is one misleading symptom occasionally present in the early stages to which I wish to direct attention. I refer to the character of the cough. I have seen it of such an exceedingly croupy nature that croup and not measles might be looked for. I had one case, indeed, followed by croupous or plastic bronchitis, where—the measles having subsided—casts of the bronchial tubes were expectorated; but, as a rule, the cough, in the cases where it is croupy, loses this distinctive character after the eruption has come well out.

Downpatrick.

DEATH AFTER ABDOMINAL OPERATIONS FROM HEART-CLOT, DUE TO DISEASE OF THE KIDNEYS.

By LAWSON TAIT, F.R.C.S. Eng.

DEATHS after any kind of abdominal operation are now becoming so rare, from the elimination of preventable causes, that we seem likely to gain an insight into causes which are not preventable. Amongst these, in my recent experience, the most prominent has been heart-clot. In deaths after ovariectomy it seems to be clearly associated with the impoverishment of the blood resulting from repeated tapplings. But it has occurred to me twice lately in other cases, where tapping was not an element. One was a case of removal of the uterine appendages for chronically inflamed and adherent ovaries, and the other was a case of removal of a pediculated myoma. The patients were respectively forty-one and fifty-one years of age, and in neither of them did examination of the urine give any evidence of disease of the kidneys. They both died in the same way thirty-six hours after the operation, the only feature being an extremely rapid rise of the pulse beginning in about twenty hours. The conditions found after death were precisely the same; adherent clot in the heart

chambers and (to quote the words of Dr. Saundby, who made the post-mortem examinations) "both kidneys small, the capsules adherent, the cortices narrow, not more than one-eighth of an inch in breadth." The details of the operations were found to be quite satisfactory.

The facts of these two cases are too closely identical to form a mere coincidence, and from my past experience I feel strongly that, but for the condition of the kidneys, they would both have recovered.

I write this note to ask help from those who are familiar with kidney troubles upon two points: Could I have discovered, in any way at present unknown to me, the state of the kidneys, and could I have done anything in the way of preparatory treatment to prevent the formation of the heart-clot? I have removed tumours, in many instances, knowing of the existence of serious visceral disease, including Bright's disease, and the patients have recovered. But in this (to me) unrecognizable kidney atrophy there seems to be a serious bar to operative success.

Birmingham.

NOTES ON CONCUSSION OF THE SPINAL CORD AND BRAIN.

By WM. SCOVELL SAVORY, F.R.S.,

Surgeon to St. Bartholomew's Hospital.

Is the current view of the immediate cause of the paralysis which follows a severe injury, as a fracture, of some portion of the spine, a correct one? Can the loss, not only of voluntary motion and sensation, but also of excito-motor reflex power in the part below, which is the usual effect, be directly due to pressure on some limited portion of the cord by the fractured bone? In experiments on animals, when the spinal cord is divided at any point, after the shock of the operation has passed off—and this is significant—the power of reflex action in the part below, as everyone knows, remains. Why, then, is it abolished after fracture? Is it not that the violence which is sufficient to produce fracture is severe enough to produce such concussion or disturbance of the cord below as to destroy its power as a nerve centre? Instead of the common statement that the loss of reflex function is due to pressure at a particular part, would it not be more correct to say that the loss of reflex power below is the result of violence which at the part where it was directly applied was sufficient to break and displace the bone, but which has also injured the cord beyond? At all events, if the loss of reflex function be due to the fracture, it must be indirectly; to some mischief by displacement or dragging inflicted along the cord, of course far beyond the part directly implicated in the fracture; but, at least in many cases, the evidence strongly points to concussion as the cause. In a few exceptional cases, although compression of the cord by the displacement of the fractured bones continues, the portion below recovers its function as an independent centre, for the power of reflex action in the lower limbs is, after awhile, restored. The extension and persistence of mischief beyond the seat of visible injury surely claim more consideration than they have hitherto received. But in any case it is not clear why the part above does not to a greater extent lose its reflex power. One would imagine, I think, that the effect of such injury would usually extend almost equally, as indeed it occasionally does, in both directions. How is the clinical fact to be explained?

The curious fact that in concussion of the brain not only may there be a complete loss of consciousness for a considerable period after the injury, but

that in some cases after complete recovery there may be total loss of memory of all events which have happened shortly before the injury, has not perhaps received the attention it deserves. The following cases may be taken as examples.

The driver of a hansom cab was knocked off his box by an omnibus at the top of Newgate street, and brought to the hospital in a state of complete unconsciousness from concussion. From this he speedily recovered; but, at least for several weeks after, when he appeared to be in every respect quite well, he could not in the slightest degree recollect what he had done or seen, or where he had been in the half hour immediately before the accident. It was known that within that time he had taken up a passenger at Cornhill, and driven along Cheapside and Newgate street, yet of this he never had the faintest recollection; but for all events up to this time his memory was excellent.

Again, a gentleman was thrown from his pony at polo, and picked up quite unconscious, in a state of concussion. He recovered from this in the course of two or three hours, and in a few days was as well as ever. But he could never recollect some striking events in the game which occurred within half an hour or so of the accident; yet up to this blank period his memory was minute and accurate.

Now, what happens in such a case? I suppose no one can tell. The substance of the brain is shaken, and presumably for a time damaged in some way or disturbed; or, as we may say, its nutrition is temporarily impaired, and thus may subsequent loss of function be accounted for. The recollection of a bygone event shows that some impression which the brain receives at the time has been registered; and this must be, I suppose, by some change, however subtle, which is more or less durable. Does the violence of the concussion somehow interfere with the registration of such change; wiping out, as it were, the record before the ink is dry? But such guessing as this only shows how very far I am from understanding the fact.

ANOTHER NEW TEST FOR ALBUMEN.

By GEORGE JOHNSON, M.D., F.R.S.,

Professor of Clinical Medicine and Senior Physician to King's College Hospital.

My son, G. Stillingfleet Johnson, in a paper published in the *Journal of the Chemical Society* (August, 1874) describes some compounds of albumen with the mineral acids, and gives a table showing the action of various chemical reagents in causing coagulation in solutions of these albumen compounds. He found that only two reagents besides the mineral acids cause the coagulation of albumen in solutions of all its acid compounds—namely, baric chloride and picric acid—and he suggested to me that the latter of these two substances might be found a useful test for albumen in the urine; for while the baric chloride could not be added to normal urine without being precipitated by many of its normal constituents—sulphates, carbonates, and phosphates—picric acid causes no precipitate in normal urine.

Acting upon my son's suggestion, I have for some months used a saturated solution of picric acid as a test for albuminous urine, with results which may be briefly stated as follows: In normal urine it has never given a precipitate or produced any other change than the slight yellow tinge due to the color of the solution, the mixture remaining quite transparent. When heat and nitric acid, applied with the usual well-known precautions,

have shown the presence of albumen, the picric acid solution has invariably caused coagulation in proportion to the amount of albumen.

Most clinical observers are agreed that one of the most delicate tests for a minute quantity of albumen consists in the addition of nitric acid to the cold urine, when a cloud appears at the junction of the two liquids. In applying this test the urine may be poured upon the acid which has been previously placed in the test tube, or the urine having been poured into the test tube, a few drops of the acid are allowed to flow down the side of the tube while held in a sloping position. It sometimes happens that when the amount of albumen is very small an interval of some minutes elapses before any change occurs at the junction of the two liquids. Now, in such cases I have found that a mixture of equal volumes of the urine and the picric acid solution has immediately become turbid with coagulated albumen. In this speedy and decided action of the test upon urine which is only slightly impregnated with albumen, the picric acid solution is superior to nitric acid. In applying this test it should be borne in mind that the picric acid saturated solution is but little heavier than distilled water, its specific gravity being about 1003; so that, unlike the heavy nitric acid, it tends when slowly poured into the tube to float on the surface of the urine, where a film of coagulated albumen forms at the junction of the two liquids. This floating film with the picric acid solution forms a pretty contrast with the film near the bottom of the test tube when nitric acid is the reagent employed. The coagulum formed with the picric acid solution in cold urine requires a very large excess of water for its solution; in fact it is about as insoluble as the coagulum produced by nitric acid. The picric acid coagulum is readily soluble in caustic potash and ammonia; if, therefore, albuminous urine be alkaline it will require to be neutralized or acidulated before applying the picric acid test; but in all my numerous testings with the picric acid I have not once found it necessary to acidulate the urine. One result, then, of my industrious son's purely scientific work at these compounds of albumen has been to supply us with a really valuable addition to our tests for albumen in the urine.

Then it has lately occurred to me, what is obvious enough when once attention is directed to it, that for a saturated solution of picric acid the crystals or the powder may sometimes be substituted with advantage. A small crystal added to the albuminous urine quickly dissolves and as quickly coagulates the albumen. The crystals are permanent in the air, and may be kept for any length of time without undergoing change; and I venture to predict that a few of these crystals in a small bottle will speedily take the place of nitric acid, whether in sealed tubes or in bottles, in all urinary test cases which are made for carrying in the pocket. With picric acid powder or crystals in one bottle, and Cooper & Fehling's test pellets in another, the most complete urinary test case need contain no other liquid than the spirit in a small tubular spirit lamp. I have for some years carried in my case nitric acid in a well-stoppered and capped bottle, and then enclosed in a boxwood box; but I now with a sense of relief replace the destructive liquid acid for the entirely harmless solid.

Since the preceding was written I have met with two specimens of urine suspected to be albuminous, in which picric acid caused a decided opalescence, while nitric acid only darkened the color of the urine. I am therefore confident that in some cases picric acid will prove to be a more delicate test for a mere trace of albumen than nitric acid. In the solid form the powdered picric acid has this

advantage over the crystals, that it dissolves more rapidly.

Savile-row, W.

PURULENT DISEASE OF THE EAR;

PRODUCING CEREBRAL ABSCESS, PURULENT MENINGITIS, AND OBLITERATION OF THE RIGHT LATERAL SINUS, WITH STRIKING CHANGES IN THE INTERIOR OF THE TEMPORAL BONE.¹

By THOS. BARR, M.D., F.F.P.S. Glas.,

Lecturer on Aural Surgery, Anderson's College, and Dispensary Surgeon for Diseases of the Ear, Western Infirmary Glasgow.

W. C—, a boilermaker, aged thirty seven years, was a remarkably strong man, of great muscular development and of medium height, weighing in ordinary health between fourteen and fifteen stones. He suffered from purulent disease of the right ear from the age of twelve till his death—that is, for twenty-five years. There was almost total deafness on the affected side. The disease was supposed to have originated in the blow of a cane received on the right side of the head, and inflicted by a schoolmaster by way of chastisement. This injury was followed by great pain, continuing for several weeks and culminating in the formation of an abscess which was opened behind the auricle. About the same time a discharge of matter appeared from the external auditory canal. The purulent discharge from the opening behind the ear continued, with variations in quantity, till six years ago, when the opening closed, leaving behind a depressed cicatrix. The discharge from the canal of the ear, which had usually an offensive odor, continued, with slight intermissions, till the patient's death. It was slighter, however, during the nine months before his fatal illness. He was liable during cold weather to attacks of hoarseness with sore throat. At the age of seventeen he suffered from acute inflammatory attacks in the right ear, when it was supposed that his life was in danger. He noticed that when the discharge ceased for a short time he suffered from severe headache, and became very dull and fretful. Indulgence in alcoholic stimulants produced the same effects, and he was therefore very temperate in their use. In the middle of November last there began a series of morbid processes—first in the left ear, then in the right—which in the course of three months terminated fatally by extension of the purulent inflammatory process to the interior of the cranium. The left ear, which previously had been always healthy, and in which he enjoyed good hearing, became at that time dull and discharged slightly without any distinct pain. This was associated at the beginning with sore-throat and hoarseness. The dulness and slight discharge in the left ear continued for two months, at the end of which an acute inflammatory process began in the ear. While at work on Monday, Jan. 23rd of this year, and particularly on his way home at the end of the day, he experienced great giddiness, so that at times he staggered in walking. On the following morning at four o'clock he awoke with severe pain in the head, with great giddiness, and he looked deadly pale. Dr. McConville was sent for in the forenoon, when he found the patient "suffering from great pain on both sides of head, but chiefly on the left side. The left auricle projected abnormally from the side of the head, and the meatus was almost closed by swelling of its walls. There was a general feeling of uneasiness

and tenderness in the temporal and mastoid regions. The cervical glands immediately behind the lobule were much swollen and painful." The deafness on the left side was now almost as complete as on the right, and only the shrill voice of a female friend exerted at its highest pitch close to the left ear could be heard by the patient. Dr. McConville then, for the first time, examined the right ear. He found over the upper part of the mastoid region, a little distance behind and above the auricle, a depressed cicatrix adhering to the subjacent bone. The canal of the ear was filled with pus, and on its removal by syringing with warm water a few granulations were seen at the inner end of the canal. There was some bronchitis and pharyngeal catarrh, along with febrile disturbance and thickly coated tongue.

The treatment carried out by Dr. McConville consisted in the local abstraction of blood by leeches applied in front of and below the left auricle, in the use of poppyhead fomentations and hot linseed-meal poultices to both sides of the head, and in the use of a gargle of chlorate of potash. The general treatment included catharsis by jalap and calomel, followed by the use of a mixture containing iodide of potassium, chloride of ammonia, and an anodyne for the cough. After a few days a large cantharides plaster was applied to the back of the head, from ear to ear, with apparently considerable relief to the pain and the giddiness. The man's condition seemed to improve. After a few days the painful symptoms passed off, and the hearing was partially regained in the left ear. This improvement continued, exciting lively hopes of recovery, which were, however, changed to bitter disappointment, for in the course of another week grave and ominous symptoms appeared.

On Saturday evening, twelve days after the first attack of giddiness, the patient experienced a sense of chilliness; pain was complained of, not on the left, but on the right side, the seat of the old purulent disease. Dr. McConville then ordered forty grains of bromide of potassium and ten grains of chloral to be taken night and morning. The next morning the man felt so well that he proposed to take a walk in the West-end park; but to this the doctor distinctly objected as a possibly dangerous exposure to cold. That evening he had another chill. From this day the symptoms became most grave, and indicated serious mischief in the interior of the cranium. The pain in the head—chiefly in the front—became daily more intense. Nights were passed in agony, which anodynes, externally and internally applied, only partially mitigated. The patient was seized with repeated rigors. In these rigors the arms and legs shook violently. These rigors or shakings soon took the character of epileptiform convulsions.

I was asked by Dr. McConville to see the patient on Wednesday, Feb. 15th, seven days before his death. The man then lay in a stupor, but was capable of being roused; there was extreme deafness, loud shouting into the left ear being necessary before he heard and understood. I asked him about the pain in the head. He answered, slowly prolonging the word, "excruciating." I found no tenderness in the right ear, or in its neighborhood. The orifice behind the ear was now open, and fluid injected into the opening passed quickly and freely through the canal of the ear. The current could also be forced as easily in the opposite direction. Disinfecting fluids were afterwards regularly and frequently forced through the ear by this means. It was apparent, however, that the mischief was in the interior of the cranium, and a cerebral abscess was diagnosed. Up till four days of his death he was able at times to get out of bed, and even to walk from the room to the kitchen.

¹ I am indebted to my friend Dr. McConville, the medical attendant of this patient, for the chief facts given in the clinical history.

Four days before death he was seized with paralysis of the left arm and leg and right side of the face. For two days before death he was quite comatose. He died on the evening of Wednesday, February the 22d, about a month after he left his work and sixteen days after the more definite brain symptoms set in.

The autopsy was made by Dr. James Alexander Adams, twenty-four hours after death. Under the calvaria the veins of the dura mater were seen to be torpid. On clipping away the exposed dura mater the middle part of the upper surface of the right cerebral hemisphere presented a slightly bulging appearance, but the surfaces of the hemispheres appeared to be otherwise normal. At this stage of the examination no unusual odor was apparent from the intra-cranial contents, but while removing the brain from the base of the skull, when the right temporal lobe was raised from the middle fossa of the skull an extremely disagreeable fetid odor was suddenly experienced. A small quantity of purulent matter was at the same time seen on the floor of the middle fossa of the right side. The brain being placed with its base upwards, the lower surface of the right temporal lobe corresponding with the upper surface of the petrous part of the temporal bone was seen to be dark in color and very soft to the touch, but having no apertures in its substance. On cutting into the temporal lobe at this part, however, a thin brownish fluid, emitting a most offensive smell, poured out in considerable quantity; and on making further sections, the lateral ventricle and a great part of the interior of the right cerebral hemisphere seemed to be occupied by this fluid. There was no distinct boundary wall or membrane enclosing this collection of fluid, but the substance of the brain around seemed in a softened, at some parts

thickened than elsewhere. The bone beneath was dark-colored and eroded; at one part it was perforated by a considerable carious opening communicating with the antrum mastoideum. After a time the color of the bone changed, and instead of being dark, it assumed a bleached and white appearance. Behind, the dura mater covering the concavity for the lateral sinus, and forming the walls of that sinus, was extremely thickened and converted into a fleshy mass. The lumen of the lateral sinus was completely obliterated by thickening of its walls and by fibrous adhesions of its inner coats. Some purulent matter was found infiltrated between this thickened mass and the bone forming the inner wall of the antrum mastoideum. This osseous wall was found to be very thin, very much eroded on its inner surface, and perforated at one part by an opening leading to the antrum mastoideum. On the outer surface of the mastoid process just behind the root of the zygoma, and about ten millimetres above and behind the external orifice of the osseous part of the canal of the ear, there was an opening in the bone four millimetres in diameter, which communicated at a distance of five millimetres with the antrum mastoideum. The bone, perforated by this channel, was dense and hard as ivory. On examining the osseous part of the external auditory canal, the posterior wall was found extremely thinned and perforated by three small apertures. This extremely thin perforated plate of bone formed a partition between the external auditory canal and the dilated antrum mastoideum. At the inner end of this posterior wall there was a large semilunar gap, with the convexity outwards, which passed into the antrum mastoideum. A vertical antero-posterior section through the middle ear exposed a very unusual condition of the tympanum and mastoid cells. The whole of the normal contents of the tympanum were gone; there was not a vestige of the tympanic membrane or ossicular chain remaining. There was complete osseous closure of the fenestra ovalis. The fenestra rotunda, however, still remained. The promontory and floor of the tympanum were covered with soft granulation tissue. A white nipple-shaped hyperostotic growth, with two or three vertical grooves, occupied the position of the outer and inferior semicircular canals. Above that an excavation extended inwards nearly as far as the posterior surface of the petrous bone. The bone forming the floor of the tympanum was enormously thickened (twelve millimetres in thickness), and very dense. The mastoid cells had undergone a remarkable change. The antrum mastoideum was immensely dilated, forming a cavity two and a half centimetres long from within outwards, and nearly two centimetres from the back wall of the external auditory canal to the thin cortical layer separating the antrum from the groove for the lateral sinus, while it measured in height more than one centimetre and a half. The outer wall of this cavity was smooth and white, while the inner one was lined with granulation tissue. The mastoid cells proper were sclerosed and completely obliterated and, instead of large numbers of air-filled spaces, as in the normal condition, I found extremely hard, dense, ivory-looking bone, through which I had great difficulty in working the saw. The two cavities, the tympanum and the greatly dilated antrum mastoideum, were filled with thick curdy matter, having a most fetid odor. Left temporal bone: The dura mater over the petrous part was normal. The osseous roof of the middle ear was also apparently free from pathological change. On examining the tympanic membrane I found a small round perforation, about two millimetres in diameter, in the posterior part of the membrane

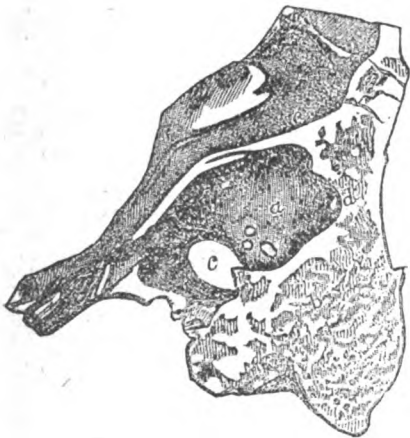


Fig. 1.

The outer part of the section of the right temporal bone. *a*, Outer part of the dilated antrum mastoideum, showing the three openings communicating with the external auditory canal, and one communicating with the interior of the cranium. *b*, The dense compact tissue into which the mastoid cells are converted. *c*, Section of inner end of external auditory canal. *d*, Inner end of canal passing to the outer surface of the mastoid process. *e*, Dura mater.

even gangrenous, condition. The temporal bones were removed for careful examination. Right temporal bone: The dura mater covering the upper surface of the petrous part of the bone was swollen, soft, and pulpy, and was perforated by two small apertures. The portion of dura mater covering the roof of the antrum mastoideum was more

flaccida. This opening was partially closed by granulation tissue. On removing the roof of the middle ear I saw that the head of the malleus and the body of the incus were gone, and that the opening in the membrane communicated with the antrum mastoideum. The latter cavity was filled with muco-purulent fluid. The osseous layer forming the floor of the tympanic cavity was only about two millimetres in thickness, markedly contrasting with the right side, where the floor of the tympanum measured twelve millimetres in depth.

tion of the sinuses of the brain, Wreden gives as his experience that 14 per cent. of purulent ear disease are complicated by thrombosis of the sinuses of the interior of the cranium, while Dusch found that out of thirty-two cases of thrombosis of these sinuses twenty originated in purulent disease of the ear. Of the venous sinuses of the brain the lateral is much the most exposed to injurious influences from the ear. This is due to its anatomical connection with the mastoid cells. In the deep concavity of the groove for the lateral sinus only a thin osseous partition separates the

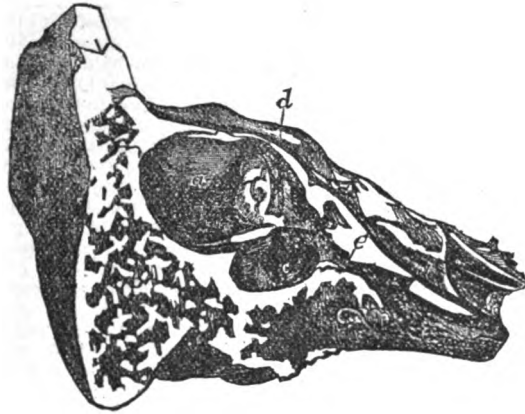


Fig. 2.

The inner half of the section of the right temporal bone. *a*. Inner part of the dilated antrum mastoideum. *b*. The dense compact tissue into which the mastoid cells are converted. *c*. Cavity of the tympanum. *d*. Dura mater. *e*. Inner wall of osseous part of Eustachian tube.

Remarks.—In this single case we have an illustration in the side right of almost all the various consequences, both to the ear itself and to the interior of the cranium, following upon chronic purulent disease of the middle ear. The changes produced in the ear itself were: (1) Total loss of the tympanic membrane and ossicular chain; (2) osseous closure of the fenestra ovalis; (3) great dilatation of the cavities of the tympanum and antrum mastoideum; (4) conversion of the cellular structure of the mastoid cells into dense tissue of almost ivory consistence; (5) the formation of six carious apertures opening into the dilated antrum mastoideum—namely, two communicating with the interior of the cranium, one perforating the outer wall of the mastoid process, and three passing into the external auditory canal. The changes produced by extension of the disease to the interior of the cranium were also very remarkable. The brain, the dura mater, and the lateral sinus were all three involved in serious morbid changes, including cerebral abscess, purulent meningitis, and changes in the lateral sinus producing closure of that channel. We have thus represented in this case all the morbid processes known to be the chief modes in which disease of the ear leads to a fatal issue. It is undoubtedly very rare to find the whole three present in the case of one patient. The condition of the lateral sinus is probably the most striking and interesting feature in this case. No doubt some degree of phlebitis of the lateral sinus is a not unfrequent complication of purulent disease of the middle ear. The mischief is, however, probably in most cases limited to some thickening of the walls of the sinus, and to a consequent diminution of its lumen. In regard to the frequency of the implica-

mastoid cells from the walls of the sinus. This partition is always perforated by openings for the passage of connective tissue, vessels, and nerves. Besides, it is not only frequently so thin as to be transparent, but it is no very uncommon thing to find it containing small gaps, in which case the mucous lining of the middle ear and the wall of the sinus are in direct contact. In the case before us the state of this osseous partition, eroded and perforated by carious disease, affords a ready explanation of the mode of extension of the disease in the ear to the walls of the lateral sinus. But without such disease of the bone the simple juxtaposition of the lateral sinus with the ear is in suppurative disease a source of great danger. All surgeons know that phlebitis and thrombosis are very apt to form in the vessels of a tissue which is the seat of purulent inflammation. When therefore, as is frequently the case, the lining of the mastoid cells is chronically inflamed, softened, or eroded, and when these cells are filled with decomposing purulent matter, emanating gases of putrefaction, is it surprising that phlebitis and thrombosis with their effects should be set up in this large venous trunk, so closely contiguous to and so connected by bloodvessels with the diseased part? More frequent extension of disease in the middle ear to the lateral sinus would take place but for two obstacles opposed by nature to such extension. First, the natural power of resistance presented by the strong tissue of the dura mater, which forms the walls of the sinus, even when this dura mater is in actual contact with a diseased part. In such circumstances the walls of the sinus may become merely thickened without further mischief. For example, necrosed and carious bone has been found in contact with the

walls of the lateral sinus, without more mischief than some thickening of the walls of the latter. Secondly, the thickened lining membrane of the middle ear, together with the thickened osseous walls of the latter, circumscribes the morbid process in the ear and frequently forms an important barrier erected by nature against the invasion of this great venous channel of the brain by the disease in the ear. This case is one more added to the large record, which the literature of this subject presents, of fatal results arising out of old and neglected purulent disease of the ear. It is to be feared that, in spite of this dismal record, chronic purulent disease of the middle ear, frequently manifesting itself by the single symptom of a discharge from the ear, is still viewed in too many cases with indifference by the profession as well as by the public.

Albany-place, Glasgow.

REMOVAL OF MALIGNANT TUMOUR OF THE NECK,

INVOLVING THE STERNO-MASTOID MUSCLE AND INTERNAL JUGULAR VEIN.

By G. H. HUMZ, M.D.,

Surgeon to the Newcastle-on-Tyne-Infirmiry.

SOME years ago attention was drawn to the subject of removal of tumours of the neck by the late Professor Spence, who published two successful cases in which the mass removed was of great size. Mr. Spence pointed out the necessity of carefully determining the nature of the tumour before undertaking such operations, and laid stress upon the signs which distinguish growths of a non-malignant from those of a malignant character. At the time Mr. Spence published his cases he had been able to discover the record of only four similar operations by British surgeons. His cases served to demonstrate the practicability of the removal of even very large tumours underneath the sterno-mastoid when these are of a non-malignant nature, and therefore more or less completely encapsuled, and such operations have frequently been successfully undertaken since. In the case of malignant growths in this situation, on the other hand, it is usually laid down that they ought not to be interfered with. But to this rule there are exceptions, and an attempt at removal seems to be justified whenever recent origin, fairly defined limits, and comparative mobility, render it probable that the growth can be entirely extirpated.

The following case is recorded as an instance of such a tumour which though involving important parts admitted of complete and, so far as can be judged, successful removal.

Mr. B—, steamboat owner, aged sixty-six, was sent to consult me in March last by Dr. Peart, of North Shields, on account of a tumour of the left side of the neck. It had been noticed four months, and was increasing rather rapidly. It had been occasionally the seat of pain, and beyond a slight interference with swallowing did not cause other inconvenience. There was no engorgement of the veins of the face. The growth, which was hard and nodular, extended from the level of the upper border of the thyroid cartilage to the clavicle, being situated underneath and evidently involving the sterno-mastoid muscle. The limits of the tumour were defined as regards its upper, lower, anterior, and posterior margins, and the overlying skin was free, but an incomplete mobility suggested doubt as to its deep connections. The tumour was evidently malignant, and its re-

moval without delay was advised. The operation was performed on March 23rd with the assistance of Drs. Peart and E. Brumwell. An incision was made through the skin from below the mastoid process to the clavicle, and a second incision was made backwards from the first so as to obtain space. The clavicular part of the sterno-mastoid was next cut through above and below the tumour, and as the sternal portion was not involved it was separated and displaced to the front. The mass was then freed behind and inferiorly. The omohyoid was found to enter the tumour and was divided. In clearing the inferior border the dissection was pursued carefully till the deep vessels were reached. It was then found that the growth was closely connected to the internal jugular vein, and a double catgut ligature was passed round the vessel and held in readiness. Continuing the dissection upwards, the tumour was seen to be closely attached to the anterior wall of the vein for the extent of about three inches. The ligature which had been passed was therefore tied, and the vein divided. A second double ligature was in the same way applied, and the vein divided above its connection with the tumour. There was then no difficulty in separating the mass with the adherent portion of vein from the carotid artery and pneumogastric nerve, and completing its removal. The descendens noni was not seen. The patient went on well after the operation. For a few days he had difficulty and pain in swallowing, which seemed mainly due to the disturbance of parts which the act involved. The lines of incision healed almost by first intention, but discharge continued from the cavity for some time, and the drainage-tube was not finally removed till the end of three weeks.

Microscopic examination of the growth showed it to be carcinomatous. It consisted of cells of irregular form, with multiple nuclei, the cell-masses being traversed by connective-tissue stroma. There has been so far no return of the disease.

Newcastle-on-Tyne.

A METHOD OF APPLYING LIGATURES TO VEINS.

By HENRY SYDNEY, M.D., C.M.

In applying a ligature to a vein, or adopting any mode of occlusion, inflammatory action is both inevitable and requisite. The form of phlebitis required is the healthy aseptic variety, with its limiting zone of plastic formation passing across the lumen of the vein and its solidified contents and preventing purulent matter or the results of disintegration from entering the circulation. The variety to be dreaded is the septic, where phlogogenous matter, zymotic or chemical, penetrates the tissues before the defences of the limiting zone can be formed, and diffuse suppuration is the result. If septic inflammation were due only to germs introduced from without, it might be hoped that strict antiseptic precautions would prevent it, but there is every reason to suppose that it can arise from the formation and absorption of a material not of a zymotic but a chemical nature, due to decomposition or retrograde metamorphosis of tissue or wound products. According to Billroth, the surface of a healthy granulating sore or a zone of healthy plastic formation is impermeable to septic organisms, but where, from the presence of crushed or devitalized tissues, the wound is unhealthy, septic material, either formed within or introduced from without, can be absorbed into the system. Now, in the ordinary mode of occluding veins by acupressure

or subcutaneous ligature there is, in addition to the vein, a large amount of skin and other tissues seized, compressed and more or less devitalized; and consequently conditions are produced favorable to unhealthy tissue metamorphosis and absorption. This may appear a theoretical rather than a practical view, or a refinement of the septiphobia, now so extensively prevailing in the surgical portion of the profession, but it is nevertheless a very palpable possibility, if not probability, and one which, in view of the still questionable reputation of operations of complaisance on veins, cannot be allowed to pass unheeded. But from whatever point it is viewed, the principle of enclosing within ligature or compression tissues other than the vessel to be occluded is wrong, and whatever proceeding tends to limit the action of the ligature to the vessel only, excludes an element of danger. Whether the dangers of operation on veins are exaggerated or not, it is easily conceivable how on these busy highways of the system results are apt to follow grave in proportion to the ease with which, ceasing to be local, they become general, and therefore an essential precaution in operations is antiseptic procedure. A punctilious regard to cleanliness may obviate the employment of the redundant ceremonial of full antiseptic measures. Either the spray or the irrigator may be used. I have, when operating by ligature, had equally good results from both. I have also had perfect freedom from suppuration and sepsis, without either spray or irrigator, from an application to the skin of a thick ointment composed of wax, olive and eucalyptus oil and carbolic acid. This smeared over the parts forms a coating sufficiently thick, at the temperature of the skin, to prevent the contact of air with the punctures. In regard to the operation itself, it should, after the plan of Ricord and Duncan,¹ be subcutaneous, and the ligature of catgut. The ligature should be very fine: No. 1 size only. This for two reasons: because it requires less force to cause complete occlusion of a vessel with a thin than with a thick ligature; and a thick ligature embraces a greater portion of tissue, and therefore causes a greater amount of bruising and destruction. The disadvantages and even the danger, in the case of arteries of using thick catgut, have been pointed out by Mr. Barwell and Mr. French. The ligature should not be in that rigid condition in which it usually is from being kept in carbolic oil, as, after soaking in the fluids of the wound, it becomes softened and elastic and in that condition stretches after tying, which, be it ever so little, is sometimes sufficient to prevent perfect occlusion. To soften the ligatures, they may be soaked in a 5 per cent. solution of carbolic acid before being used. I find that the addition of a small quantity of eucalyptus to the carbolic oil in which they are usually kept makes them soft and elastic. In this condition, as in tying with horsehair, a double turn must often be made in the first knot, to prevent it slackening before the second can be brought to fix it. The vein only, with as little surrounding tissue as possible, should be included in the ligature. Not only is there less tissue bruised or devitalized, but less force is required to produce complete occlusion, just as an artery is more easily controlled by pressure on its bared trunk than over superimposed structures. With this object I employ two needles—a long sharp-pointed one, and a blunt grooved one to act as a director. The sharp needle is first thrust underneath the vein, and its point brought out through the skin on the opposite side. It is then withdrawn a sufficient distance in its track to allow of its point being passed over the

vein between it and the skin. To serve as a guide, the grooved director is now inserted in the puncture of exit from which the needle has just been withdrawn, and the needle, now pushed on, meets the groove of the director and comes out at its former aperture. The subjoined diagram (Fig. 1), shows the lines of puncture, which include the vein, with some surrounding tissue. After these tracks were made, I



Fig. 1.

A B C D E, Track of first puncture under the vein. V, E, Point to which the needle is withdrawn. F D F, Track of puncture over the vein. F, Point at which the groove of the director at A meets the needle to conduct it out at its former channel, F B.

formerly used blunt needles and a director to pass the ligature round the vein and tie it. Latterly I have used a triangular-pointed needle five inches in length, with an eye in the middle and a bulbed extremity. It is thinner in the shaft than at the point, so that the ligature threaded through its centre passes without hindrance along with it into the puncture. The needle, with about eight inches of ligature, is thrust under the skin beneath the vein and brought out on the other side, as just explained. It is pushed on till the ligature appears, one end of which is then withdrawn sufficiently to allow it to be passed over the vein, guided out by the director as described, and pushed on till the other end of the ligature can be pulled through. At this stage of the operation, the position of the vein, the ligature, and the needle is as shown in the annexed diagram (Fig. 2). The ligature now

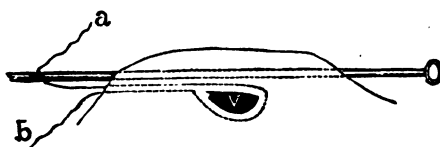


Fig. 2.

b, Ligature drawn through after first transfixion under the vein v. a, Ligature carried over the vein and coming out at the same orifice as b.

forming a loop around the vein is drawn out of the needle, tied in a single knot, and that end of it which was first passed through is drawn back by the needle to the other side of the vein, and the knot passing under the skin, is then tightened. To tie again and complete the reef knot, the eye of the needle bearing the ligature must again be pushed through, and the knot tied as in the first instance; the other ligature is brought back in the needle, which may now be entirely withdrawn, and the knot made fast. The ends are now cut off as near to the knot as possible; this is done by pulling gently on the one-half of the ligature, and cutting it off close to the skin, so that it at once disappears beneath it when divided; the other end is similarly dealt with. The vein is now tied with a reef knot, which with both of its ends is beneath the skin. In this proceeding it will be observed that till the completion of the operation the needle is never withdrawn entirely out of the wound; and that it is by means of the eye carrying the ligature from one side to the other that the knot can be correctly and securely tied subcutaneously. To

¹ Duncan, British Medical Journal, July, 1881.

ensure more complete and permanent adhesion, as well as to avert clotting in the vein, two ligatures must be applied, at intervals not exceeding an inch. The lower ligature to be first applied, and before tying the knot of the upper one all the blood in that part of the vein between the two points of occlusion must be pressed out, so that the sides of the vessel are brought into the closest contact. By this means a much firmer adhesion is obtained than through clotting and subsequent contraction and occlusion. Broca⁴ lays great stress upon the different results of stability of obliteration of veins, produced by coagula and by adhesions of walls. The latter mode of adhesion he asserts to be more solid even than that which takes place between pleuræ; whereas the other is frequently but temporary. The formation of thrombus is to be prevented, in the first place, as urgently pointed out by Erichsen, by keeping the ligature out of the vein; when from the pressure of hæmorrhage, of which there should not be any, there is reason to suppose the vessel is pierced, operation on that spot must be at once stopped, and another chosen. In the second place, by firm pressure on the limb, previous to any ligaturing, by means of a rubber bandage applied from the foot up to that part immediately below the spot chosen for operation. By doing this the veins are emptied of their contents, so that no thrombus with secondary phlebitis can result. For the same reason the bandage is also to be continued over and above the ligatured portions as the operation proceeds. The application to each of the punctures of a small piece of lint moistened with carbolic oil and covered by absorbent carbolized wool completes the procedure. Unless there is much pain, the dressing need not be removed for three or four days. During this time the patient is to be kept in bed; on the fifth or six day, according to the amount of tenderness, the leg may be put to the ground. It is seldom that I have seen suppuration except when thick ligatures have been used or when a large portion of tissue has been included. It has never, in any case, amounted to more than two or three drops of pus, which, after making its way out of the punctures, was immediately followed by healing. As I remarked, the application of two ligatures, less than an inch apart, is the surest means to produce obliteration; in ordinary cases two, or at most three, such obliterations are sufficient to relieve ordinary varicosity. In eighteen cases of operation where the measures and precautions I have enumerated have been observed, I have seen no bad results, or, indeed, any that caused the slightest anxiety. In one instance, that of a person about fifty-five years of age, in whom the saphena was tied six inches above the knee, an acute attack of gout developed, affecting the great toe of the limb operated upon. So far as I am able to judge during two years I have adopted these methods, the results have been permanent upon the vessels ligatured. The most satisfactory cases of all, probably because the disease in the veins was in an early stage of development, were those of some young military cadets upon whom I operated. The varicosities before operation were such as would have disqualified these gentlemen for the service.

In long-standing cases where there is much œdema and great tortuosity of vessels, there are considerable difficulties to encounter. In regard to these, Mr. Duncan's paper, already referred to, gives some valuable suggestions; amongst others, to facilitate the application of the ligature, he advises that a tight rubber band be placed high up round the limb; this, while it brings the veins out in strong relief, has the additional advantage of

rapidly and surely showing by hæmorrhage whenever they are wounded. He has also found that a rubber bandage well applied and kept on for some time reduces that solid brawny œdema so frequently met with in varicose disease, in which the vessels run like gutters beneath the skin and render deligation difficult.

In conclusion, I need hardly observe that the method and precautionary procedures here set forth lay no claim to originality. The method, indeed, is synthetical, composed of elements selected from such procedures of others as promise the greatest immunity from the peculiar dangers which are understood to attend operations on venous tissues. Its details may appear complicated and superfluous; but with the facts of the later investigations of surgical pathologists before us, and the knowledge of how completely in the instance under consideration the results are dependent upon healthy inflammatory action, distinguished from that due to septic causes, there is an enhanced disposition to sacrifice expedition in method to correctness in principle, and to stoop to what may appear tedious minutæ to ensure safety.

Hounslow.

ON THE ACTION OF THE SALTS OF SODIUM, AMMONIUM AND POTASSIUM.

By SIDNEY RINGER, M.D.,

and HARRINGTON SAINSBURY, M.D.

THE difficulties attending the observation of the action of drugs clinically result obviously from the complexity of the phenomena presented; in like manner, the pharmacologist, as long as his investigations relate to the animal organism in its entirety, has essentially to deal with the complex. Inference under these circumstances is correspondingly difficult. If to avoid this source of error our observations be restricted to a portion of the organism, it is clear that our inferences gain in exactitude in exact proportion to the simplification effected. The difficulty now lies in the applicability of inferences so gained when we pass to conditions no longer simple. It was with this difficulty clearly in view that the experiments, the results of which will now be shortly discussed, were undertaken.

The ventricle of the frog's heart was the test tissue selected. Through such ventricle of a heart isolated from the body an artificial circulation was maintained, whilst by means of a suitable apparatus (Roy's tonometer) the contractions were registered on a revolving blackened cylinder. The particular drug used was added to the circulating fluid. We were thus able to compare the working of the drugged and undrugged ventricle under conditions, artificial it is true, but definite and under control.

The structure and function of the tissue so selected are essentially twofold: ganglionic structures and muscular fibres on the one side; rhythmic contractility on the other—i. e., rhythm and contractility. The nervous nature of rhythm may be debatable; but that contractility is muscular is certain.

On such rhythmically contracting heart the action of the salts of potassium, sodium, and ammonium is briefly as follows:

All three arrest the ventricle in diastole; they contrast, however, in the mode of arrest. Thus, as to their action on rhythm: Potassium salts tend markedly to arrest or suspend the spontaneous contractions, whilst yet the heart may be proved to be contractile by suitable excitation. Ammonium salts show no such tendency; the heart

⁴ Gazette Hebdomadaire, No. 16, 1862.

beats, often with an increased frequency, up to the very end—i. e., as long as contractility persists. Sodium salts fit in between, but come very much nearer ammonium than potassium salts, their action on rhythm being very slight.

As to their action on contractility, we have, on the one hand, potassium and ammonium salts acting with almost equal intensity; on the other hand, a wide gap intervening, sodium salts showing but feeble action.

One other point of contrast may be mentioned; it refers to the effect of continuous faradization. This rapidly loses its power to excite the ventricle to contraction when a potassium salt is used; not so for the other bases, and the very slight and somewhat inconstant effect for ammonium and sodium salts contrasts strongly with the uniform and marked effect of potassium salts.

Restricting ourselves to these broad lines¹ of contrast, some important points come out:

First, an important fact—namely, that throughout the salts of potassium, sodium, ammonium, the potassium, sodium, and ammonium elements are traceable. Indeed, in these experiments they appeared to rule the effect. Quite recently,² in a leading article, reference is made to experiments on unstripped muscular tissue by Nothnagel; the same result was observed here, the potassium and sodium action appearing to be independent of the combination of these bases. These experiments, then, on isolated tissues would be confirmatory of the older statement by Guttmann with reference to potassium salts—namely, that they are all exactly alike in the character and intensity of their action.³ The results, however, probably represent but a partial truth. The completer statement probably should be that elements and groups of elements retain more or less of their individuality throughout their combinations, and this would surely apply to either side of a salt—the base and the acid. The value of such statement would be as a help towards classification.

Next, that under these simple conditions specified, a certain relation between potassium, sodium, and ammonium salts is manifest. Potassium standing first as most poisonous and threatening in two directions; ammonium coming next, its action being restricted to destruction of contractility; sodium coming last and ranking as but very slightly poisonous comparatively with either. These experiments, indeed, would make potassium salts some fourteen or fifteen times as poisonous as sodium salts. Is the conclusion not warranted that in their action on the muscular tissue of the ventricle, and on its intrinsic nervous apparatus, these salts will maintain a *like* relation, even though the conditions be the more complex and indefinite ones of the organism in its entirety? It is not that one would exclude action on the nerve centres, vagus, etc., from the effect witnessed on the entire organism, but that one would specify one from among the many factors in the equation. This relation of the salts of potassium, sodium, and ammonium has however been tested on other tissues, and found to hold—e.g., on the nervous system⁴. The results also with the entire organism show that whilst potassium salts are very poisonous, sodium salts can scarcely be made to kill.

Insistence has already been made in various

quarters on the use of sodium and ammonium salts in preference to potassium salts; more especially has this been urged for the bromides.⁵ (The bromide of sodium has been rather largely used in America.) Clinical evidence must obviously give the final judgment; but have we not here clear indication as to the lines on which clinical investigation should be pursued?—the suggestion being that salts of sodium should throughout be substituted for those of potassium and ammonium, till clinical evidence decide that the action of one or other of these bases is required in the particular case under treatment? This suggestion, then, is based not only on the results of experiments with the entire organism, but also on these more definite results gained from experiments on isolated tissues.

It may be added that both at the Children's Hospital, Great Ormond-street, through the kindness of Dr. Barlow, and at the Western General Dispensary, Marylebone, we have had the opportunity of trying the chlorate of sodium⁶ in cases of stomatitis, with ulceration along the edges of the gums, but few cases up to the present have been collected. So far, however, the evidence in its favor is every bit as unequivocal as it is for potassium chlorate, which might be said to be one of the show drugs in therapeutics. Two of the cases gave the best kind of evidence obtainable; they were, namely, cases of relapse, and were cured by pushing the drug.

NOTE ON THE CLINICAL CHARACTERS OF TUBERCLE IN BONE.

By WM. SCOVELL SAVORY, F.R.S.,

Surgeon to St. Bartholomew's Hospital.

It is curious on reflection to see how many striking points of analogy there are between the progress and effects of tubercle in lung and in bone. In the first place the cancellous texture of bone, which is the seat of tubercle, resembles broadly in physical characters the parenchyma of lung. A section of cancellous bone and a section of dried lung have to the naked eye a very general resemblance. The structure of both is aptly described as sponge-like, and this resemblance is drawn more closely when a mass of yellow tubercle occupies the substance of each. In both cases the spongy texture appears to be filled up and rendered solid by the infiltration of the caseous deposit. Then, too, the resemblance further appears in the halo of inflammation or increased vascularity of varying width which so often surrounds the mass. Still further is the likeness shown in the mode in which the tubercle degenerates. The included tissue is broken down and destroyed until, either by the escape or disappearance of the tubercle, a cavity is left in the cancellous bone corresponding very remarkably to a vomica in the lung. Furthermore, the likeness is extended by the relation of cancellous bone to a neighboring joint, and the relation of lung substance to the pleura. Just as pleurisy is so often set up by the disturbance of tubercle in the lung, so synovitis is often provoked by the disturbance of tubercle in adjacent bone; and just as empyema is sometimes produced by the perforation of the lung-wall and the escape of matter into the pleural cavity, so suppuration in a joint, which is too often destruc-

¹ For further details consult papers by the authors in the *Medico-Chirurgical Transactions* (vol. lrv), and in the *Practitioner* (Aug. 1882).

² *THE LANCET*, September, 1882.

³ Wood's *Therapeutics*, third edition, p. 484.

⁴ Ringer and Murrell: *Journal of Anatomy*, vol. xii., p. 71. For further reference see also Wood's *Therapeutics*; articles Potassium Salts; also Phys. Action of Sodium and Ammonium Bromides. Third edition, 1881.

⁵ See Wood's *Therapeutics*, Bromide of Sodium. Also paper on Epilepsy with Cardiac Complications, by W. A. Hollis, M.D., *Practitioner*, vol. xxii., p. 81.

⁶ Through the kindness of Mr. Martindale we were provided with a pure specimen of this salt.

tive, is due to the perforation of the articular wall of bone and the escape of matter into the synovial cavity. In either case urgent symptoms are apt to supervene suddenly on comparatively latent mischief.

Then, I think, the variable progress and effect of tubercle in the lung are oftentimes repeated with singular resemblance in bone. This first struck me many years ago in studying the graphic picture which Dr. Latham drew of the various forms of phthisis in his masterly Lectures on Clinical Medicine, which, by the way, have been happily reproduced by the Sydenham Society under the editorship of Dr. Martin. Just as in lung, so in bone; the history of tubercle is sometimes that of a single formation, which passes steadily, with more or less rapidity, to destruction; sometimes that of several smaller ones simultaneously; sometimes, though this more rarely, that of a number of successive formations which pass through their stages one after another, leading in this way to a gradually extending destruction of osseous tissue. So, again, and in this I think the resemblance is most marked of all, there are in tubercle in bone phenomena very exactly corresponding to what Dr. Latham in the lung, and in the cervical glands as a more obvious illustration, has described as cases of mixed and unmixed phthisis. In one class, during the changes which tubercle, after its formation, is prone to undergo, there is only what may be called a necessary amount of inflammation excited in the surrounding texture; such as is just sufficient to accomplish the result of softening and expulsion, and which subsides as soon as that is effected. This Dr. Latham called the specific limit of the disease. In another class the inflammation provoked spreads widely and deeply beyond this, and becomes much more severe and extensive than is needful for the mere elimination of the tuberculous matter. In short, Dr. Latham's sketch might have been drawn from a study of tubercle in the head of the femur or tibia or in the tarsus or vertebrae.

Within the whole range of pathology I know no better illustration of the value of extended study, or rather of the great loss from limited views which must come of too special observation. For the study of tubercle, if the difficulty would be adequately grasped, must be carried on not only throughout the whole fields of medicine and of surgery, but here, at all events, there can and ought to be no boundary between them. For the largest purpose, the land to be explored must be common to both.

Brook street, W.

REMARKS ON PROSTATORRHŒA.

By D. CAMPBELL BLACK, M.D., L.R.C.S. Edin., etc.,

Extra-Physician to the Royal Infirmary, Glasgow; Physician to the Glasgow Public Dispensary.

THE normal function of all glands is maintained by a healthy coördination of the three divisions of the nervous system—viz., the motor, the sensory, and the sympathetic. The integrity of such coördination may be disturbed by peripheral or central influences, or by lesions of the intercommunicating apparatus. Bodily waste and repair—the persistence of healthy structure—equally with the normal secretion of all glands, are thus dependent on a healthy nervous system, and it in turn on a healthy blood-supply. If at any of the points indicated the normal influence of the nervous system be perverted, the due circulation of blood is interfered with, and in glands one or other of

the following changes take place, as certain conditions predominate.

On the Basement Structure of Glands.

On the Secretion of Glands.

Neoplasm.	Degeneration.	Augmented or diminished secretion.	Changes in the composition of the granular secretion.

The functions of the sexual and urinary organs may be said to be compound in respect that they are partly voluntary and partly involuntary, and that some are participated in by purely cerebral influences, while others are exclusively reflex phenomena in association with given centres of the spinal cord, and thus totally independent of the higher nervous centres. To the former belong the functions of micturition, and to some extent the special sexual functions; while to the latter are to be assigned those of the testicle, the prostate, Cowper's and the other smaller subordinate glands. The nerve centre for the sexual organs is situated in the lumbar enlargement of the spinal cord, and presuming the integrity of the centre and reflex loop, the sexual secretory functions, while they may be influenced by psychical impressions, are carried on quite independently, as all vegetative functions are. In the light of the above propositions we have seen that these functions may be deranged by peripheral, central, or intermediate influences. Under the first category are recognizable the phenomena attendant on the presence of stone in the bladder, hæmorrhoids, preputial irritation, contracted meatus, prostatitis, and varicocele; under the second two categories the phenomena arising from disease or injury to the spinal cord, and the disturbed motor conditions thereby occasioned. These, it will be obvious, comprise retention and incontinence of urine, reflex pain, a peculiar form of spinal paralysis, excessive secretion of the testicle and consequent spermorrhagia, excessive secretion of the prostate (prostatorrhœa), etc.

When several glands discharge their peculiar secretion into a common emunctory it is often difficult to distinguish how far discharges from such emunctory are simple or compound, or to what extent they are the latter. This is notably the case with the urethra, as the term gonorrhœa sufficiently demonstrates. Empirics are never slow to find out the hidden or neglected arcana of medicine and surgery, and profit thereby at the expense of the credulity or unfounded fears of their victims, backed up as they have been in the case of urethral discharges, other than gonorrhœa, by the sensational and ill-advised writings of such men as Lallemand and his followers. The frequency of urethral discharges, at stool especially, and at other times in rarer cases, did not fail to excite their notice, and they forthwith sought, and too often sought successfully, to associate such discharges with the "chamber of horrors" in which Lallemand and such as thought with him, delighted to revel, to the irreparable injury, bodily and mental, it may safely be asserted of countless thousands. As there is no system or form of quackery which does not depend for its maintenance on the kernel of truth within, the expediency of disentangling the true from the meretricious in the present instance is now sufficiently recognized, though there are still considerable differences of opinion among authorities on certain points, to one or two of which it is my present object to direct attention, record my experience, and invite discussion on the part of others whose opportunities of observation are of a more extensive nature than my own. The subject of involuntary emissions of semen is coexistent with the

literature of medicine,¹ but comparatively little pathological significance was accorded to them until the ill-advised and hastily-generalized treatise of Lallemand appeared at Montpellier. Antecedent to this time happy ignorance prevailed upon the subject, and people consequently enjoyed physical and mental health. It was not until 1860, I believe, that a special discharge from the prostate gland was described by Professor Gross;² and in his admirable work on this and allied subjects Dr. Samuel W. Gross defines prostaticorrhoea as an "excessive secretion of a clear viscous fluid, dependent upon chronic catarrhal inflammation of the tubular glands of the prostate. It is included by some authors in their description of chronic prostatitis; but it is an entirely independent disease, as it does not follow an attack of acute inflammation, nor is it attended with suppuration or other morbid changes of the parenchyma of the organ." Erichsen states that "the disease is characterized by the discharge of a few drops of ropy viscid mucus from the urethra after micturition and defecation. It is chiefly of importance from its liability to be confounded with spermatorrhoea, and from the depressing effect consequently produced on the patient's mind," and he further indicates that its diagnosis is to be effected by microscopic examination of the nature of the discharge, thereby indicating that if the discharge contain spermatozoa, the disease is *spermatorrhoea*; if they are absent, that it is *prostaticorrhoea*. Professor Humphrey, in treating of spermatorrhoea, remarks, "Accompanying this malady, or independent of it, there is sometimes a discharge from the urethra of a tenacious fluid, like white of egg, in small quantity, following the urine, or expelled during the evacuation of the faeces, especially when straining is required for this purpose. This symptom causes great alarm to the patient, as he believes that he is suffering from a continued escape of the semen. Such is, however, not the case. I never found any spermatic elements in it. It proceeds apparently from the prostate gland; and its presence in sufficient quantity to issue from the urethra is an indication of a relaxed condition of the ducts of the gland, permitting the secretion to be expressed during the voiding of the urine or faeces." Dr. King Chambers seems to be of a similar opinion, regarding this discharge as one of pure mucus, which may go on for years without any physical or mental impairment unless the patient's mind is directed to the subject. Mr. Teevan, on the other hand, regards this as "true spermatorrhoea," and curiously enough ascribes it to indigestion. Mr. Benjamin Phillips remarks, "At one time I doubted whether this fluid was spermatic, it is usually so smooth, transparent, and homogeneous; but if it be examined under the microscope, spermatozoa can usually (italics writer's) be observed in it. Its thin character has induced people to think that it was a depraved secretion become watery by exhaustion of the secretory organ; and sometimes it may be so, for if a person who complains of the constant escape of the thinner fluid has an ejaculation, the fluid will be thick and grumous. It is therefore most probable that the more fluid portion of the secretion which fills the seminal vesicles is most easily pressed out; and this is a reasonable explanation of this feature of seminal discharges." Considerable diversity of opinion, it is therefore obvious, exists as to the nature of this discharge, the presence of

seminal elements being denied on the one hand and affirmed on the other. Some years ago, in writing on this subject,³ I expressed the conviction that while in the majority of instances the secretion was entirely from the prostate, yet that facts were wanting to prove that involuntary seminal emission did not so occur, and, indeed, that my experience proved the contrary. Further observation entirely confirms me in this opinion. It seems to me immaterial whether the discharge be called prostaticorrhoea or spermatorrhoea (and if the presence or absence of spermatozoa is to regulate the nomenclature, the microscope will at once determine this), the main question being, whether this is a normal condition, whether it is injurious to health, its causes, and how to remedy it. I do not think it will be maintained that this is a normal condition; neither will it, I suppose, be denied that a constant drain of seminal fluid from the urethra is likely prejudicially to affect the health. In the following cases of prostaticorrhoea two groups are recognizable; in the one spermatozoa existed in the discharge, in the other these elements were absent; while the apparent causes were various, and bore out the propositions enunciated at the outset of these remarks.

Case 1 came under my notice in October, 1880. I have but few notes of this case, being that of a third-year's student of medicine. Patient complained of a frequent discharge of tenacious matter from the urethra during defecation. He felt confident that his health suffered, and he desired my opinion as to the nature of the discharge. Examination of the urethra revealed a certain amount of prostatic tenderness, and the microscope the abundant presence of spermatozoa in the discharge as represented in the subjoined diagram.



Fig. 1.

I advised the passing of a full-sized metallic instrument twice a week, and tonic treatment, requesting that I should be informed if the result were not satisfactory. Not having seen the patient subsequently, nor having heard from him, I infer that his ailment disappeared.

In Case 2, given in the patient's own words, those of a highly intelligent gentleman, there were no spermatozoa in the discharge. The cause in this case seemed an aggravated varicocele, a condition which appeared to operate in a twofold manner, the one mechanical, the other physiological. In the former, the veins being large and valveless, a remota is induced in the sexual apparatus—a condition of chronic passive congestion and irritation; in the latter pressure on the spermatic nerves causes

¹ I am not forgetful of the fact that Hippocrates describes spermatorrhoea and tabes dorsalis as arising from venereal excesses.

Περὶ τῶν ἐντὸς παθῶν and περὶ νοσῶν.

² North American Med. Chir. Rev., July, 1860, p. 693.

³ On the Functional Diseases of the Urinary and Reproductive Organs. Second edition. J. & A. Churchill, London.

peripheral reflex excitability by operating through the centre in the lumbar portion of the spinal cord, and the hypogastric and spermatic plexus of the sympathetic.

W—, aged thirty-four years, consulted me on March 6th, 1882. "Served in India for eleven and a half years continuously; returned on furlough in August of last year; have enjoyed exceedingly good health while there, though serving in most malarious tracts; have hardly felt the effects of malaria, but had a severe attack of cholera in November, 1877, from which, however, I recovered very rapidly. Habits have always been active; can stand more hard work and exposure than most men; have always been in the habit of taking a tolerable amount of liquor, but never to excess. Early in October, 1881, varicocele began to become troublesome, coming on about an hour after rising, and going off about noon. It was accompanied by the discharge of a few drops of gummy fluid after stools and micturition, generally in the latter case, on the first occasion after rising in the morning. This state of things continued until October 15th, when an emission took place. The varicocele then rapidly diminished, and the discharge from the urethra steadily improved. By the middle of November it had almost disappeared. Early in December it reappeared to a considerable extent without the slightest cause. I placed myself under medical treatment, and was told that my liver was out of order! After a little treatment to set this right a preparation of iron was given. The discharge improved, but erections began to give a good deal of trouble at night, and the varicocele reappeared. An emission took place on Dec. 20th, removing the annoyance from the varicocele, and followed, after a few hours, by the almost total disappearance of the discharge. About Dec. 27th the discharge reappeared gradually; also a little varicocele. The latter was entirely removed by an emission on Jan. 2nd. The discharge now began to show itself, usually a considerable time after micturition—three to five minutes. The discharge continued with slight variation up to about Jan. 17th, when it began to disappear. Varicocele became troublesome again about this time, and continued so regularly until Jan. 20th, when it was removed by an emission. Between Jan. 20th and 22nd the discharge was nothing more than a very irregular trace. On Jan. 28th and 29th it increased a little, but decreased again after an emission on the latter night to some extent. Another emission took place on Feb. 5th, followed by a slight increase. I was rather bilious at this time. I stopped the iron mixture, and by medical advice used medicine containing buchu, which appeared to have an excellent effect on the discharge, but disagreed with me otherwise. On Feb. 20th and the two following days there was a slight increase in the discharge, but it passed off again. From Feb. 23rd to 26th it was still wanting, but the penis was irritable, with a prickly sensation and a great tendency to erection. The irritation continued next day and the following one, on which the discharge reappeared at stool. On March 2nd the discharge assumed a yellowish appearance throughout the day and clear after stools. On March 3rd the yellow discharge before mentioned had given place to the usual one afterwards. The excessive tendency to erections at night has continued since about Dec. 15th. I think that the penis is in a state of erection more or less during the whole of my sleep. I have repeatedly to get up and thoroughly wake myself to get rid of it."

Such is the patient's own succinct and intelligent account of his condition. I saw him on March 6th of the present year. I found the left testicle

greatly reduced, and the attendant veins large and tortuous. A good deal of genital irritation was complained of, and the urethral discharge was considerable. I had no hesitation in recognizing, as cause and effect, the genital irritation, the discharge at stool (prostatorrhoea), and, doubtless, the involuntary emissions during sleep to some extent. It is particularly noteworthy that seminal emission was followed invariably by a diminution of the varicocele and of the urethral discharge; and, under all the circumstances, I felt justified in recommending an operation for the radical cure of the varicocele, administering at the same time the bromides of camphor and iron, which quickly diminished the troublesome genital irritation complained of. As operative interference had been discountenanced by the patient's London attendant, I requested that he should take further advice, and Dr. Alexander Patterson agreeing with me as to the expediency of the contemplated operation, I had recourse to it on March 17th, adopting the method of occluding the veins by subcutaneous wire loop, which I had previously found to answer well in similar cases. After eighteen days the wires were removed, and the veins operated on seemed permanently obliterated. On April 27th the patient wrote: "I begin to notice a considerable general improvement in its (the testicle's) size and consistence. The discharge has entirely ceased." Subsequent communications were correspondingly encouraging, and I had independent testimony to the efficacy of the operation through the courtesy of Mr. Bryant. On September 13th, 1882, the patient writes: "The varicocele gives no trouble even after prolonged exertion, walking or rowing; and my general health has improved greatly. . . . The left testicle has not increased much in size since I last wrote to you, but has grown much firmer. I should say its cubical capacity must be three or four times greater than before the operation. The whole mass, veins and testicle, is about the size of the other testicle now."

CASE 3 differs entirely from the foregoing, the cause being, I believe, injury to the spinal cord at a comparatively remote period. Besides, the discharge from the urethra contained spermatozoa and prostatic tube casts.¹ (Fig. 3.)

J. M—, aged thirty-two, consulted me on Nov. 2nd, 1881. There was no history of masturbation; he very moderately indulged in sexual intercourse. Twelve years ago he had gonorrhoea, which lasted a few months. About this time the patient fell into a ship's hold, alighting on his back on a prominent object, and also upon the occiput. He remained unconscious for about half an hour, and his spine was considerably affected. Subsequent to this period, particularly after lying on his back, on awakening, the patient noticed that his linen bore the marks of seminal emission. Emissions occurred unconsciously to the extent of twice or thrice a week. Simultaneously, and down to the present time, since receipt of the injury, more or less slimy, tenacious matter escaped from the urethra at stool. Six years before this the left testicle was injured by the falling of a box upon it. Inflammation and much swelling ensued, which, however, ultimately entirely disappeared. The slightest excitement, such as travelling on an omnibus, etc., causes irritation of the injured testicle. The parts are quite normal. No spermatozoa were found in the specimen of slimy matter passed from the urethra on first examination; but on Feb. 2nd abundant spermatozoa were found, as represented in Figs. 2 and 3 subjoined. On passing an instru-

¹ Compare with Mr. Solly's case of Spermatorrhoea from Spinal injury, page 101, "On the Functional Diseases of the Urinary and Reproductive Organs." (Black.)

ment marked tenderness was found to exist in the prostatic region. To have bromide of potassium, combined with tincture of belladonna and buchu. This medicine very much moderated the seminal emissions. A large instrument was passed twice weekly.

April 17th, 1882: Still some discharge from the urethra at stool, but containing few spermatozoa. More or less swelling of the prostate only affording passage to a small instrument. On a subsequent visit I found that the spermatozoa had entirely disappeared, and the amount of discharge was greatly diminished. As I have not seen the patient quite recently, I am unable to say whether he is completely cured, while, in my opinion, his progress towards recovery was such as to warrant the belief that he is. It should have been mentioned that this patient had been under medical treatment for this affection prior to his consulting me, and that he felt positive, as his appearance seemed to indicate, that his bodily vigor was undetermined by the persistence of the discharge.

In Case 4 the history is somewhat different.*



Fig. 2.

W. H.—, aged twenty-nine, consulted me on the 7th October, 1881. Since the age of sixteen until within a few months he had been addicted to the habit of masturbation. Between the years of sixteen and nineteen he severely taxed his sexual system in this manner. His present complaint is that no matter how prolonged sexual intercourse may be there is no seminal emission. There is a slight orgasm and a mere oozing of slimy matter from the urethra. Slimy matter escapes from the urethra at stool, and patient has nocturnal emissions twice or thrice weekly. With the exception of a varicose condition of the right testicle, the sexual organs present externally no peculiarity. An examination of the urethra reveals prostatic hyperæsthesia. As an operation for the varicocele could not be conveniently submitted to, the patient was advised to have a No. 10 metallic catheter passed twice weekly, and to have iron and strychnine, with bromide of iron, and watery extract of ergot internally. The subjoined diagram represents the nature of the urethral discharge.

On February 1st, 1882, the patient writes: "I have followed your advice by using the No. 10 catheter twice weekly, and with the result that the nocturnal emissions have ceased to trouble me; but the emissions at stool are persistent and copious. No matter what the condition of the bowels may be, the emission takes place every time with-

out exception." I have not heard from this patient since, and am thus unable to say what his present condition may be.

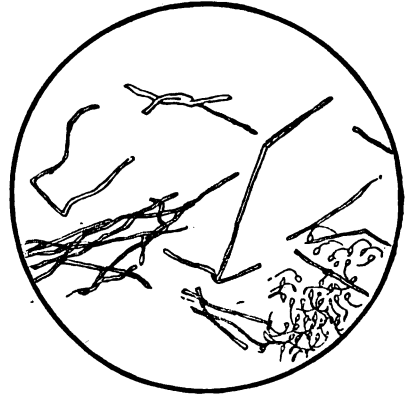


Fig. 3.

Case 5 is typical of a large number of cases of prostaticorrhoæ and sexual debility. August 18th, 1880, a medical student, aged nineteen, consulted me regarding the discharge of glairy matter from the urethra simulating semen, and staining his linen. Three years before he had gonorrhœa, and from that time until within the last year prior to my having seen him he indulged in great sexual excess. Patient used various remedies for his condition, amongst others tincture of steel, with



Fig. 4.

tincture of cantharides, and strong injections of nitrate of silver. The sexual organs presented no abnormality. On passing an instrument the entire urethra was found in a state of intense tenderness, being aggravated in the prostatic region. Thick glairy matter escaped from the urethra at stool, in which, however, the microscope revealed no spermatozoa. Nocturnal emissions happened often, and frequently unconsciously, being discovered in the morning simply by the effect on the linen; and pain was referred to the region of the prostate. Irritation having been subdued by the use of sedatives and bougies, a course of steel completed the recovery.

In the light of my experience of these cases, by no means infrequent, I am disposed to regard prostaticorrhoæ as consisting of two forms, the discharge in the one being characterized by the presence of spermatozoa, while in the other this element is

* Dr. S. W. Gross describes a case very similar to this at p. 125 of his book.

wanting. It is preferable so to regard it, seeing that in other cases diurnal seminal losses, quite independent of straining at stool and micturition, are no doubt attributable to excesses, while others are to be ascribed to idiopathic excitability of the sexual system. Of the latter, an example came under my observation in May, 1879.

H. E.—, aged twenty-six years and a half, never masturbated. The patient describes himself as in capital health, independently of his sexual system. When a lad of from thirteen to fourteen he says, in common with so many boys, he gave way to reading obscene books, and at fifteen had sexual intercourse, from which date seminal emissions began. At the age of eighteen he had emissions on an average once a week. At twenty-six years and a half (present age), emissions take place more than once a week. They occur at night both with and without erections. "If I lie on my left side, I may feel tolerably certain of having an emission, and then without erection." I find from my notes that strychnine and iron, with bromide of camphor, nux vomica, and watery extract of ergot, were prescribed; but there is no note as to the result. The etiology, pathology, and treatment of prostaticorrhœa, as I regard them, are embodied in the foregoing observations. A few words of special amplification may not be out of place. Speaking generally, prostaticorrhœa may be excited by any condition determining vascular plethora of the pelvic viscera. I do not think that it is invariably preceded by acute inflammation of the prostatic urethra as maintained by Dr. S. W. Gross, for I am persuaded that it may be due to passive congestion of the prostate and adjacent organs. I do not think that sufficient prominence is given to a contracted meatus, congenital or traumatic as a cause of prostatic and orchitic congestion. I have divided the meatus, in such cases, with the best results.

Therapeutics is the most vulnerable department of medical science. It may truly be regarded as the sanctuary of superficial reputations. As few thinking men attach much importance to by far the greater portion of what is recorded as to the alleged efficacy and influence of drugs—most of it begotten of incompetent observation—I record with diffidence my opinions as to the influence of remedial agents in the conditions under consideration. In chronic urethral and prostatic hyperæsthesia few means operate more beneficially than the passing of a full-sized metallic instrument into the bladder; the frequency with which this is to be performed should be inversely to the amount of irritation. As the ultimate facts of therapeutics are so few, I am of those who think that such as have been handed down to us ought to be cherished, and that the chimerical pursuit of new ones in connection with new remedies is not unadvisedly to be encouraged. That bromide of potassium exercises a sedative influence over the motor sexual and urinary centre in the spinal cord is admitted to be one of the ultimate facts of therapeutics; nay in some cases so marked is this influence that when the drug is taken in large doses a temporary retention of urine is thereby occasioned. It is a modification of this toxic influence that we desiderate in bromide of potassium as a therapeutic agent. It is extremely probable that this impression extends along the whole anterior portion of the spinal cord. Reflex action is thus inhibited, and muscular excitability diminished. It seems to me that the sympathetic and the motor systems may be regarded as two opposite poles on whose properly balanced tone normal function, especially circulation, depends. Hence impressions on the sympathetic (fibres of Remak) which diminish its inhibitory power, exalt motor influence, and thus

accelerate the circulation and determine congestions. If on the other hand motor influence is diminished, sympathetic dominance is correspondingly established. Bromide of potassium undoubtedly possesses the latter property. Thus it induces sleep by causing cerebral anæmia; and, by a similar influence on the pelvic viscera, operates beneficially in all cases of uro-genital hyperæsthesia and congestions. The bromides of camphor and iron seem to possess similar properties. Belladonna, and its active principle atropia, act apparently as therapeutic agents by stimulating the fibres of Remak, and are thus of acknowledged efficacy in the treatment of enuresis and spermatorrhœa; and atropia, according to Rosenthal, and Dr. S. W. Gross, in prostatic discharges. When there is reason to suppose that there is an atonic condition of the prostatic ducts, such motor stimulants as strychnine and ergot of rye are specially indicated.

PERFORATING ULCER OF THE FOOT AND PROGRESSIVE LOCOMOTOR ATAXIA.

By FREDERICK TREVES, F.R.C.S.

Assistant-Surgeon to, and Senior Demonstrator of Anatomy at, the London Hospital.

PROF. BALL and M. THIBERGE, in a paper read before the recent International Medical Congress,¹ have endeavored to show that there is a "direct connection" between perforating ulcer of the foot and locomotor ataxia, and bring forward twelve cases to demonstrate that circumstance. They assert that the foot sore has a twofold association with the spinal ailment. It may be one of the earlier or premonitory symptoms of the cord disease, or, on the other hand, it may prove one of the late or terminal manifestations. Before remarking upon these important conclusions I may detail a case now under my care in the London Hospital that would appear to bear out the assertions just made.

The patient is a single woman, a cook, aged thirty-nine. There is nothing important to note in either her family or personal history. Five years ago she developed a suppurating bunion over the left great toe. In about eighteen months this healed, and gave no further trouble. Shortly after it healed—i. e., about three and a half years ago—a perforating ulcer appeared over the head of the metatarsal bone of the second toe. This was preceded by a painful corn, under which an abscess formed. The ulcer is said to have led down to bare bone. Under treatment at the Infirmary at Eastbourne the sore healed, but soon broke out again. It healed and reopened several times, and became at last so troublesome that the left foot was amputated (Chopart) at the Eastbourne Infirmary some eight months ago. After the healing of the stump, which is firm and substantial, she returned to her work, and her feet remained sound until six weeks ago. At this time she developed a perforating ulcer over the head of the metatarsal bone of the second toe of the right foot. It was preceded by a corn and an abscess, as was the sore on the left foot. Shortly after this a like ulcer appeared on the most prominent part of the stump of the left limb, appearing in like manner after a dense corn, beneath which suppuration had taken place.

She has now a circular callous ulcer surrounded by horny epidermis on both the right foot and the stump of the left foot in the situations indicated. The former leads to bare bone, the latter to a sinus three-quarters of an inch in depth. Seven

¹ Transactions, vol. ii., p. 52. London. 1881.

weeks ago she began to stagger in her gait, and has since then fallen down several times when walking. She is now remarkably ataxic in her lower limbs, the upper extremities being sound in that respect. She cannot walk without assistance, nor can she stand when the eyes are shut. There is anæsthesia of both lower extremities, which is somewhat unequally distributed as to degree. There is absolute absence of tendon reflex in both limbs. The feet do not sweat in excess, nor has that feature at any time been observed. The pupils act during accommodation, but are absolutely inactive to light. Her vision is normal. She has no strabismus, and there is nothing especial to note in her fundus. She has had "lightning pains," but no gastric disturbances, no neuralgia, and no trouble with her sphincters. It will thus be seen that the original ulcer of the left foot made its appearance before any evidences of ataxia had developed, and if one could accept without reservation MM. Ball and Thibierge's assertions as to the relation of this ulcer to locomotor ataxia, it will be obvious that the sore assumes a very remarkable importance in general medicine. Unfortunately MM. Ball and Thibierge's statements are not made without reservations. They are forced to recognize more than one form of perforating ulcer of the foot, and of the possible varieties they only assert that one form has part with the spinal malady. Their general conclusion as to the nature of the sore is that it is "a trophical disease of nervous origin," a conclusion closely in accord with that expressed by Messrs. Savory and Butlin in their admirable monograph,* wherein they assert that "the so-called ulcer is the result of pressure or violence to structures whose nutrition is impaired or whose vitality is defective from disease or degeneration of the supplying nerves." Now the many contributions that have of late years been made to the pathology of this foot affection would tend to claim for it the dignity of a special disease, and give to it a very pronounced clinical individuality. Thus the French authors above mentioned would place one form of the foot sore among the specific manifestations of locomotor ataxia, and from their paper one would gather that they consider its relation to the cord disease as close and as pronounced as are the relations of the affection known as Charcot's joint disease. Messrs. Savory and Butlin moreover, in the monograph referred to, are disposed to give the following clinical picture of perforating ulcer: It is an affection more common in men; it attacks certain parts of the sole; it is commonly symmetrical; it is particularly associated with a certain amount of anæsthesia of the part, with sweatings of the foot and with certain peripheral nerve-changes. That foot sores are met with these characteristics no one would dispute, but the grouping of these various characters so as to form one special disease may, I think, be a matter open to question. I have had under my care during the last few years three men with ulcers situate on the soles of the feet, that were symmetrical, that were preceded by suppuration beneath a corn, that led down to bare bone, and that long resisted treatment. In no one of these cases was there any anæsthesia of the part, nor any undue sweatings of the foot, nor any evidence of nerve affection of any kind. One man has been under observation at various times for two years, and is still free from any obvious trace of nerve disease, either central or peripheral. In these three individuals I imagine that the disease is solely and purely local—as purely local as a bed sore under the heel of a man confined to bed

with a fractured femur. A corn forms; it presses like a foreign body upon the soft parts beneath; that pressure leads to suppuration; the pus moves deeply on towards the parts offering the least resistance, and by the time it has found its way through the dense corn-tissue, it has probably in the other direction reached the bone. That any lesion of the nerves of the extremity would favor the development of such a local sore is obvious; just as a bed sore would be more likely to occur in a subject of paraplegia than in a patient bedridden with some other than a disease involving gross nerve change. In one of Messrs. Savory and Butlin's cases the patient appears to have suffered from some infantile affection of the nerves of the limb, and yet from a perusal of the paper one gathers that the symptoms of that nerve affection are included among the individual features of the sore that in time he developed upon his sole. I imagine that it would be more correct to ascribe the anæsthesia, the sweatings, and the microscopic changes in the nerve-trunks, to a central or peripheral nerve disease in relation to which the foot sore is a mere coincidence. To make use of these characters to complete the clinical individuality of the ulcer appears to be on a par with a description of a bed sore in paraplegia, as a sloughing ulcer associated with loss of power in the lower extremity, with anæsthesia, with certain visceral troubles, and with certain gross changes in the cord; all these features being maintained to be essential to the clinical individuality of the sore.

I would urge, therefore, that this "perforating ulcer" is a purely local affection, produced by purely local causes, which causes would act with increased vigor upon a part whose vitality is in any way impaired, but that that impairment is not of necessity dependent upon disease or degeneration of the supplying nerves. The relation of the malady, therefore, to locomotor ataxia would appear to be quite casual and unimportant, and of no more clinical value than would be a burn on the sole of an ataxic subject who had unconsciously brought his foot in too close contact with fire.

In conclusion, exception may fairly be taken to the somewhat misleading name applied to this sore, since it does not appear to really perforate the foot in any ordinary case. Indeed the selection of its especial title appears to have been founded upon the same grounds that influenced Bottom in selecting a title for his vision, and of which he is reported to have said, "It shall be called Bottom's Dream, because it hath no bottom."

Gordon square, W. C.

THE UNITY OF SURGICAL PRINCIPLES IN WOUND AND FRACTURE TREATMENT.¹

By SAMPSON GAMGEE, F.R.S. Ed.,

Consulting Surgeon to the Queen's Hospital, Birmingham.

WOUNDS and fractures are alike interruptions of continuity—the former of the soft, the latter of the hard parts. They differ in the density of the tissues involved, and proportionately in the time required for reunion; but they are essentially similar in processes of repair and principles of treatment. In wounds and fractures, division of tissue is the essential fact which gives rise to a common chain of events—mobility, disordered innervation, and effusion,—which become causes of ulterior pathological results, if their development be not checked by proper treatment. The indication,

* Transactions of the Medical and Chirurgical Society, vol. xii., 1879, p. 373.

¹ Read before the Medical Society of London, Nov. 6th 1882.

common to the vast majority of wounds and fractures, is to bring the severed parts together and keep them so during the process of repair. How that indication shall be fulfilled—what peculiar appliances are demanded by injuries in particular situations, and by such complications as contusion, hæmorrhage, and inflammation—are questions traversing the whole domain of surgery; fit themes for a treatise, only admitting of cursory treatment in a paper for an evening's discussion. It will be my endeavor only to select for comment those salient principles and points of practice on which agreement is most to be desired and nearest of attainment.

Firstly, as to the reduction of fractures of the limbs; that should be immediate, and maintained with the nearest practicable approach to immobility, a rule of practice of which no other in surgery admits of fewer exceptions. In selecting from amongst the numberless contrivances for maintaining immobility, preference should be given to those which admit of accurate moulding to the limb, including the joint above and below the seat of injury. It is beyond question that, with wood and iron splints, many surgeons have for generations achieved excellent results in fracture treatment; but, for comfort to the patient and freedom from complications, moulds are best; they can be constructed with a great variety of materials—plaster, gum and paraffin, millboard (plain or soaked with dextrine), gutta-percha or poro-plastic felt. The last-named and dextrined millboard are, I think, the most handy and efficient; but, where all are good in principle, choice may well be left to the predilection which grows out of individual experience. Whatever splint or mould be used, let it be well padded, and I know no pads equal to those made with absorbent gauze and cotton, which possess practically indestructible elasticity. The materials of which bandages are made, still more the method of bandaging, are of the first importance. Uniform elastic compression powerfully contributes to preventing muscular contraction, and *pro tanto* securing immobility. It prevents extravasations, and, when they do occur, promotes their absorption. I employ pressure in the treatment of all fractures, with perfect elastic padding, light, yet decidedly compressive, smooth bandaging, without ruck or reverse. It is many years since I used one of the unbleached calico bandages common in most hospitals. Preference should be given to these soft, bleached, absorbent bandages. A depth of two inches is the handiest, the rapid spiral the most convenient, comfortable, and efficient, mode of application. In bandaging a leg, for instance, having previously padded it, a couple of circular turns are made just above the ankle. The roller is then carried along the dorsum of the foot, and a circular turn made around the roots of the toes. With a few figures-of-8 the foot, including the heel, is covered; the roller then carried spirally along the front of the leg to the knee, here made fast with a circular turn. Alternately ascending and descending figures-of-8 complete the elastic investment. The method is applicable, with trifling variations of detail, to all parts of the body. Whenever practicable, suspension will be found of the utmost service as an addition to the means of maintaining immobility. The suspension of a limb in two or more loops of bandage or leather is not what is here meant; that is comparatively fixed elevation, of unquestionable advantage for position, but not a perfect swing; for this a fine cord is even better than a chain. The greater the motility of the suspending medium, the more completely does it oscillate and exhaust any motor power communicated to the limb; in other words, the fragments of a suspended broken limb, once

perfectly adjusted, can be kept at rest in direct proportion to the perfection of the swing.

Another form of suspension, different in principle and mode of application, but still very useful, is that of suspending a weight to a limb. It overcomes muscular contraction by steadily exhausting it, and alone, or in combination with moulds and pressure to an injured part, is of great service in maintaining immobility. Assuming so much conceded for the treatment of a simple fracture, agreement would probably be less complete, if a fracture complicated with swelling, sanguineous or inflammatory, were in question. But in such a case, no less than in the simple one, should reduction be immediate, with elastic compression, absolute immobility, and oscillatory suspension. Digital compression of the main artery will assist in promoting absorption. In a very few hours the outside of the apparatus becomes loose, and its elastic construction admits of fresh padding and compressive bandage, without disturbance of parts, and with unfailing benefit in promoting absorption, checking inflammation, and consolidating repair. The additional complication of a wound or a bleb makes no substantial difference; given a compound fracture, only let the fragments be immediately and accurately adjusted, the wound closed with all necessary provision for perfect drainage, the limb immobilized compressed and swung, and, in the vast majority of cases, the fundamental indication will have been carried out, reducing the compound to a simple fracture, and treating both on identical principles.

If a simple fracture, say of the clavicle because it admits of easy observation, be not at once immobilized, material is thrown out between and around the broken ends of the bone, the deposit thickens, the part becomes hot and painful. Such a condition is best seen in those, happily, rare cases in which a fracture of the clavicle goes for some days undiagnosed. Immobilize the limb and the callus vanishes, all the more rapidly if compressed under an elastic pan. Given a flesh wound in most parts of the body; if the edges be at once accurately brought together, and kept so, provision made for deep and surface drainage, and immobility maintained, direct union takes place, all the more surely if the part be kept in a position to favor venous return and prevent arterial afflux. Here, again, perfectly smooth elastic compression is of the greatest service, not merely in maintaining contact of the deeper, as well as the superficial, lesion, but in restoring the balance between elastic resistance and blood pressure, which is the normal condition of living parts. Let a flesh wound, like the one we have just been considering, not be accurately adjusted; let it be treated with water dressing or a poultice, with the limb dependent and not immobilized. The edges become tumid, the wounded surface discharges and stinks, the surrounding skin is red, tumid and painful. In this state, raise the limb to empty it of its blood, approximate the edges, resort to elastic compression and immobilization, swelling and pain vanish as if by magic, and healing proceeds, just as in the case of the fracture with swelling which we were considering a few minutes ago. A fracture with a wound complicating it, the condition generally known as compound fracture, will be found amenable to treatment on the principles enunciated with the happiest results.

My remarks have hitherto been directed to injuries of the limbs. Their truth and practical value are equally well, if not better, illustrated in injuries of the head, with some modifications rendered necessary by the condition of parts. In fracture of the vault of the cranium without wound, the great indications of rest and prevention of ex

travassation are fulfilled by keeping the patient in comparative darkness, in the horizontal position, with an ice-cap. No wounds do better than scalp wounds under dry dressings, elastic compression, and a minimum of subsequent interference. An adaptation of the same principles, according to the exigencies of particular cases, will ensure success in the treatment of a large proportion of compound fractures of the skull. The question of trephining is one of special and exceptional interest, to which it would be here impossible to do justice. But as I have no wish to shun difficulties, and to restrict the scope of discussion, I may briefly state that there are very few cases in which I consider trephining justifiable in fractures of the skull. I have practiced it, and seen others do it, with happy result; and I can conceive of cases in which I should not only trephine, but be prepared to incise the membranes and the substance of the brain, to fulfil local indications of effusion and compression. But if we go back to the early days of this controversy, and trace it down to our own time, I am clearly of opinion that more people have owed their death, than their life, to the trephine.

To ensure absolute rest in wounds and fractures, immobility should be secured to the utmost practicable extent, while the reparative process is going on; but no longer. Every surgeon knows how much mischief results from rest too long persisted in. The experience only affords another illustration of almost every truth, psychical and physical; carried to extremes it becomes a vice. With this reservation, the practical application of which must depend upon the exigencies of particular cases, immobility is one of the most powerful factors in surgical therapeutics. A corollary of that proposition is infrequent dressing. On this point the agreement of surgeons at home and abroad has grown very manifestly during the last few years. Whatever the nature of the injury, it is scarcely possible to be too accurate and complete in first dressings. Then watch the thermometer and the pulse, the patient's expression and the state of the skin; and so long as those cardinal indications point to safety dress as infrequently as possible. To this end absorbent dressings contribute materially, and if they be not sufficient to ensure perfect drainage, one or more tubes may be employed for the purpose. By keeping them long, and carrying them out through the pads, it is easy to collect the discharge in a pad lightly placed over the end of the tube, so as to combine frequent removal of discharges with immobility of the apparatus.

Experience proves that the more absolute the immobility, the more evenly the limb is compressed, the closer attention is paid to position, proportionately less are irritation, vascular turbulence, and consequent effusion. The healing part shrinks as it consolidates, and dries in direct proportion as its nervous and vascular life is controlled. "That under dry and infrequent dressings, absolute rest, physiological position, and elastic pressure, most wounds and fractures heal," is a proposition which I have striven to defend since I formulated it years ago. The argument so far has been in the same direction, and that because experience only confirms its soundness.

Generalizations are proverbially difficult in a science and practice like that of surgery. However sound be their foundation, however close the reasonings by which they are arrived at, their success in particular cases depends on the judgment, skill, and care with which they are applied. To the reservations already made I must add something on "dry dressing," which, unqualified, is a very misleading designation of this plan of treatment. It is certainly entitled to be called "dry

dressing," inasmuch as water is not used, and even astringent or anti-putrescent lotions very sparingly so; but success demands attention to all the essentials of the physiological treatment of surgical injuries—immobility, position, and pressure, drainage and infrequent dressing, pure and non-putrescent materials; gentle, patient, and skilled manipulation; intelligent and unceasing watchfulness of constitutional states.

Fresh wounds without loss of substance are particularly suited for the plan of treatment here recommended. They should be put up without water, the edges accurately in contact; always bearing in mind the necessity of providing for drainage outwards of any effused fluid. Under absorbent pads and elastic pressure, with absolute rest and attention to position, the vast majority of fresh wounds heal rapidly, solidly, and painlessly. When the dressing is changed, which it should only be infrequently, no water should be employed; but if there be any discharge and necessity for cleaning, this can best be done with a pledget of dry lint or of absorbent gauze and cotton; all manipulations to be of the lightest. Such dry dressing simulates the natural scabbing process, but is really more perfect. Wounds of many inches in length heal so directly and perfectly under dry dressing and elastic pressure, that in the course of a few days it is often difficult to detect the fine linear scar on the dry and shrivelled skin. If a fresh wound be attended with loss of substance, some boroglycerine should be poured on the part before application; it prevents too close adhesiveness, and possible bleeding, when the dressing is removed, and has the further advantage of preventing decomposition.

The necessary employment of sutures and adhesive plasters, according to requirements, need not be dwelt upon, and I shall only briefly remark that instead of, or in addition to, such bonds of union, I frequently employ styptic colloid, compound tincture of benzoin, or collodion.

In wounds with large loss of substance, if healing be slow, action may profitably be stimulated by a variety of the well-known astringent applications in ointment or lotion, than which I do not know a better than the old red lotion,¹ with a liberal addition of glycerine. Position, rest, and pressure remain cardinal indications, poultices and water prohibited. By this I mean stagnant water in the shape of water dressing, which is nearly as potent as a poultice in promoting suppuration and decomposition. It is otherwise with cold-water irrigation, which is consistent with, nay may be made conducive to, perfect drainage, and by its astringent and sedative action produces effects very similar to those of rest and pressure. Cold irrigation is not easy to apply continuously comfortably, and one of its great advantages, the low temperature, may be secured by ice bags.

I hope I have made it clear that while the absence of water is a prominent feature of the dry dressing method, an essential is the maintenance of immovable apposition under elastic pressure, whereby the dynamics of the circulation are so controlled that the part is only allowed blood enough to nourish it. Irritation, the great cause of stasis and effusion, is reduced to a minimum, and the part is maintained in a state the nearest approaching to inaction and dryness. In direct proportion the material and the possibilities of decomposition are averted.

Contused and inflamed wounds likewise afford conclusive evidence of the soundness and general applicability of the principles and methods just

¹ A solution of one or two grains of sulphate of zinc in water, with the addition of some compound tincture of lavender.

related. The dressing which I hold in my hand was removed from one of the *employés* in an iron warehouse. He was moving some pigs of iron, when one, weighing a little over a hundred weight, fell on his right foot. I saw the case very shortly afterwards, and found the foot very much swollen, its bony outline obliterated, the skin bluish and shining, with a star-shaped wound on the centre of the instep. Having satisfied myself that no foreign body was present, I dried the wound and placed over the dorsum of the foot this fold of lint, well soaked with compound tincture of benzoin, over it this large pad of absorbent gauze and cotton, and then a compressive bandage from the roots of the toes to the middle of the leg. I enjoined my patient to keep perfectly quiet, lying during the day with his head at the foot of a sofa and the injured foot over its head. I did not remove the dressing until the eighth day, when the wound was healed, the outline of the limb perfect, and though the skin was mottled, as from a bruise, up to the middle of the leg, it was cool and painless.

You see how the blood had penetrated, though in small quantity, through the dressings, and dried on the outside. The tincture of benzoin had acted as a coagulant and antiputrescent, and drying into the lint served the purposes of a mould. Its styptic property was assisted by pressure and position, under which the effusion was absorbed; the part shrank, and the wound healed without any further interference. This result, a typical one of the method, was not a simple consequence of a dry application, but due to a variety of causes which combined in controlling the circulation and promoting reparative action in accordance with demonstrably true principles of animal physics.

A punctured and inflamed wound of a much more serious kind, but with equally happy issue, calls for a few words. I was asked to see a licensed victualler who a week previously, while carving a joint, had thrust the point of a long knife into the centre of the palm of the left hand. He proceeded at once to a neighboring hospital, where the hæmorrhage was arrested and a carbolic dressing applied. Hæmorrhage recurred the third day, and the padded wooden splint, which I have here, was firmly applied with a calico roller to the hand, and the patient sent home with the request to attend in a few days. The arm swelled, pain was intense, and my attendance was requested. The splint you notice is barely long enough to reach from the tips of the fingers to the wrist—a useless contrivance for purposes of rest, a fulcrum for intolerable pressure under the strong calico roller firmly applied to check the bleeding. I found the palm of the swollen hand full of filth, which I lightly cleaned out with dry lint; blood issued rather freely from the wound, into which I lightly brushed iodized colloid with a camel-hair pencil. I put the man to bed, and raising the limb in the vertical position, padded it and bandaged it, interlacing the spiral turns every now and then with a piece of moistened millboard. I left the man in bed, with the hand well raised, in perfect comfort. He had had no sleep for nights, but was never disturbed afterwards; with four changes of pads in a fortnight swelling rapidly subsided, and healing was perfect without an untoward symptom. Pressure over a short strong splint like this is just the oppressive constriction which cannot be borne, and is a source of incalculable mischief. On the other hand, the equable elastic pressure subsequently employed, with absolute rest and position on sound principles of vital dynamics, conduced to a surgical result in which the dry dressing was merely one factor.

Only the other day I was asked to see this case in consultation. A gentleman had bruised the

front of his leg against the step of his carriage. The part injured was not the shin, as is usual, but the muscles outside it. Cooling lotions had been applied for two or three days; but, swelling and heat increasing, poultices were substituted, and an incision for the evacuation of matter was contemplated when I was called in. I found the part much swollen, red, and tender, and have no doubt that an opening would have given exit to pus. But the patient being very averse to the knife, I consented to endeavor to avert it, while stating clearly that the surgeon was justified in recommending it. With his assistance I raised the limb vertically, padded it and bandaged it over interlacing strips of wet dextrined millboard from the toes to the knee. The patient was ordered to remain in bed with his leg in a swing. In a few hours the bandages and millboard lattice-work were comparatively loose. Every twelve hours an outside bandage was applied with equable pressure, and at the end of forty-eight hours the limb was exposed; we found it pale, cool, shrunken, and painless.

If this may seem to point to a too mechanical doctrine of inflammatory development and treatment, I beg you to recall your experience of the everyday surgery of the upper and lower limbs. How rare are congestions and ulcerations of the former, how common of the latter. Here is a big, boggy, red leg, with a saphena vein nearly as big as an index-finger, and an irregular, dirty red, filthy sore, nearly as large as the palm of the hand, the surface of the limb tense and shining, and often so tender as scarcely to bear being touched with a feather. Put the man on his back, raise the leg vertically by the heel, in one minute by accurate test I have found the circumference at mid-calf diminish exactly one inch. While an assistant supports the heel, strap the leg from the ankle to the knee with perfectly equable pressure, leaving two or three narrow interspaces for drainage opposite the ulcer. Over the plasters covering it, and surrounding the leg, place a good large pad of absorbent gauze and cotton; then bandage spirally and evenly from the toes to the knee with a good compress over the vein. If the patient can rest a day or two with his leg in a swing all the better; but even if he walks about at once, the compressive apparatus soon becomes loose. When it is opened in two or three days the pad is full of discharge, the limb much shrunken and paler; cleanse it with dry lint or absorbent cotton, reapply the same apparatus, change it every fourth or fifth day, and healing progresses in comfort and without a check. Should the sore seem languid at any one of the dressings, it may be beneficially lightly touched with sulphate of copper, or have a zinc and glycerine lotion brushed over it, with a camel-hair pencil. In the main, the state of such a leg is owing originally to disturbed nutrition from interference with the circulation by mechanical causes. So, too, its healing is brought about by restoring that balance of physical conditions, which is essential to the equilibrium of blood-supply, innervation, and healthy nutrition.

On the same principles, and practically by the same method, most cases of so-called erysipelas after injury may be successfully treated. Under wet applications they spread; whereas they rapidly subside under the elastic pressure of dry absorbent gauze and cotton pads and perfect bandaging. Even when the subjacent tissues have become sloughy, and matter has formed, subsidence on the plan indicated is most rapid, all the more so if due attention be paid to position, and digital compression be applied to the main artery. These principles of treatment follow physiological lines. Injuries are serious in direct proportion as they in-

terfere with the exercise of healthy living functions; to restore and preserve them must be the surgeon's great aim in treatment; and he will be successful in direct proportion as he imitates and assists the natural processes.

To those who have noticed the omission of reference to so-called antiseptic surgery, I beg permission to address a few remarks. Life is the great antiseptic. Preserve it, restore healthy function, control by rest, position, and pressure, nerves, vascular, and muscular action, so as to minimize the material for, and the causes of, discharge, carry it off as it is produced by drainage tubes and absorbent dressings, and the repair of injuries proceeds like healthy nutrition, uninterruptedly and painlessly. That infection is always floating in the atmosphere, ready to settle in the shape of impalpable and implacable germs into any breach which may be made in the surface of a living body, is an idea which has never troubled me.

When, in 1867, Sir James Simpson was working out his acupressure, he applied to me for some information, suggested to him on reading my papers on "The Present State of Surgery in Paris," just previously published in *THE LANCET*. To illustrate one point, I requested my then house-surgeon to tabulate all the operations of any moment which I had performed during his tenure of office, a period of about two years and nine months, during which I had discarded poultices, water dressings as little better, and dressed wounds mainly by rest, position, and pressure with pads of dry lint. Excluding a large number of minor operations, all of which were successful, the total reached 107 operations, amongst which were three of lithotomy, ovariectomy two, fistula in ano twelve, trephining skull one, removal of bony sequestra six, ligation and division of varicose veins two, removals of female breasts twelve, removals of tumours sixteen, excision of elbow four, amputations of arm, wrist, thigh, leg; and ankle twelve, partial amputations of hand and foot twenty-five, with the result of three deaths in 107 operations, an average of my general surgical experience. The prescription to rub strong carbolic acid into the innermost recesses of a compound fracture, to pursue and kill the germs; the warning that an antiseptic dressing may lose all its potency through a hole no bigger than a pin's point in the investing mackintosh, admitting countless germs; that a dressing must be changed so soon as a little discharge permeates it, lest a septic channel be established for the ubiquitous and maleficent vibrios; that these will settle down as a swarm from the air on a granulating sore if the spray be not kept in action while it is dressed—are a few of the fallacies which have never had any dread for me. That as accessories to wound treatment antiseptics possess real value is an old truth, for insisting on which the world will ever be indebted to those from whom I have felt compelled to express qualified, but material, dissent. Their error has consisted in exaggerating incidents and underrating essentials; in predicating from experiments on dead organic matter the action of living tissues; in pretending to found a new surgery; in under-estimating truths which may not have the allurements of novelty or of speculative generalization, but which are none the less demonstrably sound foundations of surgery as a science, one and indivisible.

If, dealing with facts and principles, I have not mentioned authors by name, it has been for two reasons. I have been anxious to steer clear of personal controversy, which is one of the most formidable obstacles in the way of calm discussion; and it would have been impossible to refer to some authorities without seeming, but unintended, disregard of others.

Far from underrating the importance of the literature and history of the subject, I feel very deeply that if it had been better known, there would be less necessity for combating errors long since exposed, and insisting on truths inadequately appreciated or undeservedly forgotten.

Addressing myself, as by your permission I have had the privilege of doing this evening, to the Medical Society of London, I have felt that this was no occasion for a display of surgical erudition; I have rather fixed upon it as a good opportunity to elicit, by plain statement, an expression of opinion to test the possibility of agreement, after elimination of unsubstantial differences, on the essential unity of surgical principles in the treatment of wounds and fractures.

A Mirror

HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

MIDDLESEX HOSPITAL.

SURGICAL CASES.

(Under the care of Mr. A. CLARK.)

THE following cases which have lately been attending in the out-patient room present some features of interest.

CASE 1. *Chancre of Lower Lip, followed by Secondary Symptoms.*—E. B—, aged twenty-two, attended first on Dec. 29th, 1881, complaining of a hard swelling underneath her jaw. It did not take much consideration to decide that this was a glandular enlargement secondary to a sore on the lower lip, and the sore was a typical Hunterian chancre. The patient herself attached but little importance to the sore, which she stated she had had several weeks, but it was the hard increasing swelling which alarmed her. The girl's explanation of the lesion was that in the course of her employment, filling pickle-tins, she had accidentally cut her lip with a sharp edge. She declared she had kissed no one except a young man to whom she was expecting shortly to be married, and who was seen by Mr. Clark, and found to be perfectly healthy. The patient herself had always previously enjoyed good health, and there was no reason to believe that she had knowingly exposed herself to syphilitic infection; her own statement and that of her mother, who accompanied her, were perfectly straightforward. The treatment adopted was a drachm of the solution of perchloride of mercury three times a day, and in a week there was a marked improvement, in three weeks the chancre had all but healed, and the glandular enlargement much reduced, but then a rash appeared and ulcerated throat, and she has gone through the ordinary course of syphilis. Considering herself well on June 8th, when she discontinued her attendance of her own accord, only, however, to return with palmar psoriasis on July 8th, for which iodide of potassium was prescribed, and this she still continues to take.

CASE 2. *Abscess of the Parotid Gland.*—A. G—, aged fifty, first came on May 18th, 1882, with considerable enlargement about the right parotid, which she stated had been coming for several

months. It was in the main hard, but there were several soft fluctuating nodules projecting from it; there was some enlargement of the submaxillary lymphatic glands and several carious teeth, but of these the patient did not complain. The diagnosis was between glandular abscess affecting the right parotid and enchondroma of the parotid. A mixture of carbonate of ammonia and chincona was ordered, and locally an ointment of belladonna and iodide of potassium was applied. For the next two or three weeks the swelling continued to get harder and larger, and it was not until Aug. 31st that it burst, and then it rapidly disappeared, leaving a small discharging sinus. The patient always declined to have anything done to her teeth.

CASE 3. Enlarged Glands surrounding the Carotid Artery and simulating Aneurism.—E. B—, aged thirty-three, presented herself on June 26th complaining of pain in the left side of her neck, the result of a blow there ten day previously. There was evident enlargement on that side and some induration around the carotid artery, and with each beat of the heart the tumour expanded in every direction; there was no redness of the skin, not much tenderness on ordinary manipulation, and no perceptible difference in the two radial pulses. There was some enlargement of the cervical glands; the diagnosis was between aneurismal dilatation of the carotid and glandular abscess. The former seemed the more likely. A local application of belladonna and iodide of potassium was ordered and a tonic given internally. She was seen again on June 29th, when there was no perceptible difference. On July 6th the objective signs were the same, but the patient complained of more pain, inability to sleep, and an unpleasant pulsation; she was therefore admitted as an in-patient, and a subsequent exploratory incision proved the case to be one of enlarged glands entirely surrounding the artery.

CASE 4. Deep-seated Abscess in Axilla.—L. C—, aged fifty-six, presented herself on April 10th, complaining of intense pain in her right axilla. She attributed it to a twist some three weeks previously, following which the pain began, and had expected it would get better of itself, but it daily increased in severity, and her health was beginning to be affected from want of sleep, so she reluctantly came to the hospital. There was some fullness over and below the pectoralis major, and extreme tenderness both there and in the axilla, but there was no specially tender spot, no redness of the skin, no fluctuation, no history of a rigor, and no glandular enlargement to be felt. It was believed to be a deep-seated abscess, so a long narrow bistoury was carefully introduced, and some laudable pus escaped; the opening was then enlarged by means of dissecting forceps. There was a free discharge; and the next day the patient expressed herself as being quite well; nothing but a sinus remained, which healed by the 27th, and the patient was discharged. She, however, returned on June 15th, with some œdema of the arm, which, under local friction and the administration of quinine and iron, disappeared.

TWO CASES OF FRACTURE OF THE SKULL IN YOUNG PATIENTS.

(Under the care of Mr. GEO. LAWSON.)

The two following cases show from what severe injuries of the head young patients may recover. In the first case there was an indented fracture of the skull; and although there was a considerable depression of bone, yet, with the exception of a slight drowsiness for a few hours after the accident, the child had no cerebral symptoms, and left

the hospital after three weeks quite well; indeed, he was only detained in the hospital because it was probable that some head symptoms might arise. The second case is very remarkable. The child fell the height of seventeen feet from a loft on to the stones below. There was without doubt a fracture of the vertex extending into the base of the skull, as was evidenced by the repeated vomiting of blood, the altered shape of the skull, and the intense and prolonged coma. The child was admitted on September 30th in a state of deep coma, and she remained in a state of unconsciousness five days, until October 5th, and unable to swallow any food except three teaspoonfuls of milk on the afternoon of the 4th. During this period she was fed with nutrient enemata. To account for this prolonged insensibility there must have been severe brain lesion, and yet the child has recovered, and now, without any apparent discomfort, is able to play with her toys, and behave as if she suffered no inconvenience from the injury. Another interesting point in the case is the time which elapsed before she was able to speak. It was not until the sixteenth day after the accident that she could be induced to answer any question, although, apparently, she often tried to say something.

CASE 1. An Indented Fracture of Skull; very Slight Head Symptoms; Recovery.—John G—, aged sixteen months, was admitted into Bird ward on July 8th, 1882, with an indented fracture of the skull. Shortly before being brought to the hospital the child fell off a high stool, and in his fall his head came into direct contact with the abrupt end of the leg of another stool which had been overturned.

State on admission.—There was a depression in the skull just above and to the left of the occipital protuberance, which corresponded exactly to the end of the stool. The depression was about one-tenth of an inch deep, visible to the eye, and the sharp edge of the surrounding bone could be easily felt with the finger through the integument. The child seemed drowsy, but, with this exception, there were no cerebral symptoms. The anterior fontanelle was not completely closed, but the posterior fontanelle was quite filled in with bone. An ice-bag was applied to the head, and the child kept quiet in bed.—9th: The child seems very well, and in no way affected by the accident. He soon recovered from the drowsiness, and eats and sleeps well, and plays well.—20th: The child has been kept in the hospital lest head symptoms might arise. He is very well and cheerful. The indentation, so marked on admission, is much less, the depressed bone having been partially raised towards the surface.—31st: As the child seems quite well he was discharged from the hospital. There was still a slight depression of the bone.

CASE 2. Ethel D—, aged six, was admitted into Bird ward on Saturday afternoon, September 30th, 1882, having just fallen from a stable loft on to the stone paving below, a height of seventeen feet. She was standing on a chair playing, when she tipped forwards and fell head foremost on to the paving, her head first striking the ground.

State on admission.—The child was in a state of profound coma. The left side of the head was very large from an extensive hæmorrhage beneath the scalp. Soon after her admission she vomited a quantity of blood, and twice the next day threw up blood, but in less quantity. She was unable to swallow, and a teaspoonful of milk put into the mouth ran out again. Ordered an ice-bag to the head, and to have an enema of beef-tea and an egg, an ounce and a half every four hours.—Oct. 1st: The child still lies in a state of coma. Has

vomited once some blood. Neither moves nor speaks. To continue the enema, as she is unable to swallow.—2nd: The child remains in the same unconscious state, but she shifts her position and draws up her legs, and is at times restless. She is unable to swallow. To continue the enema.—3rd: Still unconscious and unable to swallow; and although repeated attempts are made to give the child a teaspoonful of milk, it always runs out of the mouth. As she is very restless, and with difficulty kept in bed, a wooden frame has been placed around the bed, to keep her from falling out. To continue the enema.—4th: To-day the child seems to be better. She is still very restless. During the afternoon she swallowed about three teaspoonfuls of milk. As the bowels have acted twice the enema is given at longer intervals.—5th: The improvement has continued. She has taken half a teaspoonful of milk by the mouth, and is gradually regaining consciousness, and will look up when spoken to. The swelling of the side of the head is much diminished, but still there is fluctuation beneath the scalp on the left side of the head. To continue enema.—6th: The child is much better; she sits up in bed, and takes food. Ordered chicken, and milk with bread-and-butter. Omit enema. She has not yet spoken, although she clearly understands what is said to her. From this time the improvement continued. She began to play with her toys, and to take an interest in things around her. She would frequently try to speak, but was apparently unable to do so. The first time she spoke was on October 15th, when she answered "Yes" to a question put to her by the nurse. For the next two or three days she could only be induced to say "Yes" or "No."—24th: The child is now rapidly approaching convalescence. She talks freely, and plays all day on the bed with her toys. The blood beneath the scalp has been absorbed, and the left side of the head (the part on which she fell) is considerably flattened, but it is gradually regaining its natural shape. She has never complained of any pain in the head. There have been no paralytic symptoms either of the extremities or any of the parts supplied by the cranial nerves. The child will be kept for some weeks under observation in the hospital.

LEEDS PUBLIC DISPENSARY.

CASE OF ANEURISM OF BASILAR ARTERY; RUPTURE; DEATH; NECROPSY; REMARKS.

(Under the care of Mr. C. J. WRIGHT.)

For the notes of the following case we are indebted to Dr. Hudson.

William —, aged sixteen, currier, was found in the street in a fit, at 4 P.M., March 12th, 1882. He was conveyed to an inn and given some whiskey, after which he attempted to walk home. After going about forty yards in a semi-stupefied condition, he fell down insensible, not convulsed, and was taken home by a policeman, vomiting profusely on the way. At 7 P.M. he was seen by Dr. Hudson. He was then lying on his back, his face pallid and covered with perspiration, as also the rest of the body; pupils dilated, equal, not responding to light, no apparent loss of muscular power, limbs flaccid. He could not be aroused by loud speaking; pulse 79, full, compressible; respiration 26; temperature 100.4°. There was no paresis of the sphincters, nor any loss of blood from the ears or mouth. The nostrils were partly filled with clotted blood, and a trace of the same was on the upper lip. There was no evidence of fractured skull or other injury. At the bed-side was some vomit slightly and equally mixed with dark blood. There

was no injury of a former date, nor history of any illness to be elicited, neither was there suspicion of foul play. The head was shaved and an ice cap was applied. The vomiting having ceased, six grains of calomel were placed on the tongue. At 10.30 P.M. he was seen by Mr. Wright. He could now be roused, and answered "Yes" to a question about pain, putting his right hand to the frontal region and keeping it there. The pupils were normal and acted well; there was no paralysis, no return of vomiting, and the bowels had acted freely. Pulse 80, diicrotous; respiration 24; temperature normal. Perfect quiet was enjoined, soda water and milk were given, and the ice was continued.—13th: More conscious; complains of great pain in the frontal region with intolerance of light, and of nausea. He remembers feeling "dizzy" and falling, nothing further; urine normal. Ordered an effervescing draught, with ten grains of bromide of potassium every three hours.—14th: Has not slept owing to the frontal cephalalgia; looks very pallid, is warm, and has not vomited again. No blood in nostrils; no melæna. Respiration and temperature normal; pulse 80, firmer. Ordered two ounces of compound senna mixture, and a blister to nape of neck.—16th: Has slept two hours, and had less pain; bowels very confined; passes water freely, and has perfect control over the emunctories. To continue with draught and have a powder with six grains of calomel and a drachm of compound jalap powder at bedtime.—18th: The frontal pain alone complained of, and which entirely prevents sleep; no vomiting. Temperature normal. To have nightly a draught of three grains of chloral hydrate, with twelve grains of bromide of potassium.—23rd: Still intense frontal pain. A seton inserted in nape of neck. To have seven grains of iodide of potassium three times a day, and mercurial ointment applied to the arm.

April 4th: The pain continuing, though not so severe as before, a seton was put in the nape of the neck, and the mixture increased to twelve grains of iodide of potassium three times a day. The draught at bedtime was continued, as he only slept after taking it.—12th: Has less pain, eats well, and sits up in bed daily.—14th: No pain for two days. The ointment to be discontinued, and the seton removed.—20th: Was out of bed two hours.—24th: Reported by his mother to have had a "fit" at midnight, not being convulsed but falling suddenly on the floor. He remained unconscious forty-five minutes, and continued "dazed" for hours afterwards. He vomited shortly after the "fit." He still seems stupid, and complains of great pain over the left orbit, whereas previously it was referred to the whole frontal region. Bowels unmoved for two days. To continue mixture and draught, and two compound colocynth pills at bedtime.

May 1st: Has no pain, and been up for the first time since the "fit."—11th: Having had no pain for twelve days the iodide was reduced to two grains thrice daily, and the draught discontinued. 12th: Attended at the dispensary, walking well, and only looking pallid. Ordered to Ilkley. 13th: Went to the theatre, and while down in the vestibule between the acts had a "fit," at 10 P.M.; was taken to the General Infirmary and expired immediately after admission, at 10.30 P.M.

Necropsy, forty-two hours after death.—A large quantity of clotted and semi-fluid blood covered the whole surface of the brain, especially the base, extending over and down below the medulla oblongata and through the transverse fissure into the lateral ventricles. An aneurism about the size of a small bean was found at the junction of the basilar with the left posterior cerebral artery, which

had given way in its lower wall, the opening being about the size of a large pin's head. The coats of the aneurism were extremely thin, especially around the ruptured point. There were no signs of any former fracture of the skull. Other organs healthy.

Remarks by Mr. WRIGHT.—Although the cases of cerebral aneurism upon record are somewhat limited, they are probably in reality more common than is supposed, owing to the real causes of some hæmorrhages over the brain being either overlooked or never ascertained; such cases being either not examined after death, or simply set down as 'under the head of "apoplexy." The basilar artery appears to be the most usual seat for the development of a cerebral aneurism, which probably can seldom, if ever, be diagnosed with certainty during life. In the above case the main symptoms were the epileptiform attacks, the fixed and persistent pain in the forehead, giddiness, with consequent sleeplessness, and intolerance of light. The patient, aged sixteen, was young for disease of this character. Of sixty cases of cerebral aneurism mentioned by Dr. Tanner,¹ including fifty-two cases collected by Dr. Brinton,² the average age was forty-one, the youngest patient being fourteen, the oldest sixty-five. It may be a question how far the first attack, which took place in the street, and the second during his illness, may have been due to some oozing from the aneurismal sac. No trace or proof of this, however, was found after death. It is worthy of note that the fatal seizure due to the rupture took place, not during the excitement of a sensational play at the theatre, but between the acts—i.e., during physical exertion subsequent to the mental effort.

STANLEY HOSPITAL, LIVERPOOL.

UNUNITED FRACTURES OF HUMERUS, RADIUS, AND ULNA, SUCCESSFULLY TREATED; REMARKS.

(Under the care of Mr. ROBERT JONES.)

CASE 1. *Ununited Fracture of the Right Radius.*—J. K—, aged forty, a sailor, fractured his right radius on the way to New Zealand. The captain of the vessel undertook its treatment for the first two months, which consisted in the application of the usual side splints. The patient on landing procured a surgeon, who proclaimed non-union, and persisted in the use of splints for a further period of six weeks. No success, however, accompanied this, and, in J. K—'s own words, "For four months once a week the doctor took hold of my arm and elbow and shook it for five minutes." The patient subsequently returned to England; and in August, twelve months after his mishap, he was admitted as an out-patient to the Stanley Hospital. The radius was ununited at the junction of the middle with the upper third. Around the fractured ends some thickening was perceptible. He complained of pain at night, more especially when the previous day had witnessed much use of the arm. He was quite unable to do heavy lifting, and any attempt at closing the hand firmly produced "shooting pains" around the elbow. Furthermore, a dependent position of the arm invariably gave rise to an unbearable feeling of fullness at the seat of fracture.

CASE 2. *Ununited Fracture of the Ulna.*—R. S—, a sailor, aged fifty, became in October last an out-patient at the hospital. On examining him an ununited fracture was found at the middle of the ulna. The ends were freely movable and thick-

ened, and the skin over the seat of fracture much hypertrophied. The subjective symptoms were, pain at night, loss of power in the limb, and violent neuralgic pains during damp weather. He gave the following history: Twelve months previously he broke his arm in a pugilistic encounter on the plains of the Argentine Republic. It was plastered next day by a practitioner, who advised the removal of the dressing in about a fortnight. This injunction the patient obeyed while at sea, but necessarily with unpleasant results. On his arrival at a foreign port, a doctor applied more plasters and advised more rest. For five weeks this treatment was adopted with no improvement save in the matter of pain. Three months later the patient arrived in England, where he immediately sought advice from a medical gentleman, who proposed cutting down upon the fractured ends and excising them. This procedure he would not submit to.

CASE 3. *Ununited Fracture of the Surgical Neck of the Humerus.*—J. R—, fifty-six, was admitted an out-patient for fracture of the surgical neck of the humerus. He had met with the mishap the day before, and on his admission the contusion and swelling were so formidable as to render the application of splints quite out of the question; nor were these appearances sufficiently modified to admit of the use of supports until the ninth day, when the arm was immovably fixed. With the exception of the usual weekly trimming, this fixity was undisturbed for seven weeks, at which time there was absolutely no union. Three weeks more of anxious waiting and withal no change.

Remarks by Mr. JONES.—In the treatment of these cases I followed the method introduced to the profession by Mr. H. O. Thomas—that known as "percussion." Of this there are two varieties. The one consisting in severely percussing the limb over the seat of fracture at long intervals; the other in its daily but gentle performance. Whichever plan be adopted elastic bands should also be tied above and below the fracture to induce local congestion and thereby facilitate the reparative process. More especially is this necessary at night time, when the circulatory system is less active than during the day. The hammering is performed with an instrument covered by an indiarubber cap, so as not to lacerate the soft structures. In its absence, however, anything almost will suffice. In Case 1, the bone being somewhat deep seated, I adopted the method of severe hammering, which I performed once a week. The patient tolerated it very well and complained but little of the pain, although the indiarubber tubes tied round his arm at night made him very restless. I applied no splints, but merely permitted the carriage of his arm slung in hammock-like fashion. This lasted five weeks. After each beating a good deal of swelling and even some contusion marked the occasion. At the end of the fifth week, having noticed a decided thickening of the ends of the bone, I applied splints for four weeks, removing them in time to find union complete. Case 2 is more interesting because more rare. In treating the patient I dispensed with the elastic tubes, and the bone being superficial it was, of course, better to try the gentle mode of percussion than that adopted in Case 1. Accordingly I hammered twice a week and kept the splints firmly applied. In a little over four weeks union was firmly established. In both these cases the treatment gave the patients hardly—if indeed any—more inconvenience than they had already endured. Case 3 differs from the others in being a less confirmed non-union. The patient was ten weeks in splints after a primary delay of nine days; and it is impossible to say but that another month's continuance would have pro-

¹ Practice of Medicine, sixth edition, vol. ii., p. 455.

² Transactions of the Pathological Society, vol. iii., p. 47. 1852.

duced union. I thought it best, however, not to trust to this alternative, and, using my flat for a hammer, I worked away twice a week for nearly two months, with completely satisfactory results. I may mention that the elastic tubes may be applied immediately after the gentle method, but it is best after the severe mode to wait until the local irritation commences to subside, and thereby prolong it. Should the contusion be very marked, it would, of course, be unwise to apply them at all. As a matter of detail, I may add that the tubing should not always be tied to the same spot, or else ulceration may result. Generally speaking its application at night-time is quite sufficient, and affords the arm very acceptable respite during the day.

SEAMEN'S HOSPITAL, GREENWICH.

RUPTURE OF LIVER; THROMBOSIS OF HEPATIC VEINS; EMBOLISM OF A BRANCH OF LEFT PULMONARY ARTERY; PLEURISY; DEATH; NECROSIS; REMARKS.

(Under the care of Mr. G. H. MAKINS.)

The following case came under Mr. Makins' care while doing duty for Mr. W. Johnson Smith.

On Sept. 30th, at 3.30 p.m., J. R.—, aged twenty-four, a laborer, while in a state of intoxication, was run over in the street by an empty cart, and taken at once to the hospital. The wheel, it was said, had passed over the abdomen.

On admission he was in a state of collapse, and could not be got to answer any question; the countenance and lips were extremely pallid, the pupils dilated, the extremities very cold, and the pulse almost imperceptible. He was put to bed, hot bottles were applied, and a hypodermic injection of brandy (twenty minims) was given. At 8 p.m. he was much improved in appearance, answered questions rationally, but in an excited manner; smelled strongly of spirits; lay on right side. He complained of great pain and tenderness in the epigastrium, but was able to turn in bed without much suffering; no abnormal abdominal dulness; had been sick twice since admission; respiration 30; abdominal wall moving freely; no sign of fractured ribs; temperature 97°; extremities still very cold; pulse 130, small, but quite perceptible. Hypodermic injection of one-third of a grain of morphia. The bowels were moved some time after admission. The patient had a quiet night, but slept little, and next morning he complained of much pain in the epigastrium. The abdomen was slightly swollen and tympanitic; no abnormal dulness in flanks; temperature 98.4°; skin still pale, and hands felt cold; pulse 150, small; respiration 32, chiefly thoracic, but abdominal wall still moved; tongue furred, but moist; no further vomiting. One teaspoonful of brandy was given every half hour; milk diet; ice; one grain of opium pill was given, to be repeated in half-grain doses every four hours. At 8 p.m. the opium had relieved pain; still pallor; temperature 97°; hands very cold; pulse 150, very small; respiration 44, entirely thoracic and extremely shallow.

On Oct. 2nd he had slept fairly; lay on his back, sometimes with knees raised, sometimes down; slight pain and tenderness chiefly in epigastrium; abdomen as yesterday; respiration 38, thoracic, but much less shallow than last night; temperature 96°; skin moist; pulse 138, stronger and better volume; tongue moist, covered with white fur. Took plenty of milk. On the third he had slept the greater part of the night, but in the morning he complained of pain on the left side of the chest;

abdominal wall hard; abdomen slightly tympanitic, but no marked swelling; no tenderness anteriorly, and no abnormal dulness; respiration 30, entirely thoracic; pulse, 120, steadier and stronger; temperature 99°; skin moist; tongue furred, moist; no sickness; bowels confined. 8 p.m.: Pain in left side very severe; respiration 40, very jerky and shallow; temperature 101.5°; pulse 140; chest somewhat hyper-resonant anteriorly; breath-sounds exaggerated, and some moist rales; patient not in a condition to be lifted to examine back. On the 4th he complained much of pain in the left side; face looked pinched; no cough nor expectoration; respiration 32, very shallow; pulse 132, stronger than last evening; temperature 101°. The breathing became rapidly more impeded, and the patient died in the afternoon.

Necropsy.—Abdominal cavity contained about a pint of fluid blood, one or two coils of small intestine slightly granular on surface, and the whole somewhat distended by flatus, but no further signs of peritonitis. At the right extremity of posterior border of the liver a laceration existed, a bruised portion of tissue occupying an area about the size of a small orange extending into the substance of right lobe; this was of an ochre-yellow color, and internal to it were several fissures in the apparently healthy hepatic tissue containing blood-clot; externally it formed one of the boundaries of an incomplete cavity, the walls of which were made up in addition by the anterior fold of the coronary ligament, the diaphragm and the right supra-renal capsule, together with some recently effused lymph. This cavity contained fluid blood and debris, and the walls were deeply bile-stained. The hepatic veins leading from and traversing the bruised area were occupied by firm dark blood-clot, and this condition was found to extend back as far as their entrance into the inferior vena cava, the lining membrane of the veins being roughened and vascularized. On microscopical examination the yellow area of hepatic substance was found to be in the condition known as "coagulation necrosis," and the walls of the hepatic veins and the tissue surrounding them largely infiltrated with small-celled inflammatory new growth. The other abdominal organs were normal. Lungs: The lower lobes on either side were much collapsed, and at the extreme base completely void of air, sinking in water. In the upper part of the lower lobe on the left side was an infarct, about the size of a small orange, wedge-shaped, with the base abutting on the surface, and in the main branch of the pulmonary artery to lower lobe was an embolus about three-quarters of an inch in length, decolorized, not attached to the arterial wall, and when incised disclosing a central cavity containing softened matter; this embolus apparently having its origin in the thrombosis of the hepatic veins. The left pleural cavity contained a considerable effusion of blood-stained fluid, while recent lymph covered the pleural surface of the infarct, also united the lower part of the fissure and covered the entire base of the lung, which was adherent to the diaphragm. Right pleura, heart, and pericardium were normal.

Remarks by Mr. MAKINS.—The above case is recorded as affording an example of a termination to a rupture of the liver not often described, and of which mention is omitted in most of the text-books, although the arrangement of the veins would seem particularly favorable to its occurrence. The patient had escaped the primary dangers of shock, hæmorrhage, acute septicæmia, or severe peritonitis; and although still liable to the supervention of the two latter, yet in the absence of the pulmonary complication dependent on the thrombosis and subsequent embolism, he undoubtedly stood a chance of recovery; the more so since reparative

processes preparatory to the localization of the damage had already commenced at the seat of injury.

NORTHAMPTON GENERAL INFIRMARY.

A CASE OF ACUTE CHOREA COMPLICATED BY PERICARDITIS, ENDOCARDITIS, CELLULITIS, ETC.

(Under the care of Dr. FRANK BUSZARD.)

FOR the following interesting notes we are indebted to Mr. J. Oswald Lane, assistant house-surgeon.

J. D.—, aged fifteen, was admitted on June 19th into the hospital with the following history:—He is one of a family of eight children, all of whom are rather delicate, but the patient himself has never been laid up before the present illness; has never had rheumatism; no history of shock or of overwork of mind or body; has always been a sharp lad, and no members of the family have been affected with nervous disease. The first appearance of the present illness showed itself on June 6th, when he was seized during the night with excruciating pain in the right leg, followed the next morning with “snatching” of the muscles of the right half of the body, though both sides of the face were affected. These movements became gradually more marked and general. Two days before admission he first began to wander, while at times insensible; at others very noisy; cracking of skin also noticed.

On admission the choreic movements were general and of the most marked form, especially so of the face and arms. He was very noisy, crying out furiously; at times sensible, but unable to answer in articulate sounds. Skin very dry and cracked, lips fissured, tongue brown, covered with sordes. There were distinct signs of hyperæsthesia; pupils dilated and sluggish to the action of light. Pulse 120; temperature could not be taken.

June 20th.—Passed a very noisy and restless night, delirious at times though occasionally sensible; spasmodic movement of the muscles still just as marked, and is unable to articulate words or swallow.—21st: Much quieter, whilst the choreic movements have almost stopped; power of articulation and swallowing just the same, while the respiration is very jerky; there is a distinct pericardial murmur with no increase of dullness. Pulse 124. Urine shows an increase of urea.—23rd: Movements still present; can now swallow liquids; sometimes utters articulate sounds and nods when asked questions. Area of cardiac dullness increased, friction; bronchitic sounds; signs of inflammation in left forearm; also of right wrist and hand. Pulse 130; respiration 35. Temperature, morning 99° 6'; evening 98° 6'.—25th: Choreic movements abated. Can now say some few words, such as “Mother,” “Nurse,” “Yes,” “No.” Sordes less; bronchitic sounds to be heard, while the cheeks are flushed. Incision was made into the left forearm, when a large amount of pus was evacuated. Skin still cracked. Pulse 128; respiration 38. Temperature, morning 99°; evening 100°.—26th: Pulse 133; respiration 32. Temperature, morning 100°; evening 100° 2'. Cellulitis still increasing, as also the area of cardiac dullness.—27th: Temperature, morning 100°; evening 100° 2'.—28th: Temperature, morning 100°; evening 100° 4'.—29th: Temperature, morning 98° 8'; evening 102°. A large amount of purulent discharge from the incision made into the left forearm; right hand swollen, but no feeling of fluctuation. Tongue cleaner; appears better though still extremely prostrate;

choreic movements have entirely disappeared; he is able to speak more distinctly, but only a few monosyllables. Bowels confined; appetite improved. Respiration 30, at times irregular and labored. Pulse 132.—30th: Temperature, morning 99°; evening 102° 2'. Discharge copious.

July 1st.—Temperature, morning 102°; evening 101° 8'.—3rd: Temperature, morning 100°; evening 102° 4'. An incision was made into the palm of the right hand, when a large amount of curdy sanguineous pus exuded. Abdomen tympanitic; heart's area of dullness has gradually increased, no endocardial murmur to be heard; appetite improved. Pulse 126, not wiry; respiration 32.—4th: Temperature, morning 99° 6'; evening 103° 8'; discharge copious.—8th: Temperature, morning 100°; evening 103° 2'. Discharge from right hand, though copious, has diminished in quantity, some swelling of the right arm below elbow; no joints affected; area of cardiac dullness has increased downwards, and towards the axillary line no exocardial murmur, but a distinct soft systolic murmur can be heard at the apex; tongue fairly clean; takes nourishment well; some flatulæ. Pulse 128; respiration 32.—9th: During last night he perspired copiously and does not seem so well this morning; this was accounted for by a collection of deep-seated pus in the right forearm, which was evacuated by incision. Temperature, morning 101° 2'; evening 102° 2'.—13th: The patient has improved the last few days; his temperature has gradually defervesced; his speech is much improved, as he now talks correctly but slowly; expression brighter and tongue clean. Temperature, morning 99°; evening 99° 2'.—19th: The last two days his febrile symptoms have become marked, while he complains of tenderness in right palm of hand, and some slight pain in right thigh. Temperature, morning 98° 8'; evening 102° 2'.—20th: Another incision was made into the right hand, giving a free exit for purulent matter; during the next few days the febrile symptoms greatly diminished, and he improved rapidly in general health.—30th: From the time of the last notes the patient has gone on gradually improving, his temperature has been normal for several days, and all the discharge has stopped. He is now allowed out of bed; the systolic murmur has become much more marked, and can be heard over a larger area than previously. He was discharged on August 6th convalescent, the systolic mitral murmur alone remaining.

Medicinal treatment.—During the first ten days after admission small doses of chloral and digitalis were administered, followed then by the liquor cinchonæ (Battley's) in five-minim doses every four hours. He was kept on the latter treatment for one week, when sulphate of magnesia in twenty-grain doses every four hours was administered. This was continued for three weeks, when iron and quinine were given him till his discharge.

Remarks.—This case here recorded has several features of interest in connection, amongst which may be enumerated:—1. Marked choreic movements developed themselves previous to any apparent signs of pre-existing period of endocardial mischief, inasmuch as the physical signs which manifested themselves on the third day after admission were those of commencing pericarditis, as the subsequent history of the case will show. 2. Pericarditis followed by endocarditis presented itself without any assignable cause; there was an entire absence of any rheumatic history in *propria persona* or hereditary. 3. The severe phlegmonoid inflammation of the cellular tissue which developed itself; this probably being of a pyæmic nature, dependent upon the existing cardiac complication. 4. The acuteness of the attack in the male sex, with subsequent recovery.

UNIVERSITY COLLEGE HOSPITAL.

TWO CASES OF INCREASED EYEBALL TENSION; ONE
REDUCED BY ESERINE, THE OTHER BY ATROPINE.

(Under the care of Mr. TWEEDY.)

Among the cases lately presenting themselves in Mr. Tweedy's clinique were two of considerable therapeutical and pathological interest. In both the tension of the left eye was greatly increased, though from different causes. In one the tension was reduced to normal by means of a pupil-contractor, eserine; while in the other a similar result was produced by a pupil-dilator, atropine. In the first the disease was intermittent glaucoma; in the second, recurrent iritis. The interest of the case is increased rather than diminished by the fact that such examples are by no means infrequent, and their gravity by the fact that a mistaken choice might be disastrous. To employ atropine in glaucoma and eserine in iritis would, besides aggravating the existing symptoms, in all probability induce irreparable mischief. Mr. Tweedy alleged that it had become too much the fashion to regard increased tension of the globe as always identical with glaucoma. This is as irrational as it would be to regard ascites as always and only indicative of cirrhosis of the liver. The second of these cases showed that there may be a high degree of hardness of the eyeball, and yet an absence of glaucoma. In glaucoma the increased tension usually supervenes on changes affecting the drainage apparatus of the anterior segment of the globe, checking elimination, whereas the increased tension occurring in iritis and allied conditions primarily and chiefly depends on engorgement of the vascular tunics of the interior of the eyeball and on the formation and accumulation of inflammatory products. Eserine and other myotics could not, it was stated, be looked upon as the rivals of iridectomy or sclerotomy in glaucoma, they were rather adjuvants, and at most alternative in cases where operation was not imperative or was otherwise impracticable. On the other hand, as glaucoma is a cumulative condition the judicious employment of myotics might correct the vice on which the malady essentially depends, and thus ward off an actual outbreak.

For the following notes we are indebted to Mr. F. Knight, ophthalmic assistant.

CASE 1. Intermittent Glaucoma; increased Tension rapidly reduced by Eserine.—Maria B—, aged fifty-five; on August 21st the patient was seized with severe pain across the top of the head, in the forehead, and left eye. For a week this pain was constant and prevented sleep. On August 28th a blister was applied behind the left ear, and this seemed to relieve the pain considerably. After a day or two the pain returned, and up till Sept. 11th the pain recurred nearly every day, each attack lasting eight or ten hours. During these attacks the patient could not bear any light and had to have the room darkened. Objects looked foggy. On September 11th she came to the hospital for dimness of the left eye and neuralgia. The left pupil was slightly larger than the right, the tension normal and equal; V=20-70 in the right eye, and 20-200 in the left. The left optic papilla was "shallowed." From the history rather than from the physical signs a diagnosis of intermittent glaucoma was made. Quinine mixture was ordered. On September 17th the patient was seized with an attack of pain, and when seen on the following day the tension was increased to T + 2, the vision had greatly diminished, the media were hazy, and there was visible pulsation of the central artery of the retina. A drop of a solution of sulphate of eserine (two grains to the ounce) was applied to the con-

(5)

junctiva of the left eye, and in half an hour the tension had sunk to normal, the pain had ceased, and the sight had improved. Eserine was ordered to be applied twice a day. No recurrence of pain, increased tension, or obscuration having occurred in the interim, a solution of nitrate of pilocarpine (two grains to the ounce) was, on October 5th, substituted for the eserine as being less costly, and in some cases as effectual. On the 9th the eye was not so well, the tension was increased, the pupil semi-dilated, and the sight was "misty" again. Eserine was applied once more, and in half an hour the tension was normal, the pain gone, and the sight clearer. Since then eserine has been used twice a day, and the sight and general condition of the eye have steadily improved.

CASE 2. Recurrent Iritis; Increased Tension (T + 2); Reduced by Atropine.—S. O—, aged forty, a tailor, was seized with violent pain in the right eye on waking on the morning of Oct. 24th, 1881. The pain continued till Nov. 7th, when he applied at the hospital. He then had marked kerato-iritis with many posterior synechiae. The pharmacopoeial solution of atropine, applied many times at short intervals, failed to dilate the pupil. Leeches were applied, a mercurial and colocynth purge was given, and atropine was instilled every two hours. The pain speedily subsided, and in a few days the eye was apparently recovered. The left eye was then attacked, but soon got well. In the following January episcleritis appeared in the right eye, and continued some weeks. On February 23rd, however, the eyes were quite well; the acuteness of vision was normal. On March 9th there was another recurrence of iritis, with posterior synechiae in the left eye, but this attack responded gradually to treatment, and on May 1st the patient resumed work, and continued to work with comfort till Oct. 14th. On the morning of this day the left eye was again attacked with recurrent iritis of a severe type. The patient applied leeches and poppy fomentations, but did not attend at the hospital till the 17th, when he had an extreme degree of kerato-iritis: the aqueous was turbid, the pupil greatly contracted and blocked with lymph, which extended over the whole surface of the iris and covered it. The tension was increased to T + 2. Atropine was applied at short intervals, and one grain of calomel and a quarter of a grain of opium were given three times a day. On the 19th the pain was less, the tension somewhat diminished, and the pupil was semi-dilated, exposing a narrow space between the edge of the iris and the circular mass of lymph in the pupillary area. Three days later, the same treatment having been continued, the pain had ceased; the pupil was rather larger, the cornea bright, the lymph gone from the pupil, and the tension was if anything subnormal, from inflammatory softening.

BRISTOL ROYAL INFIRMARY.

NOTES OF A SEVERE CASE OF STRAMONIUM POISONING;
SUBCUTANEOUS INJECTION OF MORPHIA; RECOVERY;
REMARKS.

For the following interesting notes and remarks we are indebted to Dr. Alfred Lendon, house-surgeon.

On August 10th, 1882, Rosina J—, aged seven, while at play with two sisters in a suburb of Bristol discovered some green berries, of which the three partook freely. Rosina, however, eating more than the other children. She returned home shortly after, and was noticed to be strange in her manner. Soon she became slightly, and finally very, delirious. On learning that she had eaten something, her parents gave her an emetic of mus-

tard, and then took her to a surgeon, who administered another of sulphate of zinc, neither of which acted. She was admitted into the Royal Infirmary, under Dr. Shingleton Smith, four hours after the occurrence, and her friends produced some leaves supposed to belong to the plant the berries of which she had eaten; this was recognized to be stramonium (*datura stramonium*, or thorn apple). Her symptoms were those of acute deliriant poisoning. The child was unable to answer questions, was extremely restless, rolling her head from side to side, and throwing her limbs about, so that she could scarcely be restrained in bed; she was talking incessantly and incoherently, and did not seem to recognize her friends, but evidently had spectral illusions. She was constantly picking the bedclothes and pawing the air. Her pulse was very rapid, her face flushed, and her eyes were frequently squinting, but not in any definite direction; the pupils were widely dilated. Her breathing was rapid, but not labored; its rate, and that of the pulse, could not, however, be counted, as she was so restless. An emetic powder, containing ipecacuanha and antimony, was administered in water, but failed to act, whereupon one-twenty-fourth of a grain of apomorphia was injected under the skin, which had almost immediately the desired effect. In the vomit at least 100 stramonium seeds were found, together with portions of the seed capsule, mixed with partially digested food. As her symptoms showed no signs of abating, and were very alarming, one-sixth of a grain of acetate of morphia was injected hypodermically after about twenty minutes' interval. This had the effect of quieting her in a few minutes; she soon slept; the pupils became of moderate diameter, though not contracted; the strabismus, however, continuing for four hours. When seen next morning she was much better, having passed a quiet night; there was no delirium, the strabismus had ceased, but the pupils were again widely dilated. The temperature, pulse, and respiration were normal, and also the urine; the skin throughout had been dry, in spite of her exertions, but no rash was seen, and the child did not complain of dryness of the throat. On the 11th she was sick twice after taking purgative medicine, more seeds being brought up, and when purged later on in the day, the stools also were found to contain seeds. On the 12th she was sick again, and seeds were still found. Subsequently nothing worthy of note occurred, and the patient was discharged on the 18th.

When shown a thorn apple the child recognized it, and stated that she had eaten the contents of ten. Her two sisters were also ill and rather light-headed during the night, but they recovered without any special treatment beyond emetics administered by their mother.

Remarks by Dr. LONDON.—The recorded cases of poisoning by stramonium are very rare, and I am unable to look up the particulars of two instances reported in 1837 and 1872, which are mentioned in Dr. Neale's "Digest." All that seems to be known is that while the symptoms closely resemble those of poisoning by belladonna and hyoscyamus, they commence sooner, are more severe, and terminate fatally in a shorter time. The only symptom which appears not to have been noticed usually in poisoning by these drugs is strabismus; on the other hand, no erythematous rash was seen, and no dryness of the throat or thirst was complained of. With regard to the quantity of the poison taken, the child's statement probably cannot be relied upon, nor have we any means of ascertaining whether it was even a fatal dose, but that the quantity was very considerable must be assumed from the alarming severity of the symptoms; more-

over, as the seeds were not altered in appearance, and presumably had not been acted upon much by the gastric juice, it is probable that only a small amount of the active principle which was actually present in the stomach had been absorbed into the system. The chief points of interest in the case, however, are the decided antagonism manifested by morphia to stramonium, both as regards the delirium and the condition of the pupil, and the speedy and complete relief afforded by this moderate dose of morphia. It may be objected that as the other children recovered without any special treatment, so, too, this child might have recovered; on the other hand, it must be remembered that they were not considered bad enough by their parents to be brought up for advice. It is also worthy of note that seeds were vomited as long as forty hours after the poisoning, the patient having been sick on three previous occasions, so that implicit reliance could not be placed on emetics only. I am unable to ascertain whether morphia has been previously used as an antidote either in human beings or in experiments upon animals. In the fourth edition of Guy and Ferrier's "Forensic Medicine" it merely says that the use of morphia is worthy of trial.

KASHMIR HOSPITAL.

CASE OF COMPLETE CONGENITAL OCCLUSION OF THE OS UTERI; OPERATION; RECOVERY.

(Under the care of Mr. E. DOWNES.)

In the month of August 1877, a young woman, aged about twenty-two, married, applied at the hospital. Her abdomen was very prominent, as if from pregnancy. It appeared, however, that she had never menstruated. Her abdomen was tense, and the tumour ascended nearly to the ensiform cartilage; it was oval and smooth, but not very movable. A vaginal examination was suggested and finally agreed to. The tumour was felt distinctly, and with one finger in the vagina and the other hand externally the tumour, which was quite hard, could be moved. There was no tenderness. What was believed to be the os uteri was also felt so open that the finger could easily have been pushed into it, but it was not thought wise to make any further examination until arrangements for operation were completed. There was no cervix uteri to be felt, and very little vagina, but the cervix had apparently been obliterated by the tumour. The canal which was taken to be the os uteri was close to the symphysis pubis.

A diagnosis was made of a fibrous tumour of the os uteri. The patient was told that she was suffering from a very serious disease which required an operation, but that the risk was great. Her suffering was so great that both she and her husband begged that something should be done.

She was admitted into hospital. Her treatment for about a week consisted merely in giving her perfect rest and small doses of opium to relieve the distress, paying attention to the bowels at the same time. Every day she begged for the operation. Another medical man saw the woman with Mr. Downes and examined her carefully externally and by the vagina, but did not use the sound.

After about ten days Dr. Ross, the civil surgeon, arrived in Srinagar; he and Dr. Williams of the Indian Medical Service were both present. The patient was put under chloroform, and then a thorough examination of the parts was made. She was placed in the lithotomy position and the parts exposed to view. It was found that what had before been taken for the os uteri was the meatus urinarius, which was enormously dilated, appar-

ently by having been used instead of the vagina in sexual intercourse; this became still more certain by passing a finger into the bladder. On looking carefully into the small space which represented the vagina a little white spot could be seen in the mucous membrane, surrounded by a less distinct whitish ring; this white spot apparently marked the position of the os uteri, but it was so completely closed that it could not be felt by the finger.

It was now evident that this was a case of complete congenital occlusion of the os uteri, and the enormous tumour, reaching nearly to the ensiform cartilage, was an accumulation of menstrual fluid. The point of a small conical cautery iron, heated nearly to redness, was pressed firmly in the position of the os uteri; the iron at once cut through the mucous membrane and the small amount of tissues beyond, which extended at the most only about a quarter of an inch, and sank into the uterine cavity, from which issued a thick fluid of a blackish-red color, perfectly opaque, and almost devoid of smell. Dr. Ross pressed on the fundus of the uterus, and after much of the contents had been discharged, a very distinct hour-glass contraction of the womb was noticed; gradually this gave way, and by gentle pressure on the fundus the whole contents of the uterus, about six pints were discharged. The last part consisted chiefly of clots and shreds, and were expelled by dilating the os with the finger. The uterus was well washed out with tepid water containing about 2 per cent. of carbolic acid. There was no hæmorrhage from the incision, and it was dressed with lint and carbolic oil. A firm bandage was applied round the abdomen, and a good pad placed over the uterus, which had contracted well.

The woman was placed in a room by herself, removed altogether from the other patients, and her husband undertook to nurse her. One of the dressers was ordered to change the dressings twice a day, and to introduce a large bougie into the new os uteri every morning; and ergot was ordered to be given internally. When she recovered from chloroform she had no pain, and expressed herself immensely relieved by the operation. For some days there was a considerable bloody discharge from the womb.

After the operation all went on well for three days; the temperature during that time was normal. On the fourth day she complained of a bad cough, and such great difficulty in breathing that she had to be propped up in bed. Her temperature was 105° F. Twenty grains of salicylic acid were given every hour. A dose was given at once, and the temperature fell a degree; after the second dose it fell to 101°, and after the third dose to 100°. After the second dose she expressed herself to be very much relieved, and said that she felt so hungry that she asked for food; after the third dose she felt rather nauseated, and the salicylic acid was ordered to be given only every four hours. Next day the temperature was normal, and the salicylic acid was stopped; the cough and dyspnoea remained troublesome. Nothing amiss could be detected with the stethoscope. A simple cough mixture was given. After exactly a week the temperature again rose to 105° in precisely the same way, and was as speedily reduced to normal by salicylic acid. It did not again rise while she remained in hospital, and the cough and dyspnoea gradually disappeared.

The rest of the story is soon told. A month after the operation she insisted on going home. She has not been heard of since. When she left the hospital she was much improved in every way; the discharge from the uterus had ceased; the os uteri was nearly natural in size and shape; the

vagina was longer than before, though still much shorter than it should have been; a cervix uteri could be distinctly felt in the vagina. Her general health was very much improved; she was fairly strong and in excellent spirits.

GREAT NORTHERN HOSPITAL.

TWO CASES OF GUNSHOT WOUND; REMARKS

(Under the care of Mr. SPENCER WATSON.)

For the following notes we are indebted to Mr. Wharry, house-surgeon.

A man having shot his wife, attempted his own life. On June 6th Robert C—, aged fifty-one, was admitted in the afternoon with four wounds on the right side of his scalp, all down to the bone. These had been caused by his discharging a revolver at himself. There was a good deal of hæmorrhage on admission, which was controlled by pressure. The wounds were enlarged, and search was made, but no bullets were discovered. Water-dressing was applied. The patient passed a restless night, and appeared next morning in a very depressed condition, continually lamenting over his condition, past and present. Pulse quiet; temperature not raised; he took his breakfast; wounds looking well. On the 9th he appeared more restless; the scalp was rather puffy around the wounds and discharging a little; poultices were applied; temperature 101°; pulse quiet. Next day he was in much the same condition, the temperature falling to 99·8°; wound discharging; complained of a good deal of pain in the head. On the 12th the temperature was 99°; wounds discharging freely; very restless. On the 13th in the evening the temperature was 104°; scalp more puffy; a bullet, very much flattened, was extracted from the wound over the forehead. On the 14th and next day there was slight improvement, the general condition being good; temperature 100°. On the 17th the temperature was in the night 104°. On the 19th the wounds were discharging freely; other conditions good; temperature 102°. On the 20th the temperature in the night was 103°; much pain in head; wounds discharging; slept well. On the 22nd the wound over the parietal bone was enlarged, and another bullet was discovered considerably flattened, and removed. On the 25th the patient was much better, and the wounds showed a disposition to heal.

The patient was discharged on July 15th, with the wounds quite healed. The man had apparently recovered from the effects of his injuries. During the whole of his stay in hospital he was given chloral and bromide of potassium every night.

Mrs. C— was admitted on the same day with a small circular wound, about an inch and a half behind the right ear, just over the apex of the mastoid bone, which was stained with gunpowder. The wound apparently extended in a downward direction into the soft parts of the neck. A search was made for, but no bullet discovered. The wound healed up under water-dressing in ten days, without any discomfort to the patient, beyond some slight stiffness of neck.

Remarks by Mr. SPENCER WATSON.—The slight amount of damage that can be inflicted by a saloon pistol, even discharged at close quarters and into a vital part, is well illustrated by these cases. The man who is said to have made the attempt on his wife's and his own life had been injured in a railway accident about six months before, and had ever since been much changed, his right arm and leg having been partially paralyzed. In spite of the solatium of substantial damages awarded him

by the court before whom the case was tried, he did not recover either mentally or physically, and when he attempted the acts alluded to he was no doubt under the influence of delusions. The wounds inflicted were very insignificant. All seven chambers of the revolver had been discharged, and two of the pellets were found on the spot. These were conical, and of the size of large peas. To test the penetrating power of the revolver, the police loaded and discharged it at a distance of five feet from a half-inch deal board. The bullet easily passed through. This weapon must have been discharged by C— at his wife when her back was towards him at about the distance of five feet, and the shot passed into her neck immediately behind the mastoid process. She had literally no symptoms referable to this injury, and three months after it was as well as ever, the pellet still remaining embedded somewhere in the muscles of the neck. In the case of C— there were very slight symptoms of surgical fever, which, however, soon passed off when the pellets were extracted.

WEST BROMWICH DISTRICT HOSPITAL.

CASE OF EARLY PERFORATION IN TYPHOID; REMARKS.

(Under the care of Mr. LANGLEY BROWNE.)

For the following notes we are indebted to Mr. F. F. German, resident medical officer:—

T. G—, aged eighteen years, presented himself in the out-patient department on the morning of September 27th. He had journeyed between two and three miles, having walked a considerable portion of it. He was suffering intense pain, which he referred to the region of the abdomen, the walls of which were flaccid; his face was vacant of expression, pulse weak; he walked with difficulty, and had been ill ten days. The bowels had been moved daily, but the evacuations were "frothy, sometimes streaked with blood." He was admitted to the wards and four minims of the official solution of morphia were injected hypodermically. This gave him great relief. Examination revealed nothing further; there was no increase of temperature, no other history than above obtainable, and the diagnosis was consequently a matter of some doubt. In the evening the pain referred to the whole surface of the abdomen again became very severe, and marked tympanites ensued. Between two and three ounces of clear high-colored urine, containing one-eighth albumen, were drawn off. The patient expressed relief, and subsequently conversed freely. About 9 p.m. he was observed to put a finger of each hand in his mouth, as though to widely extend it, and was writhing in great pain. This modified, but he rapidly sank, and died at 10:30 p.m. the same night.

Necropsy, the following afternoon.—In the thorax were extensive pleuritic adhesions on the left side, and the cavities of the heart were nearly empty. On opening into the abdomen a large quantity of chylous fluid escaped; the peritoneum was sticky and slightly adherent, and the small intestines were distended to nearly size of large. The ileum was much congested, and on its inner surface were several small typical ulcers, one of which, about three and a half feet from ileo-cæcal valve, perforated the bowel and was still patent. The other organs were healthy.

Remarks.—Perforation has been estimated to occur in from 1 to 2 per cent. of the entire number of sufferers from typhoid, and of the fatal cases has been variously stated to have occurred in from 8 to 12 per cent. As to the time of occurrence and situation of this accident, there are but few reliable

statistics. In those tabulated by Hoffmann, 9 per cent. only occurred at the end of the second week, while 27 per cent. happened between the eighteenth and twenty-first days, a similar number at the end of the fifth week, and the remainder subsequently. In 77 per cent. of these same cases, the perforation occurred at a spot not exceeding twenty inches above the ileo-cæcal valve, and in about 11 per cent. only at the same distance as in this case. I would add, that twelve days previously the boy had been at work, and during his illness, though at times in considerable pain, was not confined to bed. Was it the typhoidæ ambulans of some authors?

BEDFORD GENERAL INFIRMARY.

A FISH-HOOK IN THE OESOPHAGUS; EXTRACTION; RECOVERY.

(Under the care of Dr. GOLDSMITH.)

For the following notes we are indebted to Mr. E. A. Laurent, M.B., resident surgeon.

F. P—, aged ten, of Great Brickhill, Beds, whilst engaged in fishing held in his mouth a fish-hook attached to a piece of gut, and accidentally swallowed it. He was admitted to the infirmary eleven hours after the accident, under the care of Dr. Goldsmith, senior surgeon to the institution.

The only subjective symptom on admission was pain over the episternal notch. Half an inch of gut was seen protruding from his mouth, and on following the gut backwards with the finger, the notion conveyed to the touch was that the hook lay somewhere in the windpipe, but the boy had no cough, no dyspnoea, and his voice was perfectly clear. On applying gentle traction to the extremity of the gut, great resistance was felt. This was consequently discontinued and chloroform administered. A piece of silk ligature was tied to the end of the gut, and to the extremity of the silk a fine wire was attached. A traveller fourteen inches long was then passed along the twisted chain of iron wire, silk, and, lastly, gut down the oesophagus. It, however, proved to be too short to reach the hook; it was therefore withdrawn and a full-sized oesophageal bougie substituted for it. This passed with perfect ease until it reached the bend of the hook; here slight resistance was felt, which was easily overcome by pressure. During this part of the operation the bougie touched the cardiac end of the stomach and vomiting was induced, although the insensibility was nearly complete. The bougie was kept in position and the wire tightened; both bougie and hook fixed at its extremity were carefully withdrawn without any further trouble. The hook proved to be a No. 6 perch, and the gut was nine inches and a half long.

NORTH STAFFORDSHIRE INFIRMARY.

CASE OF PREGNANCY WITH RETROVERSION OF UTERUS, CAUSING RETENTION OF URINE (160 oz.); FATAL RESULT; REMARKS.

(Under the care of Mr. SPANTON.)

MARY ANN H—, aged thirty, married, was admitted into the infirmary on July 2nd, 1881, for supposed abdominal tumour. She stated that she had usually good health, and believed herself to be about four months pregnant, as menstruation had ceased for that length of time, and the areolæ of the breasts indicated it. For a fortnight before admission no urine had been passed. She complained of great pain in the hypogastrium, and

the abdomen was much enlarged, with dull percussion from the pubis to above the umbilicus, and extending to the iliac regions. The lips were dry, the tongue brown, and strength much exhausted. Frequent sickness both before and after admission. The legs and vulvæ were cedematous; bowels constipated. She had been under the care of a medical man previously. A catheter was at once passed and 160 ounces of urine drawn off, giving great relief. The following day 70 ounces were obtained, quite dark from admixture of blood and blood-clots. Considerable faintness followed this, and stimulants and astringents were freely administered.

On examination the body of the uterus was felt to occupy the whole of the posterior portion of the pelvis, pressing upon the rectum and neck of the bladder. The os uteri could not be felt; the uterus was enlarged to the size of about the fourth month of pregnancy. Mr. Spanton desired to attempt the reduction of the retroversion, but to this the patient would not then consent. A consultation of the staff was held, and the next day, chloroform being administered and about seventy ounces of bloody urine withdrawn from the bladder, Mr. Spanton passed his hand up to the uterus, the fundus of which felt like an enormous child's head, so that there was barely room for the hand to pass. The os uteri was high up behind the symphysis pubis, and the uterus appeared to be literally "upside-down." By continued steady pressure with the palm of the hand the uterus was felt gradually to rise into its normal position above the brim of the pelvis, and the cervix was then felt in the centre of the vagina. Once replaced, there seemed no tendency for the uterus to fall back, and on recovery from the anæsthetic the patient felt greatly relieved. In the evening fourteen ounces of urine mixed with blood were drawn by catheter, after some had been passed naturally. Signs of exhaustion with sickness continued, and the patient gradually sank and died at 11 A.M. on July 6th. No post-mortem examination was allowed.

Remarks.—The case is of interest as illustrating one of the grave dangers of neglected retroversion during pregnancy, and as showing to what an enormous extent the bladder may be dilated without actual rupture. The case was sent in as one of ovarian disease, and casually had the appearance of one; but the catheter quickly solved that doubt; and it was indeed unfortunate for the patient that such a simple measure was not employed earlier, as it is quite possible that the extreme distension of the bladder helped to exaggerate the retroverted condition of the uterus, which was, in its turn, originally the cause of the retention.

ESSEX AND COLCHESTER HOSPITAL.

UNUNITED FRACTURE OF OLECRANON; ENDS UNITED BY OPERATION; CURE.

(Under the care of Mr. LAVER.)

Charles C—, aged thirty, a mariner, was admitted on Oct. 27th, 1881, for ununited fracture of the olecranon. On examination the two portions of bone were found to be sufficiently apart to allow two fingers to be placed between them. This separation caused loss of power, and there was also some tenderness on pressure. The accident (a fall on the deck at sea) by which the fracture was produced occurred on August 13th, 1881. His arm was properly placed on a splint, but with the result above mentioned, and it was determined to try to unite the fragments, and for this purpose on November 4th an operation was performed under full antiseptic precautions. The bones were ex-

posed, scraped, drilled, and wired together with stout silver wire, the joint syringed out with carbolic water, and the arm placed on a front splint. On the 6th the limb was dressed; there was a slight stain of discharge, but no inflammation. On the 11th it was dressed again, and the stitches were removed. On the 20th it was dressed, and then there was no discharge. When dressed on the 25th there was no discharge, and the wound was healed.

On December 22nd, the wire in being removed snapped off and could not be taken out. The patient could move his arm freely without pain, and union had taken place, and he was discharged on leave of absence.

Jan. 2nd, 1882.—Patient returned, complaining of a pricking sensation; it was found to be caused by the broken wire, which was cut down upon and removed.

Feb. 6th.—Long extension splint, which had been on his arm, removed. On the 20th he was discharged cured, with perfect union and full power.

Remarks.—The case was kept a long time on the splint in consequence of the man's occupation, and the unfortunate accident of the wire breaking in further lengthened it.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Ulcer of Duodenum.—*Diaphragm deformed through Rickets.*—*Aneurism in Children.*—*Aneurism of Aorta and Abnormality of Heart.*—*Obturator Hernia.*—*Tricuspid Stenosis.*—*Parovarian and Broad Ligament Cysts.*—*Gangrene of Fingers.*—*Mediastinal Tumour.*—*Perforating Ulcer of Colon.*—*Cirrhosis of Liver.*

THE first meeting of the present session of the Pathological Society was held on Tuesday, Oct. 17th, S. Wilks, M.D., President, in the chair. There was a very full attendance of members. It was noteworthy that there were no "card-specimens" exhibited. The President prefaced the business of the evening by an appreciative reference to the late Dr. Peacock, one of the earliest members and a former President of the Society. Dr. Wilks said that during the recess the Society had lost one member to whom he felt compelled to make a passing reference. Dr. Peacock formed one of the small band that met many years ago to found the Society. He was one of its earliest and most valuable contributors, and at the last meeting but one he showed a specimen of malformation of the heart, a subject on which he had won a world-wide reputation. His career was a most enviable one; he was not ambitious as regards practice with its emoluments, and was thus able to devote himself with undivided attention to his hospital work, and in the autumn could travel and devote himself to science and literature. He had been a model member of the Society, and he could not allow that occasion to pass without a brief reference to one who for many years had been so closely connected with it.

Dr. Norman Moore showed several specimens. 1. A circular ulcer, as large as a fourpenny piece, situate in the duodenum, just outside the pylorus. Its base was adherent to the pancreas; and at one point the ulcer had penetrated a considerable branch of the pancreaticoduodenal artery. This perforation was the cause of death. Post mortem

the whole intestine was distended with blood, but there was none in the stomach. The patient was a man aged thirty-four years. His first symptom was a hæmatemesis of about a pint at 10 P.M. on May 9th. He came to St. Bartholomew's Hospital at 11 P.M., looking much blanched. After admission he vomited blood again at 2.30 A.M., and a second time, more copiously, at 6.30 A.M.; he became collapsed and died at 8 A.M., ten hours after his first sensation of illness. 2. A deep ulcer, in parts healed, also situated in the duodenum close to the pylorus. Its floor was partly formed by the adherent pancreas, and partly by peritoneum. The patient, a bricklayer, aged forty-nine years, had complained of a slight degree of pain after eating, for three months, but not to a sufficient degree to make him apply for treatment. He died of a severe pulmonary catarrh. 3. Enlarged Ribs of Rickets pressing upon the Liver through the Diaphragm. A cast of the under side of the diaphragm showed three large beads on the seventh, eighth, and ninth ribs. These pressed upon the diaphragm and through it upon the liver, causing well-marked depressions on each lobe. From a rickety child aged one year and eight months. 4. A drawing showing Depressions in the Liver due to Enlarged Ribs in another rickety child aged one year and seven months. These depressions perhaps appeared larger post mortem than they would during life, but certainly indicated a permanent pressure of the enlarged ribs upon the liver, a pressure increased by the fact that both children had constricted chests. He suggested that the slight thickenings sometimes observed in the capsule of the upper part of the liver in children and in adults might be due to the pressure of beaded ribs through the diaphragm. 5. An Aneurism of the External Iliac Artery, from a girl aged seven years. The aneurism was at the origin of the external iliac on the right side, and it was a dilatation of the vessel extending more to the inner than to the outer side. Its cavity was filled with firm laminated fibrin. A microscopic section showed that the aneurism was a simple dilatation of the vessel, all parts of which were represented in the wall. There was a marked increase of nuclei in the middle and deepest layer of the inner coat. No other aneurism was found. On the mitral valve there were some small growths, and on one aortic cusp there was a very large calcified growth. The aorta itself was free from any obvious morbid change, and a microscopic section showed it to be perfectly healthy. The girl had died suddenly. The aneurism would appear to have been due to an embolus from the aortic valves, followed by a deposit of fibrin, in the method of formation first suggested by Dr. John Ogle in the *Path. Soc. Trans.*, vol. viii., p. 168 (1857), and afterwards more fully treated of by him in a paper in the *Medical Times and Gazette* for Feb. 24th, 1866, and by Mr. Callender in the *Path. Soc. Trans.*, vol. ix., p. 93. 6. The Heart and Aorta of a girl aged five years, showing an aneurismal bulging a quarter of an inch above the Aortic Valves. The aneurism was due to an ulcer on the posterior wall of the aorta, which was associated with an ulcerative endocarditis of the aortic valves. There were also minute growths on the mitral and tricuspid valves. The child had acute general tuberculosis, and died with tubercular meningitis. 7. The heart and aorta from a man aged eighteen years, who died in St. Bartholomew's Hospital with Bright's disease and pericarditis. The right side of the heart and the mitral valve were normal. Just below the aortic valves was a thickened ring of fibrous tissue, attached on one side to the septum ventriculorum, and on the other to the outer wall of the heart. Above this ring the aortic valves were competent, and of nor-

mal form. It was suggested that this ring, which had a diameter of one-third of an inch, might be due to an imperfectly developed second tier of aortic valves, formed from the original endocardium, like the numerous rows of aortic valves in the ganoid fishes. At the root of the innominate artery there was a circular opening, one inch in diameter, which led into an aneurismal cavity partly filled with laminated fibrin. The contents of the sac had dissected between the layers of the pericardium, and formed a mass, two inches by two inches and a half, resting on the base of the heart, pressing upon the pericardial veins, and causing an enormous serous effusion which stretched the pericardium across the whole front of the chest. The patient had had an illness, which might have been acute rheumatism, nine years before his death. Most cases of malformation of the heart and aorta are due to either endocarditis or congenital variation. This example was interesting as illustrating a result of variation in its double row of structures around the aorta, and a result of acute endarteritis in its aneurism.—Dr. Payne said that Dr. N. Moore's last case reminded him of a case of his own. Some years ago he brought a heart to the Society which he then thought presented a rudimentary additional series of aortic valves. But a committee appointed to examine the specimen reported that they were not valves at all, but only thickenings of the endocardium; and he (Dr. Payne) was sure they were right; and he had since seen transitional forms of endocardial thickening.—Dr. Pye Smith asked if the fibrous ring was not rather to be ascribed to a persistence of the foetal constriction between the bulbous aortæ and the ventricle. This had been described, and he thought it more probable that Dr. Norman Moore's specimen was an example of it than of a reappearance of a structure for which they had to go so far back as to ganoid fishes.

Dr. S. Wilks said that aneurisms in children were very interesting; they had been clearly shown to be due to embolism. The aneurism was no doubt formed at the exact spot of the embolus and not above it, and it had been suggested that in cases of ulcerative endocarditis embola containing micrococci might cause an inflammatory softening of the artery. Older physicians, such as Addison, had recognized a connection between rheumatism and aneurism. He further asked whether Dr. Norman Moore knew of the cause of the duodenal ulcers.—Dr. Norman Moore said he did not know of any special cause. All the valves of the heart referred to by Dr. Payne were quite free from disease, and he thought it would be rash to ascribe the thickening to an endocarditis so severe as to cause this, but which did not implicate the aortic valves.

A committee consisting of Drs. Payne, Pye Smith, and Coupland was requested to examine the heart.

Mr. Bowlby showed two specimens of Obturator Hernia taken from a woman aged sixty-nine, married, mother of three children, very thin, with no history of abdominal obstruction. On June 4th she was suddenly taken with great pain in the abdomen; collapse, vomiting, and constipation; four days later she was admitted to St. Bartholomew's Hospital with distinct signs of intestinal obstruction. No distinct local tenderness could be made out; vaginal and rectal examinations gave no assistance. Two days later there was pain in the inner and back part of the thigh, which she said she had been subject to from chronic rheumatoid arthritis. She died on the eleventh day of her illness. At the autopsy there was found a strangulated hernia on the right side, and an empty hernial sac on the left side. The hernia on each side passed over the external obturator mus-

ale; on the right side the nerve and artery were stretched over the upper part of the sac. The right sac contained a coil of intestine adherent to the sac; there was no fluid in the sac. On the left side the sac was not so large as a walnut; on this side the obturator artery passed under the sac and divided into two beneath it, one division passing on each side of the sac. The patient was of the sex, age, and emaciated appearance common in cases of obturator hernia. The distribution of the arteries was important, but appeared to be various. In the last case at St. Bartholomew's Hospital, occurring thirty years ago, recorded by Mr. Stanley, the artery lay in front of the sac; in another specimen in St. Bartholomew's Museum the artery was on the inner side; the position of the nerve in front was constant. The intestine had been said to be drawn out into diverticula in cases of obturator hernia, but that was not so in this case. Double obturator hernia had been not rarely described, and the co-existence of other herniæ was not infrequent. In most of the cases the strangulation had not been very acute; in this case the gut was, even after eleven days, not gangrenous, nor very intensely congested. In one case the constriction lasted twenty-one days before death occurred. In Stanley's case, as in this, the gut was adherent to the sac. He thought the indication was, after diagnosing the case, to cut down and expose the hernial sac, and then to open the sac, divide its neck, and return the congested contents.

Dr. Bedford Fenwick showed a specimen of Tricuspid Stenosis from a woman aged thirty, who had rheumatic fever at fifteen, and afterwards suffered from winter cough and dyspnoea; she went on from bad to worse till admitted into the London Hospital under Dr. S. Fenwick; there was marked distension of jugular veins but no cyanosis, cardiac dullness very wide to the right, a well-marked pre-systolic apex thrill and pre-systolic and systolic apex murmurs; proceeding to the right another pre-systolic and systolic murmur was detected. At the post-mortem both auricles, but especially the right, were very much dilated, the ventricles small. The tricuspid and mitral valves were greatly thickened, shortened and agglutinated together, causing marked stenosis. All the organs were congested. The spleen was during life tender to pressure and pulsed. Cases of this kind were now known not to be very rare. Since his table of forty-six cases he had been able to collect twenty-three more cases, twenty of whom were females averaging in age 31.7 years. In every case the mitral valve had been more changed than the tricuspid, and in all cases the general health had been good; the great dilatation of the right auricle caused increase of cardiac dullness to the right, and afforded a means of diagnosis.

Dr. Norman Moore showed the heart of a man, aged twenty-two, with tricuspid Stenosis and Disease of Mitral and Aortic Valves; the right auricle was enormously dilated. He remarked that tricuspid stenosis was very often associated with pericarditis, and this prevents the diagnosis of distension of the right auricle. In this case the veins of the neck were not abnormal in any way. The loud systolic and presystolic murmur were loudest at the apex with a pre-systolic thrill at the same place. There was pericardial effusion. In seven out of fifteen cases at St. Bartholomew's tricuspid disease had been associated with pericarditis as if the valve were only affected by very severe endocarditis associated with pericarditis. Dr. Wilks asked if Dr. Fenwick thought that the tricuspid and mitral valves were affected simultaneously or successively. Dr. Fenwick said that in two or three cases it appeared clear that the mitral

disease was primary, and the tricuspid disease succeeded. In more than half the cases there was a well-marked history of rheumatism.

Mr. Alban Dolan exhibited some preparations showing the relations of Cysts in the Broad Ligaments, whilst still young and minute, to neighboring structures. A parovarium, with the posterior layer of broad ligament dissected away so as to expose its tubes, was demonstrated; Gaertner's duct appeared like a small nerve running a straight course towards the uterus. Cysts springing from the vertical tubes of the parovarium are multilocular, and bear papillary contents lined with epithelium, which may be ciliated, but is often made up of cubical cells not bearing cilia. The normal epithelial lining of the parovarian tubes is not invariably ciliated, and if so, often tends to degenerate into its original cubical form. The outer end of the horizontal tube of the parovarium generally bears a small cyst, the lining of which resembles endothelium. Between the parovarium and the Fallopian tube, small cysts, lined with endothelium, are very common. It is these, or the terminal cysts of the parovarium, that form the starting point of the so-called "parovarian cyst," which is thin-walled, unilocular, and filled with clear fluid, but no papillary growths. There is no evidence that any of these cysts spring from the Fallopian tube, the terminal "hydatis" of which never attains large proportions. The multilocular papillary cysts of the hilum of the ovary, and of the neighborhood of Gaertner's duct, are identical with those arising from the vertical tubes of the parovarium, all these structures containing relics of the Wolffian body, the source of cysts of this kind.

Mr. Hutchinson showed, as a living specimen, a man who had lost the ends of nearly all the digits of his hands. The gangrene was brought on from exposure to cold. He was at work on a snowy night, and afterwards the ends of his fingers inflamed and became gangrenous; they have never recovered, for on any change of temperature they swell and become oedematous. The toes were not affected. There was a threatening of gangrene of the ears. Before this occurred, on any exposure to cold his fingers would "die" very readily. It was a case of peculiar constitutional weakness of circulation with liability to gangrene, and differing from common cases of frostbite in the slight intensity of the cold causing the death of the parts—Dr. Wilks said he had a boy in the hospital last year with gangrene of fingers, ears, and toes, and hæmaturia. All had healed up. The hæmaturia pointed to some blood condition.

Dr. S. West showed a specimen of Mediastinal Tumour from a boy aged fifteen, who had been ill for only two months. For three weeks he had a swelling in front of the chest, with brassy cough and dyspnoea, and pain down the side of the chest, and inner side of the left arm. After a few days in hospital the swelling increased and appeared above the sternum. A needle was inserted, but nothing was obtained. A day before his death the left pulse was found unequal. He died in an attack of dyspnoea. At the autopsy the tumour was found to be very large and growing from the mediastinal glands, pressing upon and over the heart, flattening it down against the diaphragm. The vessels and nerves on the left side were quite embedded in the tumour, but were all free on the right side. The only secondary growths were in the kidneys, but the primary growths had extended down to both front and back of the heart, under the pericardium, without implicating the muscular tissue. The growth was a small round-celled sarcoma. The nerves in the tumour were found to be greatly thickened, owing to infiltration with tu-

mour tissue. The case was interesting on account of the age of the patient; out of fifty-five similar cases only five occurred between ten and twenty years of age. Dr. Douglas Powell had given the average age as twenty-four. The whole mass had also grown with extreme rapidity; the shortest time given by Walsh was three months and a half. He had never seen the nerves thus thickened; but Dr. Quain had recorded a case in which thickening was due, however, to inflammation, and not to infiltration of the tumour. Dr. S. West also showed two specimens of Perforating Ulcers of the Large Intestine from Typhoid Fever. In both cases the disease was of long duration, and in both there were cicatrices of typhoid ulcers in the ileum. In one the patient died suddenly, with signs of peritonitis, and after death a collection of puriform fluid was found in the pelvis, and a perforation of the lower end of the sigmoid flexure. In the other the liver and intestines were found matted together in the right hypochondrium, where a collection of pus was found, and a perforation of the colon at the junction of its ascending and transverse portions. In this case the fever ran a mild course throughout; but there was all along one symptom which he had always observed to be attended with a fatal termination to the case—a scarcely audible first sound of the heart.

Dr. Henegge Gibbes showed microscopical sections of a specimen of Cirrhosis of the Liver in a child of seven months, following congenital absence of the common bile duct. The case was under the care of Dr. Steel, of Abercavenny. A male infant, eighth child of healthy parents, born, December 3rd, 1881, first began to show symptoms of jaundice a few days after birth; was treated with castor oil in mild doses, afterwards with iridin in doses of two to three grains thrice daily. This seemed to have a slight effect on the stools and skin; other remedies had also been tried without any result. Nutrition was maintained tolerably well till the sixth month, when wasting and ascites set in, and the child died on the 10th of July. The liver was found to be hard and smooth, and weighed four ounces after hardening in spirit. No common duct could be found in connection with the duodenum. Under the microscope dense bunches of fibrous tissue were found between the lobules, in the interstices of which were the dilated bile ducts filled with bile. The cells in the lobules seemed broken down, and did not stain. This seemed to be a case of cirrhosis following on congenital absence of the common duct. The jaundice not appearing for the first few days might be explained by the small amount secreted at that early stage having filled the diverticula of the bile ducts. After these were fully distended jaundice would be set up.

The Society then adjourned.

CLINICAL SOCIETY OF LONDON.

Treatment of Phthisis by Residence at High Altitudes.— Excision of Cancer of the Tonsil.

THE first meeting of the present session of this Society was held on Friday, Oct. 13th, J. Lister, Esq., F.R.S., in the chair. The new volume of the Transactions was stated to be ready for distribution, which is a fact very creditable to the hon. secretaries. The President read the new rules in reference to the exhibition of living specimens. He also showed the form of diploma of hon. membership, and stated that most of the hon. members recently elected had expressed in warm

language their sense of the honor thus conferred upon them.

Dr. Theodore Williams communicated a case of Phthisis treated by Residence at High Altitudes, the patient having been exhibited at a former meeting of the Society. A medical man aged thirty had cough and expectoration of three years' standing, followed by hæmoptysis, wasting, elevation of temperature, and great prostration; and when seen by Dr. Williams in consultation with Dr. Vereker Benden, on Aug. 30th, 1881, he presented the physical signs of consolidation of the upper lobe of the left lung. After five months' residence at Davos, including a walking tour of seventeen days in the Engadine, during the whole of which period he took exercise largely, he gained a stone in weight, and found his strength and power of climbing greatly improved. On first arriving at Davos he had dyspnoea from the rarefaction of the air, but this passed off, and his respiratory powers became greater than previously. On his return, Dr. Williams found an increase in the cyrtometric and other chest measurements, especially in the upper regions of the thorax; and the physical signs denoted the development of emphysema around the old consolidation and hypertrophy of the healthy lung. Dr. Williams stated that while he ascribed the general improvement of the patient to the dry form of antiseptic atmosphere and the sun's powerful influence, he assigned the arrest of the tubercular changes to the local effects on the lungs of breathing rarefied air, which by inducing emphysema caused an expansion of the thorax, at the same time opposing a barrier to the emeroachment of further infective processes in these organs. With regard to the durability of the good results of mountain climates, Dr. Williams's experience was that in well-selected cases one or two winters sufficed to produce permanent arrest of consumptive disease, though in many instances a prolonged stay of at least two years was desirable. Dr. Williams exhibited cyrtometric tracings of similar cases that had resided at Davos and Colorado for several months to illustrate the widening of the chest through breathing mountain air.—Dr. Althaus was much interested in this subject, as he had recently sent a case of advanced phthisis to Colorado, and the improvement that had followed was most marked. The patient referred to was a young lady with a cavity in one lung, hectic, and great wasting. All European climates had proved ineffectual; but after being at Colorado (8,000 feet above the sea) a week, there was a marked change in her state, and she was able to be out in the open air all day long. Patients were able to stay in Colorado all the year round; the weather was so fine that there was no need to send them into the lower levels at any time; the air was extremely dry. A residence of two years was considered desirable by Drs. Solly and Norman, who resided there, and with whom he had been in correspondence on the subject.—Dr. Broadbent could not quite see the point of the paper. Such a case as that related was not an infrequent experience, and the change noted was such as was often observed after residence in any of the usual winter resorts. He wanted to know whether in a large number of cases the results were better from residence at high altitudes than from residence in the south of France or Egypt.—Dr. MacLagan asked how far the arrest of the disease was due to residence in a germless atmosphere, such as was known to exist in such high altitudes, and how far to the general healthiness of the life at Davos. How far also was the enlargement of the chest peculiar to cure of a case of phthisis, or common to anyone moving to such a latitude.—Mr. Lister said that Dr. Williams's case was an example of improvement under many

favorable conditions. If high altitudes were useful, it was important to know how the good effects were brought about. If the air was germless or aseptic, he failed to see how that circumstance could interfere with the organizations already present in the lung. Possibly the absence of dust in the air might be one cause of the beneficial result. He had recently himself experienced in high altitudes an unsatisfied desire for taking deep inspirations, and this must after a time cause enlargement of the chest. But he asked whether there was any benefit in this; the deeper breaths were merely efforts to take in the same amount of oxygen as in lower altitudes. But how far was this desirable? If this remained permanent, on returning to the lower levels of course it would be useful. Residence in these high altitudes certainly did exercise a beneficial influence.—Dr. Wilberforce Smith remarked that a very small gain of flesh makes a great difference in the measurement of the chest. He suggested that an aseptic atmosphere might prevent the intercurrent inflammatory attacks which increase the phthisical state.—Dr. Williams, in reply, referred to his paper in the International Congress Transactions. In reply to Dr. Broadbent, he said that as a specialty of mountain climate he found he got expansion of the chest and change in the percussion note from dulness to resonance to hyper-resonance. In this respect this treatment differed in its effects from sea voyages, or residence in Egypt or the Cape. He was not himself sure that the air at Davos was germless; the air had never been analyzed. He thought the expansion of the chest was a distinct advantage; he also suggested that in these patients the lungs were often not fully developed, and residence at these high altitudes caused an enormous development of the lung. Almost all the natives of high regions have large lungs. He did not think Davos and such places were very successful in staying off intercurrent inflammations.

Mr. Golding Bird detailed a case in which he had removed an Epitheliomatous Tonsil in the manner adopted by Cheever (1871), and referred to three other cases of the same disease in which he had determined not to operate. The operation consisted in an external incision from the ear to the hyoid bone, through which the wall of the pharynx was reached with the greatest ease, and the tonsil with the adjacent pharyngeal tissue removed with the galvanic cautery. The later stages of the operation were aided by an additional incision through the cheek from the angle of the mouth. The disease having also affected the tongue, part of that organ was removed as well as an enlarged gland at the angle of the jaw. Until the wound closed an oesophagus tube was used for feeding, and though great relief was given to the patient, yet he soon succumbed to recurrence, not in the site of the excised organ, but in the tongue and in the lymphatics of the neck. The conclusions arrived at by the author were that where only a limited infection of the lymphatic glands existed, and where the faucial growth was circumscribed, or nearly so, operation was called for; but that in other cases feeding with tubes with subsequently gastrostomy was the treatment. The operation was itself far easier than many of daily occurrence, and seemed to offer no special risk to the patient. Of the four cases mentioned it was considered by Mr. Golding Bird that the disease was primary in the tonsil in three, in all four it was the left side that suffered.

Mr. Clement Lucas related a case of Excision of the Base of the Tongue, Right Tonsil, and part of the Left Palate for Epithelioma. The patient, aged sixty-four, a coalporter on the river-side, who had drunk freely, first came under Mr. Lucas's

care in Guy's Hospital on Feb. 13th, 1880. He was at that time suffering from a large aneurism of the right popliteal artery, causing pain and oedema of the leg and foot, and from a smaller aneurism of the left popliteal. Digital compression of the right femoral artery was commenced on Feb. 17th, and continued for sixteen hours, when the aneurism appeared to have consolidated, and pulsation could no longer be detected. On the following day some pulsation was re-established, and on the 20th digital compression was again commenced and continued for eleven and a half hours, when pulsation ceased and did not recur, the tumour afterwards gradually shrinking. An attempt was made about a fortnight later to cure the small aneurism in the left popliteal space by digital compression, but this failed, and as the tumour caused him little inconvenience, no further treatment was suggested, and he left the hospital. He was readmitted on August 2nd, 1881, suffering from epithelioma of the base of the tongue and right tonsil. On the right side of the tongue, opposite the last molar teeth, was a small ulcer, grey in color, and irregular on the surface. The ulceration extended along the anterior pillar of the fauces, and involved the right tonsil as well as the tissue between the tongue and the jaw. The surface of the tongue near the base was raised and indurated for about half an inch from the margin of the ulcer. The movements of his tongue were interfered with, so that mastication and deglutition were painful, and there was an increase of salivary secretion. No enlarged glands were felt beneath or behind the jaw. The operation was performed on August 9th. The patient being placed under the influence of chloroform, the cheek was first divided by an incision from the angle of the mouth to the masseter muscle, and the facial artery was twisted. A gag was then inserted on the left side of the mouth whilst the tongue was drawn forward with forceps, and the flaps of the cheek were held back by retractors. The back of the tongue and tonsil were in this way easily reached. The soft palate was next divided near the middle line by means of Paquelin's cautery, and dissected down with the anterior pillar and the tonsil. Attention was now paid to the tongue, which was divided in the median line with a scalpel, and carefully dissected outwards till the lingual artery was reached. This was seized with two pairs of torsion forceps, divided between, and the ends twisted without loss of blood. The tissue between the tongue and jaw was next dissected up, the cautery being used to stop any bleeding points, and finally the growth, with the base of the tongue, right tonsil, and half the soft palate, was removed in one mass. The cheek was brought to ether with three harelip-pins, and it united primarily. The patient recovered rapidly after the operation, and sixteen days later was again subjected to digital compression for the cure of the left popliteal aneurism, which was about the size of a pigeon's egg. Pressure was kept up with the aid of opium for forty-eight hours, but soon after this, though much consolidated, the tumour still pulsated. He left the hospital, with the tongue quite healed, on September 16th. He was readmitted into the hospital on February 13th, 1882. There was no return of the disease in the tongue or palate, which were united by a firm and sound cicatrix. There was a large mass on the right side of his neck below and behind the jaw, which commenced six weeks before, and grew rapidly, extending outwards beneath the sternomastoid. An operation for the removal of this growth was undertaken on the following day. A vertical incision about four inches in length was made, commencing behind the jaw, and the growth dissected round. It was found necessary after-

wards to enlarge the wound transversely. In the course of the operation the lower part of the parotid gland, a portion of the sterno-mastoid, the posterior belly of the digastric and stylo-hyoid, and a portion of the submaxillary gland were removed, all of which were infiltrated. The facial artery was twisted and the facial and lingual veins ligatured with catgut. At the bottom of the wound the internal jugular vein and the two carotids, with the hypoglossal nerve, were exposed. Two enlarged glands were also removed from beneath the sterno-mastoid. The patient recovered without a bad symptom, and left the hospital on March 24th. He was again seen in July last with a recurrence of the growth on both sides of the neck, but there was still no sign of disease in the original site. It was not then thought advisable to interfere further. Mr. Lucas said that, by the operation described, it was evident a cancerous tonsil, with the adjacent structures, can be completely removed from within the mouth, and when this was practicable, it had the advantage over the external operation of avoiding the fistulous track, through which saliva was apt to ooze. For the rest, the treatment of cancer here did not differ from the treatment of it elsewhere. The treatment—and the only treatment—was to operate early, and to operate late; to operate, indeed, so long as it was possible to remove a loathsome outgrowth without great immediate danger; to operate to keep it local; to operate on the earliest return; and though we might often be disappointed in our attempts to eradicate the disease, we might still prolong life, or, as in the case before us, succeed in driving the disease from its original site to one where it was less offensive, and more easy for the patient to bear.

Mr. C. Heath congratulated Mr. Golding Bird and Mr. Lucas on their bold procedure. Dr. Cheever's operation must of necessity be of great difficulty, but was successful in his and Mr. Golding Bird's hands. But the question arose as to whether good was done by such an operation. His own view was that, whenever the surgeon can get beyond the cancerous disease, an operation was justifiable, even when the growth was in the lymphatic gland; but the opinion was often given by eminent surgeons that cancerous disease of lymphatic glands was a bar to operation. He should therefore be glad to know what the general opinion was.—Mr. Morratt Baker thought that Mr. Lucas was very successful in the long period that elapsed without local recurrence. He asked if the part was removed with the *écraseur*, or with the scissors, after Mr. Whitehead's method. He had himself used in many cases the *écraseur*, to prevent hæmorrhage and lessen pain. He quite concurred with Mr. Heath in advocating the removal of cancerous lymphatic glands where they could be completely removed.—Mr. Butlin thought removal of the tonsil through a deep wound on the neck was hardly worth doing, although possibly justifiable. Cheever had had two cases, and Czermak had had one, but in all there was rapid recurrence. As a result of his researches, he found that the only case of malignant disease of the tonsil really improved by operation was one of lympho-sarcoma, removed through the mouth, in which there was freedom from recurrence for two years at least: and he rather doubted whether there was not some error in the diagnosis in this case, as it was extremely difficult to distinguish a lympho-sarcoma from an ordinary enlargement of the tonsil.—Mr. Lister said there was no doubt of the boldness and skill of the operators in the cases related. But he feared that, on the average, operative interference was more likely to be harmful than beneficial. Mr. Lucas's case was very successful and favorable. He asked for a more detailed account of the last

step of this operation. He was glad to know that surgeons now generally removed cancerous lymphatic glands when accessible; this was quite a change since he was a student. He believed he was the first person to clear out an axilla in cases of scirrhus of the mamma, and he had had reason to be very well pleased with his results. In a case of epithelioma of the lip and a single enlarged gland under the chin Mr. Syme used to operate, and with good results, although at the time he deprecated such operations where glands were affected in other situations.—Mr. Golding Bird's opinion was distinctly in favor of not operating in cases of cancer of the tonsil.—Mr. Clement Lucas said that in his case the tongue was divided entirely with the knife. The soft palate and tonsil were first dissected down, then the tongue was dissected up, and the mass to be removed was carefully divided, and any bleeding point was touched with a Paquelin's cautery. He thought his case showed that such operations were not hopeless, for he had freed the man from the loathsome disease in the mouth, and he was now suffering from a far more tolerable affection in the neck. The Society then adjourned.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Dislocation of the Foot, with Version and Torsion of the Astragalus.—Ophthalmoplegia Externa, complicating Graves's Disease.

THE first meeting of this Society after the vacation took place on the 24th inst., Mr. John Marshall, F.R.S., President, in the chair. At the commencement of the business of the evening, the President directed the attention of the Fellows present to certain proposed alterations in procedure initiated by the Council, comprising increased facilities for the discussion and reading of papers, the insertion of debates in the Proceedings, and the exhibition at the meetings of scientific inventions, anatomical and pathological preparations, etc.

Mr. Richard Barwell read a paper on Dislocation of the Foot with Version and Torsion of the Astragalus, of which the following is an abstract. Dislocation of the astragalus is not uncommon, the bone, displaced from the socket formed by the leg-bones as well as from the rest of the tarsus, receiving, in nearly all instances, a twist, so that its surfaces look in abnormal directions. Another very rare form of injury is that of which the following is an example: G. F—, aged twenty-eight, received the injury by the overturning of a gig that he was driving, he falling on the right foot. The foot was greatly inverted, the heel raised; the inner malleolus was much obscured, the outer very prominent. The round head of the astragalus was in front of and below the external malleolus. Running from the head to the upper part of that malleolus was a ridge of bone convex outward. A small wound a little way up the leg communicated with the seat of injury. Attempts at reduction, even though the Achilles tendon was divided, were ineffectual. Mr. Barwell excised the astragalus. It was in its normal place in the tibio-peroneal socket, but was twisted, so that the trochlea looked outward, and rested against the articulating face of the outer malleolus. The man did extremely well; he was discharged in three months, walking with crutches, and was shown at the Society's meeting, walking well without any assistance from crutch or stick. After a few remarks on the difficulty of nomenclature in disloca-

tion about the tarsus, the author referred to Malgaigne's description of version and torsion "*sur place*," the former referring to a turn of the astragalus on its perpendicular axis. Of these Malgaigne gives four examples, and the author had collected two others. They all, with one exception, were inward. Torsion, by which he means a twist on the antero-posterior aspect, is in reality more rare, although it would appear on first sight more common because Malgaigne quotes six cases; but on examination of the original records, these changes he found to be not *sur place* save in one case, Dupuytren's—and even here the bone was nearly extruded—and one preparation, the history of which is unknown, and in which the turn is very slight. The author's case is the only one in which a diagnosis has been arrived at during life, and, as far as can be ascertained, the only one in which the bone turned a quarter of the circle, and lay fairly in the tibio-peroneal socket. An appendix was added giving a short description of every case both of torsion and version in corroboration of these statements.—Mr. Spencer Watson, after remarking upon the rarity of dislocations of the astragalus, referred to the case of a girl who sustained a compound dislocation of the bone outwards, necessitating its excision. The result of the operation was very satisfactory, for having seen the patient a few years afterwards he found that there was free movement at the ankle and a normal appearance of the foot. Such a result was encouraging for the ultimate issue of Mr. Barwell's case.—Mr. Barwell explained the grounds upon which he arrived at a diagnosis in his case—viz., the projection outwards of the convexity of the trochlear surface of the astragalus. He exhibited a preparation of a foot after excision of the astragalus, showing bony union of the os calcis, scaphoid, and tibia—and believed this always took place—the subsequent mobility occurring at the tarsal joints in these cases, and not at the ankle. He referred to the fact that Malgaigne had misread some of the descriptions of astragalus dislocation, and stated that he excised the bone in preference to attempting its reduction, because it was detached from all sources of its nutrient supply.—The President confirmed Mr. Barwell's statement as to the discrepancies arising from imperfect descriptions of such injuries, and pointed out that the astragalus differs from all the other tarsal bones in having no tendon inserted into it. Its main connection was with the broad astragalo-calcaneal ligament, which must be torn through in the dislocation, thus seriously damaging the vitality of the bone, and leaving the surgeon no alternative but its speedy removal.

Dr. Francis Warner then read a paper on Ophthalmoplegia Externa complicating a case of Graves's Disease. The patient was a woman twenty-five years of age, and was the subject of Graves's disease of four years' standing. There was marked mental excitability, and she was frequently attacked with gastric crises, vomiting, dyspnoea, and palpitation. Both eyes were nearly immobile, a condition not accounted for by proptosis; this had existed five months before admission into hospital. Limitation of movements was not equal in the two eyes, and was greater in the horizontal than in the vertical directions; double proptosis was marked. There was also bilateral paresis of the seventh and fifth pairs of nerves, and marked tremor of the legs. There appeared to be no evidence of syphilis. Under treatment the goitre subsided, and the general condition greatly improved, but the ophthalmoplegia remains. The unequal amount of paralysis of the two eyes is taken as some evidence of an independent nerve-centre for the movements of either eye, and this

is supported by observations in infants in deep sleep and adults in coma, when either eye may be seen to move separately and independently. Again, the greater limitation of movement in the horizontal as compared with the vertical direction is pointed out as probable evidence that separate centres govern these movements respectively.—Mr. Power pointed out the reasons in favor of regarding Graves's disease as dependant on lesion of the cervical sympathetic, especially the cardiac and the gastro-intestinal derangements. In Dr. Warner's case the protrusion of the eyeball alone was not sufficient to account for its impaired movements, and there was evidently independent oculo-motor paralysis. Corneal ulceration was very rare in Graves's disease, and he attributed it in this case to inability to move the eyeball upwards beneath the lids. In this case there were evidently cerebral lesions superadded to those of Graves's disease.—Dr. Althaus had never met with the association of Graves's disease and ophthalmoplegia. Although the symptoms of Graves's disease point to lesion of the cervical sympathetic, yet in many carefully recorded cases no such lesion had been found. Syphilis was the almost invariable cause of ophthalmoplegia, whether internal or external. Speaking of Mr. Hutchinson's view as to the localization of lesion of the lenticular ganglion in internal ophthalmoplegia, and of the nucleus of the third nerve in the aqueduct of Sylvius in external oculo-motor paralysis. Dr. Althaus remarked that recent observations (pathological and experimental) in Germany pointed to the existence of centres governing the iris and ciliary muscle in close proximity to the third nerve nucleus. Again syphilitic lesions were often wide-spread (e.g., ophthalmoplegia might complicate locomotor ataxy) and it was conceivable that both the centre mentioned and the cervical sympathetic were involved in this case. He also referred to the persistence of ophthalmoplegia and its intractability, as well as liability to relapse, although some amelioration may be produced by large doses of iodide of potassium.—Dr. Savage had seen many cases of Graves's disease in the insane, but never associated with ophthalmoplegia. In two cases examined post mortem he had failed to find any lesion of the sympathetic; but in one there was disorganization of the suprarenal bodies. Although Graves's disease was a nervous disease, it exhibited three or four different conditions, and was met with in general paralysis of the insane as well as with other derangements.—Dr. B. O'Connor said that in some of Graves's earlier cases the thyroid enlargement was temporary, and in one case a peculiar form of dyspnoea was attributed to temporary dilatation of the aorta pressing on the trachea. He suggested that the cardiac ganglia might be the seat of lesion. In later cases described by Graves, the goitre was more permanent, and a marked difference was observed between the carotid and radial pulse.—Dr. Warner, in reply, pointed out the large area involved in this patient, there being paralysis of the fifth and seventh nerves as well as of the third, and the tremor of the feet indicated some change in the spinal cord. There was no evidence at all of syphilis; and the corneal ulcer was purely local, and probably due to the lesion of the fifth nerve. Mercurial treatment has been tried but abandoned; and the diminution in the thyroid swelling followed the application of cold by Leiter's tubes. This improvement under cold suggested sympathetic disorder, the ophthalmoplegia remaining.

At the close of the meeting the President directed attention to two scientific instruments upon the table. One was an apparatus designed by Mr. Robson, of Leeds, for the purpose of producing a

dry antiseptic vapor. It consisted of two metal U-shaped tubes in connection with a foot-bellows, one tube being filled with cotton wool to filter the air, and the other with pumice to receive the antiseptic fluid—e.g., eucalyptol. The apparatus had been used in cases of ovariectomy, and it was intended to replace the spray. The other instrument was the ingenious metallic clinical thermometer originally shown to the Medical Congress last year by Messrs. Mayer and Melzer, who had since perfected it. It is constructed on the principle of a Bourdon tube, which is filled with a highly expansive fluid, and which in expanding moves a pointer set on a dial by means of a rack and pinion.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Chronic Membranous Inflammation of Conjunctiva.—Chronic Tubercle of the Choroid and Brain.—Military Tubercle of the Choroid and Lung without Meningitis.—Large Tubercle growing near the Optic Disc.—Destructive Ophthalmitis in Children.

THIS Society met for the first time this session on Oct. 12th, Mr. W. Bowman, F.R.S., President, in the chair. The President laid on the table a copy of the Society's Transactions, vol. ii.

Mr. Anderson Critchett and Mr. Juler showed a case of Rare Affection of the Conjunctiva, which they considered to be one of chronic membranous or so-called "diphtheritic" conjunctivitis. The patient was a young woman aged seventeen. Ten months ago she had local suppurating (soft) sores on the vulva anus, for which she was treated at the Lock Hospital. There were no symptoms of constitutional syphilis. No mercury was given, and she was discharged cured in two months. Five months ago she had an attack of what appeared to be inflammation of the ocular conjunctiva in both eyes. This was treated first with alum and then with zinc lotions, and was almost cured when a white patch appeared in the left eye near the lower cul-de-sac. It was a white, opaque, non-vascular, diphtheritic-looking growth, unattended by pain and without suppuration. Since that time it has gradually extended and now appears as a dirty-white shreddy mass, seated on a semi-indurated vascular base of the conjunctiva. The lower part of the ocular conjunctiva, the lower cul-de-sac, and the inner surface of the lower lid are the parts now attacked. Ten days ago the right eye became similarly affected, a white patch appearing in the lower part of the ocular conjunctiva surrounded by vascular injection. It is now (10th day) about 1.5 centimetres in length and 0.5 centimetres in width, situated horizontally between the cornea and the lower cul-de-sac. The cornea is clear and the vision normal. There is no suppuration and only slight pain and photophobia; iodoform lotion, quinine lotion, etc., have been applied, and mercury given internally without any improvement.—Mr. Power remembered a similar case in a man thirty years old who had a growth at the lower part of the outer conjunctiva. The growth increased, and eventually projected as a horny mass from the surface of the cornea. The eye was excised.—Mr. Nettleship saw about two years ago a girl with a patch of adherent membrane on an infiltrated base on the ocular conjunctiva, which had lasted about six or seven weeks when she was first seen. There was no surrounding inflammation, and he regarded it as a localized chronic diphtheritic patch. He touched it with lapis divinus several times, and it disappeared, leaving a scar. Other cases of chronic

diphtheritic conjunctivitis had been published, one by Dr. Businelli, of Rome, where masses of membrane kept reforming and protruding between the lids. Another case is recorded by Mr. Mason, of Bath, and others by Mr. Hulme and Mr. Hutchinson. It, therefore, seemed as if in certain cases diphtheritic conjunctivitis tended to become chronic.—Mr. Power added that in his case there was a distinct specific history.

Dr. S. West showed a case of Leucocythæmia with Retinal Changes (dilated veins, etc.)

Dr. S. Mackenzie read notes of a case of Chronic Tubercle of the Choroid and Brain. The disease occurred in a girl aged fourteen. There was no tubercular history. She had never been well since she had whooping-cough, eighteen months before her death, suffering from frontal headache, feverish attacks, diarrhoea, and occasional vomiting, and loss of appetite and flesh. Following this was white swelling of the right knee. She then rapidly lost sight, whilst the other symptoms continued. When first observed she was flushed and feverish; there was no abnormal signs in chest or abdomen. She was quite blind. Ophthalmoscopic examination showed double papillitis. In the left eye there was a patch of choroidal disease, larger than the disc, to the outside of it. It was opaque and yellow in the centre, with a zone of black pigment, and an outer margin of pigment. A smaller circular patch was below the disc, over which coursed retinal vessels. One small patch existed in the right eye. The diagnosis was chronic tubercle of choroid and brain. Later acute cerebral symptoms made their appearance, with high temperature, and terminating in death; these were thought to indicate acute tubercular meningitis. The head only was allowed to be examined at the necropsy, when acute tubercular meningitis, with several caseous tumours in various parts of the brain, were found. Microscopic examination of them showed aggregated tubercle with giant cells. The choroid was thickened owing to the presence of tubercles with giant cells. The retina was swollen, and the optic nerve and its sheath showed marked signs of inflammation. The brain tumours and tubercular choroid were examined for bacilli by the processes of Ehrlich and Heneage Gibbs with negative results. It was remarked that the detection of the tubercular disease in the choroid was of some value in aiding the diagnosis as to the nature of a coexisting encephalic lesion; but, unfortunately, owing to the kind of disease, this knowledge was of little service in treatment. That some intracranial disease was present was indicated by the double papillitis, headache, occasional vomiting, drowsiness, etc., and that it was tubercular by the age of the patient, the feverish attacks, the diarrhoea, wasting, and white swelling. Allusion was made to Deutschmann's inoculation experiments in rabbits, in which it was shown that the tuberculosis induced in the membranes and brain was followed by double papillitis and tubercle of the vitreous and choroid, and that the process was traced in post-mortem examinations to metastatic infection along the optic nerve sheaths. Deutschmann has also recorded a case of tubercular meningitis in a child in which an appearance of tubercle in the optic nerve sheath was present. The present case lent no support to this connection between the tuberculosis of brain and eye. Attention was drawn to the similarity of the changes in the eye and brain in showing us pathological processes as well as aiding in diagnosis.

Dr. Warner read notes of a case of General Military Tuberculosis; tubercle in choroid; no meningitis. The patient was a girl nine years of age. She presented continued fever and emaciation; respiration was increased in frequency out of pro-

portion to the pulse and temperature; this averaged 102° to 103° . There were crepitations over the lungs, but no signs of pneumonia. The optic discs appeared healthy, but in either eye there were three or four light-colored raised cloudy spots, at some points turning aside a retinal vessel. The child died eight days after these tubercles were first seen. At the post-mortem the lungs were found crowded with tubercles; others were found in the liver, spleen, and kidneys. There was no meningitis. The back of either eyeball being removed, tubercles were found in the choroid. The case was put forward as an illustration of the association of tubercles in the choroids as a part of the general miliary tuberculosis without meningitis.

Dr. Brailey communicated a case where a Tuberculous Mass, apparently primary, springing from the optic disc and immediately surrounding the choroid, simulated in some of its clinical features a glioma. The globe was enlarged and its tension increased; the cornea was increased in size, and the anterior chamber was deepened; the retina was detached except from the ora serrata; and it was this membrane that was visible during life, with its vessels, through the clear lens. There were many point-like posterior synechiae. Though the mass, which presented all the histological evidences of tubercle, replaced the tissue of the papilla, it did not extend backward beyond the lamina cribrosa, nor laterally for any distance in the choroid. As there was no precise microscopical evidence that it had originated in the retina or tissue of the papilla, the author presumed that a choroidal origin was the most likely in view of the number of cases of tubercular choroidal disease that had been described. The patient, a boy aged two, the second child, was stout and well, but had been within a few months very thin and weak. The eldest was four years of age. Before this there had been a miscarriage at four months. The mother died of consumption six months before the excision. The father was said to be healthy. The after history of the patient could not be traced.

Dr. Baxter said that during the last twelve years he had examined the eyes in a very large number of cases of tubercular meningitis, and in no instance did he find tubercle of the choroid, although optic papillitis was often found. In the only two cases which he had seen it was associated with very abundant tuberculosis in other organs.—Dr. Coupland said that although meningitis was present in every case in which he had found choroidal tubercle (about six in all), yet in these cases the tuberculosis was more or less general. The eyes, however, were seldom examined post mortem, except in cases of cerebral disease, and Cohnheim's statement as to the frequency with which choroidal tubercle occurred in subjects of tubercular phthisis apart from meningeal tubercle had never been contested.—Dr. Sharkey during a period of three years and a half had examined every case of tubercular meningitis at St. Thomas's Hospital, and had only once found choroidal tubercle, which was confirmed on post mortem examination. No case of tuberculosis was examined that did not present cerebral symptoms.—Dr. Barlow thought it was premature to make any general assertion as to the infrequency with which choroidal tubercle and tubercular meningitis coexist; and that the absence of choroidal tubercle in any given case of tubercular meningitis ought not to be assumed on ophthalmoscopic evidence alone without an examination of the back of the eye post mortem. He had seen about twenty cases of choroidal tubercle post mortem, and of these a large number were associated with miliary tubercle in the pia mater. He had notes of thirteen in which there was this coex-

istence, and believed there were more. A very fine dappled appearance of parts of the fundus is sometimes seen with the ophthalmoscope in cases of tubercular meningitis, and in two such cases he had found post mortem that it corresponded with some very minute tubercular spots associated with ordinary nodules of miliary choroidal tubercle. He thought that to such a lesion might perhaps be applied the term "tubercular dust," which was used by Barthé and Billiet in regard to a form of tubercle seen sometimes in the liver. In regard to Dr. Mackenzie's case, Dr. Barlow thought it was of importance as bringing before us the possible chronicity of choroidal tubercle. Dr. Barlow had had under his own care, about four years ago, a boy with a diffuse general massive infiltration of one choroid, which proved, on microscopic examination by Mr. Nettleship, to be indistinguishable from caseous tubercle. The eyeball was removed, and thirteen months afterwards, when the boy died, several tumours of caseous tubercle were found in the brain. Thus it would appear that in the choroid, as in other organs, several forms of tubercular deposit might be found, and possibly the one to which he had referred might be compared with a mass of caseous pneumonia in the lungs.—Dr. Sansom raised the question of the prognostic value of the detection of choroidal tubercle, which he had met with not only in cases of meningitis, but also in cases of ordinary phthisis. But on one occasion he was led to give a most unfavorable prognosis in a case of meningitis from finding in the fundus what seemed to him an unmistakable tubercle of the choroid. He subsequently learnt that the patient recovered, and this fact had shaken his confidence in the importance of choroidal tubercle in prognosis.—Mr. Hulke had for some years past examined the eyes in cases of meningitis, and could confirm Dr. Baxter's statement that optic papillitis was often met with, but choroidal tubercle (except as part of general tuberculosis) very seldom.—Mr. B. Carter remarked that several years ago he had opportunities of examining ophthalmoscopically a large number of cases of meningitis. Like Mr. Hulke, he met with in some cases a swelling or inflammation of the disc, and in cases too when the diagnosis was otherwise doubtful, but he never met with anything that he took to be choroidal tubercle. From his subsequent hospital experience he had met with choroidal tubercle in cases of general tuberculosis, but not in meningitis; he had also seen appearances simulating tubercle, and he thought its ophthalmoscopic diagnosis rested on an insecure basis.

Mr. Nettleship read a paper on Certain Cases of Destructive Ophthalmitis in Children. The chief object of the paper was to draw attention to the cases of deep-seated disease which more or less simulate glioma of the retina in their clinical features. The author believed that there were two principle types of morbid change in this class of cases—(1) irido-choroiditis, either acute and almost purulent or chronic, the result of either form being inflammation and opacity in the vitreous, with subsequent detachment of the retina and backward displacement of the ciliary processes by shrinking of the inflammatory material; hæmorrhage between choroid and retina might occur; (2) inflammation and condensation of the vitreous, especially in its outer layers, and in some cases also in its antero-posterior axis, probably the result of a chronic severe retinitis, no detachment of retina occurring. Iritis occurred in nearly all cases of "pseudo-glioma," and there was often severe inflammation of the eye in the early period of the case. It was particularly as to the causes of these eye changes that information

was wanted. It was not sufficiently known that the conditions called pseudo-glioma, whether following severe inflammation of the eye or not, often came on during or soon after some severe illness, whilst in a considerable number the children were syphilitic. Measles, whooping, varicella, and perhaps pyæmia and sporadic recoverable meningitis, appeared from the cases, published and unpublished, collected by the author, to be the commonest antecedents of these eye changes. He asked especially for evidence as to the nature of the communication between the ocular and the constitutional conditions.—Dr. Barlow could recall five of these cases, and in three of them there was reason to suspect the existence of congenital syphilis. But he had not been able to realize their direct connection with that diathesis. He thought the most likely hypothesis was that some of them, at all events, were pyæmic. He had had no opportunity of examining a case post mortem. The nearest approach to the condition described which he had been to examine post mortem was the eye of an adult patient of his, who had ulcerative endocarditis and basic meningitis. This eye presented extensive small retinal hæmorrhages, and opacity of the vitreous, but no suppuration. During life there had been very slight steamingness of the cornea, and some iritis. Whatever the nature of the process, he thought it must begin from behind and come forwards, and that these cases might perhaps only differ in degree from those of panophthalmitis of embolic origin. With the account after general symptoms which Mr. Nettleship had given Dr. Barlow quite agreed. So far as he remembered, in most of the cases there was a history pointing to the probability of a cerebral attack, most likely meningeal. This had lasted for a time, and then come to an end, the definitive character of the brain symptoms being a special feature. In two cases he remembered the children had remained semi-idiotic, and with a certain limpness about the muscles of the neck, so that they were unable to sit up. But the active signs of brain trouble had come to an end as well as the eye lesions.—Dr. Brailey said that he had examined an eye which had been excised for suppuration in ulcerative endocarditis. There was much pus between the choroid and retina, and in that it differed from "pseudo-glioma." In many cases the retina is detached, with suppuration of the vitreous. Mr. Hulke first drew his attention to spontaneous suppuration of the vitreous in these cases. As to diminished tension in "pseudo-glioma" he had seen cases of intraocular hæmorrhage in which tension was increased.—Mr. Waren Tay mentioned a case of cerebro-spinal meningitis with double panophthalmitis, and stated that Mr. Hutchinson had said that in epidemics of cerebro-spinal meningitis it was not uncommon to get this panophthalmitis.—Dr. S. Mackenzie, who had seen a fair number of cases of sporadic cerebro-spinal meningitis, had not found this condition; but double optic neuritis.—Mr. B. Carter referred to an exhaustive report on Epidemic Cerebro-spinal Meningitis by Hirsch, which he had translated for the Epidemiological Society's Transactions.—Dr. Fitzgerald remembered an epidemic of this disease (cerebro-spinal meningitis) in Dublin, and at least one case in which the eyes were destroyed. Since then he had seen cases of panophthalmitis in other affections—e.g., puerperal fever, and in a case of pyæmia following amputation. He believed that Dr. Stokes had pointed out the occasional occurrence of sudden destruction of the eye in heart disease.—Mr. Jas. Adams pointed out that the class of cases described by Mr. Nettleship—viz., "pseudo-glioma"—differed from the embolic and pyæmic cases of destruction to the globe. In "pseudo-

glioma" the cornea remains transparent, and the pathognomonic condition of the iris is plainly to be seen. He had at present under observation one of these cases, in which the vitreous is undergoing remarkable changes. As there is no object in excising the globe in such cases, it would be interesting to learn what changes may take place in the affection when left to run its course.

MEDICAL SOCIETY OF LONDON.

Pathology and Treatment of Whooping-cough.

THE first meeting of the services of this Society took place on October 16th, the chair being taken by the President, Mr. Francis Mason, who in a few introductory remarks, made especial reference to the extensive alterations that were being carried on in the Society's premises. The Fellows would remember that when he had the honor of taking the chair as President for the first time, in March last, he hinted that the Council were contemplating taking additional premises in order to provide increased accommodation for the library, as well as to add to the comfort and convenience of the Fellows. He was now happy to say that that project had been realized, and he believed that, after the completion of the work, the Society's rooms would be second to none in the metropolis. He passed a well-merited tribute to the two honorary secretaries, Mr. E. Owen and Dr. I. Owen, for the zeal displayed in the negotiations, and concluded by reminding the Fellows of the claims the Society had on their support.

Mr. Dolan read an abstract of his essay on Whooping-cough, to which had been awarded the Fothergillian medal of the Society. Dealing with some points of its pathogeny, he expressed his dissent from the view of Guéneau de Mussy, that the malady was a bronchial adenopathy, its chief symptom being induced by pressure on the vagus by the enlarged glands, and showed that this glandular enlargement was not always present in pertussis, and further that the glands may be swollen without producing the characteristic cough. The disease, indeed, bore much resemblance to those diseases the causes of which are now believed to be minute organisms or fungi. Its highly contagious nature, period of incubation, effervescence and defervescence, its regular course, and the immunity from subsequent attacks, were grounds of analogy determining the place of pertussis in the group of diseases caused by protophytic fungi. The attempt by Linnæus to prove that all diseases were produced by animalcula, or had an insect origin, foreshadowed the conclusions now arrived at by the discoveries of Pasteur. In 1867 Poulet found bacteria in the sputa of pertussoid patients, and Letzerich had induced whooping-cough in rabbits by inoculating the trachea with sputa from the human subject. The author had repeated these experiments, and found that whilst inoculation with the blood of whooping-cough patients was without effect, that of sputa and other secretions caused death. He had found also on microscopic examination of sputa ordinary bacteroid forms, and a microbe resembling the spirochæte plicatilis of Cohn. The application of special methods of staining, as employed in the detection of the bacillus tuberculosis, would no doubt reveal the special microbe of pertussis. Admitting the fungoid nature of pertussis, its contagious property was easily explained by germs being thrown off into the air and received into the body, setting up constitutional disturbance, and subsequently attacking the pulmonary epithelium, giving rise to all the phenomena of pertussis. No pathognomonic

lesions could be detected on post-mortem examination, for the simple reason that whooping-cough was rarely fatal; death resulted from complications which were very numerous. As to glycosuria in whooping-cough, he had found it present in fourteen out of fifty cases. Turning to the question of treatment, he pointed out the necessity for measures of isolation in preventing the spread of the disease, for the enforcement of which measures the co-operation of all classes of the community was needed; and although the course of the disease could not be controlled by treatment, the patient could be placed in the most favorable circumstances towards recovery; certain painful and prominent sources of trouble could be relieved and complications guarded against so as to assist nature in her efforts to throw off the disease. There was no panacea or specific remedy, but if the dependence of whooping-cough upon a specific virus be the true explanation of its pathogeny, the lines on which its rational treatment and prophylaxis were to be pursued became clearer and more hopeful.

Cranial Osteophytes in Congenital Syphilis.—Gastrostomy. Inflammation, Suppuration, and Ulceration of Tongue.

At the meeting of this Society on October 23rd, Mr. F. Mason, President, in the chair, Dr. Radcliffe Crocker showed the Skull-cap of a child aged a year and ten months, with well-marked Osteophytes from Congenital Syphilis. The living case was shown last year with extreme anæmia, enlarged spleen, and cranial thickenings, but with no other signs of syphilis. The family history of miscarriages and early deaths was corroborative. The child died from bronchitis. The thickenings were well marked over the frontal and parietal eminences, and on each side of the sigittal suture posteriorly. The borders of the anterior fontanelle were quite thin. The rough drab-colored surface of the new bone was in marked contrast to the smooth, white, healthy bone.—The President thought there was very little evidence of congenital syphilis in the case; and Dr. Crocker said that he relied on the anæmia and enlargement of spleen for his diagnosis, which was confirmed by the existence of the cranial osteophytes.

The President related the particulars of a case in which he had performed the first stage of Gastrostomy. The patient was a man aged sixty, who had carcinoma of the left tonsil, which was growing so rapidly as to interfere with deglutition and respiration to a dangerous degree. The general details of the case have already appeared in *THE LANCET*; the specimen showed the kind of union that had taken place between the parietal layer of the peritoneum and the visceral layer of the stomach, an amount of union not sufficiently strong to justify opening the cavity of the stomach. Had life been prolonged a few days the union would probably have been thoroughly solid. Death took place on the third day after the operation, partly it was thought from exhaustion, but directly from a sharp attack of dyspnoea, for which tracheotomy was performed with temporary relief only.—Mr. Bryant said it was important to determine when the second part of the operation—viz., the perforation of the stomach—should be performed. The parietal peritoneum should be included in the stitches, of which six or eight should be put in close together. Four should be stout, the rest fine ones. His own experience was too small to accurately fix the date for opening the viscus. In one successful case of his, vomiting displaced the adhesions and one of the stitches before the incision was made into the stomach; he therefore delayed the second part of

the operation. In some cases the stomach may be opened on the third day, but if the adhesions are not firm it should be left till the fifth or eighth. In a case of ovariectomy performed by him fifteen or twenty years ago, treated with the clamp, death having occurred on the third day from bronchitis, the abdominal cavity was found to be already closed by adhesions from the external wound.—Mr. Gould had had lately two cases of gastrostomy. In the first the stomach was opened on the third day with difficulty, for the mucous membrane was corrugated and separated from the muscular and serous coats. The tenotome had to be introduced quite up to the hilt before perforating it. Death occurred from peritonitis forty-eight hours after; the adhesions were extremely slight. The patient was in a state of extreme starvation. He expected to find the stomach thinned; and he had therefore been led to make the stitches too shallow. In the second case the dyspnoea was first relieved by tracheotomy. The stomach was opened on the eighth day after the first part of the operation, and food was introduced several times a day. Peritonitis set in two days after, and death took place on the fifth day. The adhesions were firm and the cause of the peritonitis was not apparent. Perhaps the injections of food were too large and too frequent.—Mr. E. Owen preferred Mr. Mason's course of waiting and performing gastrostomy when necessary to that of excising the tonsils.—Dr. Heywood Smith asked how the antiseptics were managed, and spoke of the value of the eucalyptol spray in abdominal operations.—Mr. Bryant had introduced his plan of the two stitches to obviate the difficulty met with in Mr. Gould's case. Much care should be exercised in feeding, and for the first few days only warm milk should be given in small quantities.—The President, in reply, said that he had no experience of the eucalyptol spray; his patient suffered from carbolic poisoning, though the exposed surface was so small. The spray was used throughout the operation. As regards the number of stitches, he thought four were enough, and in this case they were closely set. In the future he should use two needles—a surgical needle to go through the abdominal wall, and an ordinary sewing needle to perforate the stomach.

Mr. Bryant read a paper on some Cases of Inflammation, Suppuration, and Ulceration of the Tongue. He detailed examples of abscess due to injury as well as to idiopathic causes, and showed how this affection has a tendency to get well, and more particularly after an early puncture. He recorded two examples of hydatid of the tongue. The subject of chronic superficial glossitis then received attention, and it was illustrated by cases as well as by a preparation. Superficial ulcerations were then described, and some good examples quoted of the simple dyspeptic ulcer. Ulcers due to local irritation were then described, and cases quoted, in one of which the ulcer had existed for two years, and had been mistaken for a cancer. Deep-seated ulcerations were fully considered, and the differences between the syphilitic, epitheliomatous, and tubercular forms dwelt upon. The tendency for the chronic syphilitic disease of a tongue to pass into cancer was emphasized, and the danger of not recognizing the tendency to the full pointed out. The connection between epithelial cancer of the tongue and ichthyosis was demonstrated, and the local character of the cancer noticed. The necessity for the early removal of a cancerous tongue was strongly enunciated, and some good cases quoted in which a long immunity from the disease, if not a cure, had been obtained. The different modes of operation were then discussed, and statistics given of operations, in which the mortality as a whole from the operation was

shown to be about 10 per cent. Amongst the advantages of the operation was advanced the fact that when a cure does not take place great comfort is given, and that a return of the disease is more likely to occur in the glands of the neck than in the tongue itself. Time not permitting of some remarks being made on tubercular disease of the tongue, it was deferred to another occasion. The paper was illustrated by drawings and preparations.—The President said that in his experience patients seldom survived more than two years after removal of the tongue. Cases of abscess and hydatid of the tongue are rare, and so are cases of cancer in persons under forty. He had operated in a case of cancer of the tongue in a lady thirty-three years of age.—Dr. Rogers asked why Mr. Bryant had given up the use of the galvanic éraseur.—Mr. Hutchinson had had similarly favorable experience in operations for the removal of the tongue in cancer. In very few cases was a second operation on the tongue required. Of course the disease returned very frequently in the lymphatic glands. He agreed with Mr. Bryant that the galvanic éraseur was a suitable and convenient instrument, but preferred the wire éraseur, because (1) of less liability to secondary hæmorrhage, and (2) the wound takes on a more healthy action after the cold éraseur.—Mr. H. Morris spoke of the importance of Mr. Bryant's statements as to the frequency of lung complications in cases not operated on as well as in cases operated on. Two of his own cases related in his paper last session had now lived over two years after the operation. He did not recommend ligaturing the lingual artery in excising, as hæmorrhage was so easily controlled; but in a case of cancerous hæmorrhage from the mouth he had ligatured both facial and lingual arteries (the former to avoid risk of secondary hæmorrhage) with good result, hæmorrhage ceasing, and the patient living for two years after. At the post-mortem examination the usual foul, sloughy condition of mouth was wanting. He asked if Mr. Bryant considered that abscesses of the tongue always healed readily. In one case he was surprised at the rapid healing of an abscess.—Mr. Walsham had also observed rapid healing of lingual abscess. He alluded to the advantage of the cord compressor in removal of the tongue in preventing secondary hæmorrhage and obviating shock.—Mr. Bryant, in reply, was himself surprised at the favorable results of his statistics of removal of the tongue. He strongly believed in cancer being local at the outset. He was not quite satisfied of the superiority of the ordinary éraseur over the galvanic, and did not recall many cases of secondary hæmorrhage after the use of the latter. In one case this was due to the haste needed in operating. In using the cord it had once snapped during the operation, and he preferred a wire to a chain. Mr. Morris's allusion to ligature of the lingual artery was valuable, and he agreed with Mr. Hutchinson as to the infrequency of local recurrence. In one case he removed what was thought to be a recurrent mass a year after excision of the tongue. The patient had lived three years and a half since without further recurrence.

EPIDEMIOLOGICAL SOCIETY.

THE thirty-second session of the Epidemiological Society was opened on Oct. 18th, by a conversazione given by Dr. George Buchanan, F.R.S., to members and friends of the Society, at University College, Gower-street. Among the distinguished company present were the Directors of the Army and Naval Medical Services, and other eminent members of the profession. Several

microscopical specimens, illustrating subjects with the study of which the Society is specially concerned, were shown during the meeting. Among them, preparations of the ova and living ciliated embryos of *Bilharzia hæmatobia*, exhibited by Dr. Cobbold attracted special attention. The embryos were seen making vigorous movements within the firm outer shell of the ovum, which finally ruptured and allowed them to escape. The specimens were obtained from the urine of a patient who had contracted endemic hæmatobia while in Egypt. Dr. Klein also demonstrated specimens of bacillus tuberculosis in the sputum and lung from tuberculous patients, from the lung of a cow suffering from bovine tuberculosis (*Perlaucht*), of the bacilli of anthrax and septicæmia, of the bacilli met with in the Welbeck and Nottingham cases of ham-poisoning, and the micrococci present in the lymphatics in ovine variola, and in the blood and liver of patients suffering from infantile diarrhoea. A section through the tongue from a case of *Actinomyces bovis* also showed very beautifully the stellate masses of fungus, surrounded by a deeply-stained layer of inflammatory exudation, containing numerous leucocytes. Specimens of the embryo *filaria sanguinis hominis* from the blood of a patient suffering from chyluria, and from the Chinese mosquito, were exhibited by Dr. Stephen Mackenzie. Examples of *trichina spiralis* in the muscles of a wild boar, of *draconculus* embryos, of the micrococci of diphtheria, septicæmia, pyæmia, and ulcerative endocarditis, and of the ringworm fungus (*trichophyton tonsurans*) artificially cultivated were also shown by Drs. Bastian, Gibbs, Henderson, Mackenzie and Mr. Malcolm Morris.

The first ordinary meeting of the Society will be held at University College on Nov. 1st, when a paper will be read by Dr. Norman Chevers, C.I.E., "On the Sanitary Defects of the Site of London and its Suburbs."

Editorial.

BERKELEYISM IN MEDICINE.

ALL error has truth for its starting-point, and underlying the wildest flight of fancy there is to be found a solid substratum of fact. The philosophy of Berkeley, antithetical as it is to the prevailing belief in matter as the sole embodiment and source of force, has so much truth in it that only the narrow-minded or unreflecting can wholly reject or disregard it. To the intelligent student of the so-called "medical sciences," and to the practicing physician, Berkeleyism supplies the only key that will unlock a world of mystery, and the only guiding principle in the interpretation of a multitude of obvious but unsafe inferences. Translated into the language and terminology of contemporary schoolmen, the essential principle of this system of philosophy may be said to consist in the recognition that the external—as it stands related to our consciousness, whether through the mental or the physical senses—is the reflection of our own conceptions. What we see, hear, smell, taste, and touch are not—so far as we are concerned—the things themselves, but our sensory notions or impressions of them.

Between us, the internal, and the objects that surround us, the external, the very existence of which Berkeley first doubted, then denied, there intervenes a halo or cloud—the personal environment through which all impressions are transmitted and have to be received; and by which every impression is modified, so that when it reaches the mind, and becomes a conception, it only more or less faithfully represents the external, but is never its true counterpart. This is what happens to that which comes to us through our environment. On the other hand, what leaves us is, so to say, projected upon the mirror-like inner surface of the mental and sensory medium that surrounds us; and just as every pane of window-glass plays two parts in relation to light and its pictures, transmitting and reflecting, so that we see through it, and at the same instant see our own reflection on its surface, so in looking at the external through our environment, we see surrounding objects—albeit distorted by our medium—and at the same moment see our own ideas of fact superimposed upon the external and mingling with it in such fashion that it is difficult, sometimes impossible, to distinguish between the true external and the projected imagery of our own mind-chambers.

There is something more in this than merely “seeing things through our own spectacles,” as the phrase goes, because what we see is, in part at least, not an object but a reflection of self contributed by our “environment.” The existence of such a halo or enveloping cloud of consciousness as we have termed the “personal environment”—in a special sense—cannot be doubted as a subjective experience, although some may be inclined to reject it as a scientific proposition. The personal environment—call it what we may—of the child is blank, and yet it strangely distorts his vision of the external. As time rolls on and his education by surroundings is advanced, the horizon of his perception extends, and his strength of view becomes greater, but the projections of his own thought and fancy multiply, and these stand pictured on the medium through which he looks at the external, so that the life of relation is really a life of experience, and experience is always a thing of self, and determined by the way things affect us rather than what they are in themselves.

It follows that, in a very real and practical sense, for ourselves and others, both subjectively and objectively, we need to analyze every impression or description of an impression, with a view to distinguish between the actual and the imaginary. This is not an easy, and it will often prove a very onerous, duty to discharge, but it is one which must be performed at any pains or cost, if we would avoid being deceived and deceiving others. In the study, in the consulting-room, at the bedside, in the laboratory, or in the post-mortem room, in scientific investigation, and in practice, it is indispensable to be severely scrutinizing and to keep the inevitable, and in a way natural, mingling of

the real and the unreal always in mind, if we would be accurate. It follows also that what we have called the “personal environment” is the source and field of impressions and visions which are ideal although they seem actual. Failure to recognize this fact makes otherwise intelligent and truth-loving minds the victims of self-deception in the matter of many of the occult phenomena—for example, those of spiritism, mesmerism, hypnotism, metallo-therapy, and the host of half-truths distorted and transmuted to errors by the intervening influence of the environment with its mental reflections and sensori-motor reflexes.

It is absurd to suppose, and vexatiously wanton to assume, or try to prove, that all the believers in these “isms,” which have done, and are still doing, much to retard the progress of rational science, intentionally deceive either themselves or others. They are simply persons who, from the habit of their intellectual and mental work—using the latter term in its broadest sense—do not recognize the existence, and therefore make no allowance for the influence, of the enshrouding medium which interposes between every consciousness and the external. Ghosts, spirits, waking dreams, dozing dreams, sleeping dreams, and any and all of the objecto-subjective phenomena of consciousness, whether in health or disease, may be real—as real as anything can be—to those by whom they are witnessed or experienced.

The student or practitioner who does not perceive and—which is more to the point—bear constantly in recollection these facts about mental reflection can never be quite safe as regards his own impressions and the use he makes of descriptions of impressions; nor can he be a perfectly trustworthy reporter of experiences and observations for the information and guidance of those with whom he is associated. It is always timely to raise a warning cry in presence of the peril of errors growing out of truths; but it is especially seasonable to call attention to the subject at the commencement of a new session of study and clinical work, in the course of which we are sure to be treated to the narration of divers marvels. It would be well if we could incorporate a spice of Berkeleyism with the crude materialism of what is now deemed rational medicine.

THE CLINICAL TEACHING OF MIDWIFERY.

THERE can be no doubt of the vast importance of, as well as the necessity for, the effectual practical teaching of Midwifery in our medical schools. The great majority of all those who engage in the private practice of medicine are called upon to attend women during their lying-in. A very large proportion of women who suffer from diseases peculiar to their sex refer their suffering to a previous labour, and justly. It has been proved that the mortality in childbed is very great—about 1 in 120; and in all cases of difficult labour two lives,

that of the child and that of the mother, are at stake. These facts sufficiently testify to the importance of midwifery as a branch of medical education, as well as to the necessity of teaching our students the practical details and management of labour in all its varieties. The methods adopted in the English schools differ materially from those in use on the Continent. In France, Germany, and Austria large lying-in hospitals are common, and it is not an infrequent practice to conduct difficult cases of labour in the theatre before a crowd of students when any obstetric operation is to be performed. In this country, on the other hand, such practice is unknown, and the sentiment of the public would doubtless be altogether opposed to its adoption. At the same time, if the practice were of such value that it supplied the student with a knowledge of operative midwifery which he could not otherwise obtain, and in this way proved conducive to the safety of the public, poor as well as rich, the sentiment would be unreasonable, and should be as far as possible treated accordingly.

Operations in midwifery differ from most other operations in this—that they are performed, not under the guidance of the eye, or of the eye and the touch, but of the touch alone. They are done within the pelvis, and little or nothing is to be seen; and witnessing the forceps applied, the perforator used, internal version or any other purely obstetric operation performed, can give the student little or no idea of the manipulation necessary to their safe performance. He can acquire a knowledge of the subject only by doing such operations himself. This knowledge would of course be best acquired on the living subject, under the supervision of a competent teacher. Cases of operative midwifery are, however, not so frequent as to permit of this, and we have to fall back on the next best alternative—operating on a well-made model. By the latter method the student can acquire a fair knowledge of the use of instruments, as well as a certain amount of skill in obstetric manipulation—a knowledge which will enable him to operate successfully and without inflicting injury in the great majority of cases. A knowledge of how to use instruments is not more important in operative midwifery than a knowledge of when to use them. The latter is far more difficult of acquisition than the former. Examination in the living pelvis alone can supply it; and it is in the education of the student in this part of midwifery that lying-in hospitals may prove of the greatest value. There are in London a considerable number of large maternity charities, in some of which thousands of women are attended every year, others in which the patients are counted by hundreds. Several of the largest are connected with our medical schools, and the cases are attended by students. There are others in which all the work is done by midwives, under the supervision of physicians. This material is enormous; but it

is not possible at present, and as the work is now carried out, to make the best use of it in the interest of the public or of the student. For teaching purposes a great part of it is not available. The women attended by the students from our schools dwell in wretched rooms scattered over wide areas, so that not more than one can benefit by each case, and it is not possible for that one even to derive that legitimate advantage from it which he would derive were the patients gathered within a small area where the teacher could personally superintend the labours. For this object lying-in hospitals are necessary, and nothing else can supply their place. There are four lying-in hospitals in London, and, with one exception, there is not the least attempt to utilize the material in them for teaching purposes. We cannot but think that it would be greatly to the benefit of the public, and especially of the poorer classes, where these made teaching in addition to charitable institutions, and were students of our medical schools permitted to enter them under some strict regulations. There would be no difficulty in drawing out a working plan which would prove mutually beneficial to institutions and students, as well as safe for patients.

THE CONSTRUCTION OF SMALL-POX HOSPITALS.

WHEN commenting on the report of the Royal Commission on Small-pox and Fever Hospitals, we referred incidentally to a proposal by Dr. Burdon-Sanderson, F.R.S., for the construction of small-pox hospitals in such a manner that none of the hospital air could leave the hospital buildings without being first submitted to such a heat as would effectually destroy all organic and infective matter. Since then we find that the subject has received attention elsewhere, and there is evidently an increasing desire so to deal with our future small-pox hospitals as to prevent their becoming possible centres of infection, either by means of aerial diffusion or otherwise.

Dr. Burdon-Sanderson's proposal is to construct a hospital with one ward, for twelve patients, of an annular shape on a floor slightly raised above the surrounding ground, and if necessary to increase the accommodation by the construction of one or two more similar wards on a second and third story. In the outer wall of the annular ward, and just above the floor level, are a series of openings into the external air, and in the inner wall, above the head of each patient's bed, and immediately opposite each of these openings, is a similar opening leading to a chamber which forms the centre of the ring. It is intended that this chamber shall be fitted with an extraction-fan, and in its roof would be fixed a gas furnace. All the windows would consist of fixed sheets of glass, and with the exception of doors carefully guarded by springs, and communicating with a corridor, there would, apart from the apertures in the outer wall

of the ward, be absolutely no openings into the external air. Under these conditions, and by the aid of the fan in the central chamber, it is alleged that the air, having first passed over hot-water pipes, would be drawn into the ward through the openings in the external wall, that it would be conveyed at the rate of about one mile an hour over each patient's bed, and that the beds being guarded on either side by septa projecting into the ward, the air would pass out of the openings near the ceiling level in the inner wall of the ring, from which point it would be drawn by the fan up into the furnace. By means of this operation each patient, having 1,200 cubic feet of ward space, would be provided with 10,000 cubic feet of air per hour, and thus it would seem that a quarter of a million cubic feet of air per patient per diem would have to be treated by heat. Dr. Burdon-Sanderson, as the result of his experiments, anticipates that no difficulty would be experienced in securing this end, and he has shown in his description of the proposed hospital how the various necessary administrative details could be attended to without disadvantage to the patients or the staff.

Another scheme, prepared before the publication of the Report of the Commission, was recently submitted to the Leeds corporation by Messrs. Harding, engineers of that town. According to this plan, inlets for fresh air are placed above windows which consist of fixed sheets of glass, and over each patient's bed is a funnel-shaped hood, communicating with a tube which passes round the walls of an ordinary oblong ward, and is then conveyed beneath the flooring to a furnace in an adjoining apartment. The furnace thus exercises an extracting power, and it is assumed not only that none of the air-inlets will become outlets, but that all the ward air will gradually be drawn up the hoods over the beds, and so on to the surface of the fire, where it would be deprived of its infectious qualities.

The principal difficulty which we anticipate in the actual working of a hospital in which every movement of air and all ventilation must, in order to complete success, be dealt with artificially, and in which all air must be drawn out of, instead of driven into, the building, is that of ensuring that none of the openings into the external air shall, under any circumstances, become outlets instead of inlets. Artificial methods of ventilation seldom answer all the ends they were hoped to have attained; and even where the current of air is with certainty directed into the intended channel it is often done at the expense of creating draughts. Of the two schemes we have noticed, we cannot but think that the desired end is more likely to be gained by the plan submitted to the Royal Commission by Dr. Burdon-Sanderson. The warmer air in the upper part of the ward is the air which it is most essential to remove, and this would perhaps be best secured by making the outlets at a much higher level than the inlets, and by fitting both

the machinery of the fan and the furnace with gas, which would continue to work without the need of that constant supervision which always becomes necessary in the case of an ordinary furnace dependent for its efficient working on human labor. Under any circumstances, if the temperature to which the out-going air were subjected in the furnace could be maintained at such a height as to ensure the destruction of all its organic matter with such instantaneous rapidity as would be essential, owing to the necessary velocity of the air-current, a very large proportion, if not all, of the infected air emanating from the patients would be destroyed before it left the hospital buildings, and such portion of it as might find egress by air inlets not sufficiently under the control of the general ventilating machinery, would probably be so small that even in connection with a building containing some thirty-six beds, it would never lead to that mischievous condition of atmosphere in the neighborhood of the hospital which appears to need for its production the aerial emanations of an aggregation of at least some such number as thirty small-pox patients. In short, it is quite possible the suggestions which we have commented on in this article may ultimately be found to indicate a remedy for the dangers which have been shown to attend upon the isolation of any large number of small-pox patients in the neighborhood of centres of population.

BACTERIAL PATHOLOGY.

THE actual value of new discoveries in science can never be at once appraised. It is long before the true relations of fresh facts can be ascertained. They are magnified by the halo and novelty which surrounds them, and which itself depends on the mists of ignorance that prevent us from estimating the proportions, and discerning the position, of a new light in the sky of science. Sometimes a discovery at first is undervalued. Modest and unobtrusive in appearance, its significance is only realized when long-continued observation has shown its true position, or revealed the order to which it is the key. Much more frequently the influence of a new discovery is over estimated. Expectation is aroused by the trumpet-blasts which herald its approach, and the discovery is received with universal acclamation, as explaining all things, or about to explain them—as affecting all things, or about to affect them. This is rarely the fault of the discoverers themselves. New facts are never brought to light but after long and patient search, and he who is most familiar with the region in which the discovery is made is least likely to exaggerate the value of the fresh-found truth. Of no advance in medical science is this more probably true than of the wave of discovery on the crest of which pathologists now find themselves. Far be it from us to undervalue the remarkable facts of the relation of living organisms to disease, which have been ascertained by the

not less remarkable investigations of the recent years. Their profound importance is beyond all question, and they will certainly constitute a chief landmark of the progress of medical science in the present century. But in the profession, and even more outside it, there has been, and still is, a widespread expectation of practical results of the highest importance from these discoveries—an expectation of an immediate and vast increase in our power of dealing with disease, of preventing its occurrence, and of curing it when it has developed. A caution is needed against such exaggerated expectation. That "knowledge is power" is not, alas! an aphorism of universal application. Doubtless, no great advance in our knowledge of disease can ever occur without entailing some increase in our power of coping with it, but every consequence does not closely follow its cause, and though knowledge comes, wisdom, its practical application, lingers on the way. It may be doubted whether there is at present any satisfactory evidence that these discoveries have yielded the slightest increased power of dealing with the diseases of mankind. Most, if not all, the means of treatment and of prevention, which they suggest, have been in use before, and if they have suggested some new methods, the value of these has not yet been proved by practical results. The discoveries enable us to understand the *modus operandi* of certain influences, morbid and therapeutic, more clearly than before, but there are others on which these new facts do not at present throw the faintest light.

We may take as an instance the remarkable discoveries regarding the relation of bacteria to tuberculosis. These have been at once received as evidence of the contagiousness of phthisis. All that they really do is to enable us to understand how phthisis may be contagious. They afford no proof that it is, and at present there is no more evidence of its contagious character than there was before. Rare instances of its apparent communication from one person to another have long been recorded, and before the discovery of the organisms there was some evidence—not very strong, however—to show that the disease may be produced by the consumption of the flesh of diseased animals, and still slighter evidence that it may be contracted from milk. But this is all. Indeed, so far as the indirect influence of the discovery can be traced, it has rather increased the evidence to show that the disease is not contagious, for it has led to the collection of facts, such as those lately published by Dr. Theodore Williams, which prove that the conditions of aggregation, which conduce most powerfully to the extension of really contagious diseases from the sick to the well, are without influence in the case of phthisis. On the other hand, the discovery of the bacteria has increased the difficulty of explaining the influence of heredity, and still more the influence of subsoil drainage on the occurrence of the disease, so ably worked out by

Dr. Buchanan. It has led to the adoption of antiseptic expedients in the treatment of phthisis, to the suggestion of numerous inhalers and inhalations, but there is at present no evidence of their specific utility to the patients, although there is considerable evidence that they are of practical value as a means of displaying the names of physicians on the counters of chemists.

The discoveries and inferences regarding the relation of organisms to acute specific diseases force the same conclusions upon us, and also upon others, if we may judge from the cautious utterance upon the subject which Prof. Jaccoud lately delivered, in a lecture inaugural to his course of medicine at Paris. The question of the origin, prevention, and treatment of the acute specific diseases of man remains exactly as before the discovery of the relation of special organisms to some of them. Very wisely does Prof. Jaccoud warn his hearers against the "exclusivism" which would regard the bacteria as all and everything in the pathology of disease. He reminds us that the liquids in which bacteria grow have been proved to have toxic properties apart from the formed organisms, and that even the right to accuse bacteria of being the infective agents where they have been found, does not give us the right to accuse them where they have not been found. It is still unproved whether the different bacteria are of specific nature, or whether they acquire specificity under certain conditions of development. "Knowing," he concludes, "the influence of the infected bacteria, we know one of the agents—say, if you will, the most powerful agent—in the diffusion and conservation of infectious diseases; but this conception still leaves us as ignorant of the morbid poison itself, leaves us as powerless in direct prophylaxis, as we were when we spoke of miasma instead of bacteria. Now, as then, we can only learn the real causes of these diseases by ascertaining the conditions in which the infective agents, judged by their effects, arise; by ascertaining the circumstances which limit or facilitate their diffusion; and by ascertaining what conditions, cosmical and personal, are opportune for their development."

Reviews and Notices of Books.

Chapters in the History of the Insane in the British Isles. By D. HACK TUXE, M.D., F.R.C.P. London: Kegan Paul, Trench & Co.

DR. HACK TUXE'S work is an addition to the literature of insanity that was greatly needed; it has been executed at the right time, and the author is in every way qualified for the work he has undertaken. His book manifests a wide and liberal comprehension of this subject; bears evidence of a most intimate and thorough knowledge of all relating thereto; and shows a most laborious, exhaustive, and painstaking power of research, together with an impartiality and freedom from

prejudice most remarkable in one so intimately connected with and so deeply interested in his subject. The wish might perhaps be expressed that Dr. Tuke had not been so simply historic, but had at times appended his own conclusions in regard to the opposing opinions so clearly and fairly stated. In manner the facts are well put and interestingly associated. The book will not only be a medical classic, but will be read with interest by laymen, and may thus greatly aid in dispelling the ignorance that exists in the public mind in regard to asylums and the treatment of the insane.

The early chapters trace the popular idea of insanity, from the belief in demoniacal possession prevalent in early Saxon times, to the later beliefs in witchcraft and peccant humors in the blood. Side by side with this, the treatment is given, often amusing, in the mixture of exorcism, of superstitious spells, and of emetics and purgatives, with flagellation.

The history of Bethlem and St. Luke's displays a great amount of interesting antiquarian research, and affords an opportunity for the comparison of the former and present treatment of the insane by the introduction of plates representing a ward in Bethlem in 1745 and one at the present day, the details of which are more convincing than any words could be. A sketch of the miserable state of lunatic asylums in England, emphasized by the unfavorable comparison made by John Howard between St. Luke's and an asylum in Constantinople, is followed by the history of the foundation of the York Retreat in 1792 by William Tuke, the grandfather of the author. The principles for the moral treatment of the insane, laid down by this noble man, and quoted here, must ever remain as fundamental truths.

The history of the legislation for lunatics is next carefully traced, with the date of establishment and cost of the various principal asylums, acknowledgment being made of the great share taken in this work by the present chairman of the Lunacy Commission, Lord Shaftesbury.

In the next chapter the development of the non-restraint system is shown. The first efforts were made at the Lincoln Asylum by Dr. Charlesworth from 1819 to 1835, and from that date to 1839 by Mr. Gardiner Hill, who was the first to assert the principle of the entire abolition of mechanical restraint. Drawbacks in the shape of broken ribs, etc., at the Lincoln Asylum, as Dr. Tuke points out, might have produced a reaction but for Dr. Conolly's success at Hanwell, leading to the almost universal adoption of the principle in Great Britain. The disadvantage of large asylums in the loss of "individual and responsible supervision" is quoted from the Report of the Commissioners in Lunacy for 1857; regret must be expressed that this principle has been so much lost sight of in later years. The assertion made in the same report that large asylums are more costly than small is refuted by statistics, in an appendix. It should be remembered, however, that an economy may be apparent only.

Chancery Lunatics form the subject of another chapter, in which Dr. Lockhart Robertson's comparison of the 34.6 per cent. of those patients treated in private houses with the 6 per cent. of private patients so treated under the Lunacy Commissioners is reproduced.

In the chapter on Idiots and Imbeciles attention is drawn to the fact that accommodation for the teaching and training of this class in England is only provided for 1,147, or 3 per cent. of the estimated total in the population. Dr. Tuke advises the establishment of additional training institutions, and quotes the conclusions of the Charity Organization Society on this subject.

The history of the insane in Scotland is given in a very interesting form. It is noteworthy that so early as 1838, in some Scotch asylums amusements and employment were very fully carried out, while in 1855 the condition of the insane in many others was of a deplorable character. The points of treatment coming into vogue in Scotch asylums are also dwelt upon, such as the abolition of airing courts, the open door system, and liberty on parole.

In Ireland, so late as 1815, it was reported to a special commission "that when a strong peasant becomes insane the only way they have to manage is by making a hole in the floor of the cabin, not high enough for the person to stand up in, with a crib over it to prevent his getting up." Dr. Tuke traces, with his usual care, the legislation by which this condition of things has been amended.

The book concludes with the interesting address on the progress of psychological medicine during the last forty years, delivered by Dr. Tuke to the Psychological Association in 1881.

No one can arise from the perusal of this work without feeling an increased interest in the advancement of the humane treatment of the insane; and the hope may be expressed that this book may exercise an important influence in preventing the principle of "personal treatment," advocated by his illustrious ancestor, from being overlooked or ignored, in the tendency to excessive size in asylums, which an erroneous idea of economy is now developing.

Die Öffentliche Reconvalenscentenpflege. Von Dr. PAUL GUETERBOCK. Leipzig: F. C. Vogel. 1882.

THIS work relates to the treatment and management of convalescents in homes and in hospitals. All points connected with this subject are discussed fully in every detail, so as to make the volume extremely valuable for purposes of reference. The first portion of the work especially aims at establishing beyond all question the necessity for the existence of convalescent institutions, and the importance of treating convalescents from a public health point of view. After considering most of the details connected with their situation, construction, and management, the author gives a plan and account of the asylum at Vincennes, and another of Burdett's "Convalescent Cottage Hospital." He takes these two as typical examples of what convalescent hospitals should be, although they are constructed on different principles. The vexed question of day rooms is fully gone into, and although Dr. Gueterbock approves of them as a whole, still he recognizes Miss Nightingale's objection as to the difficulty of preserving discipline in them. He insists that patients recovering from chronic maladies should be just as much entitled to admission as those after acute diseases, and also that the treatment of convalescents should not be considered purely as a matter of charity. The second part of the volume is devoted to the special consideration of the working of the system in those European countries where it may be regarded as having taken firm root—namely, in Germany, England, and France, brief mention also being made of Italy, the Netherlands, and United States of America. It is flattering to read page after page of testimony to the efficiency and excellence of the English establishments. The boarding-out system is also highly extolled; although the author wisely remarks on the necessity of a very careful choice of boarders; not so much on account of their special ailments as of their moral character and social condition; in his opinion it is especially of advantage in chronic cases. Dr. Gueterbock, however, has apparently not become acquainted with the excellent results of the system obtained in connection

with the Cork Union, which were published not long ago in *THE LANCET*. In conclusion, the volume dwells upon the position of Germany as regards public convalescence; and the author deplores the backwardness of his own country and the lack of interest taken in the question by its people. We can cordially recommend Dr. Gueterbock's book; it is sound, practical, and thoroughly trustworthy, and fully maintains the credit the German school has obtained for producing works of solid information based on industrious research and high scholarship.

The Journal of Anatomy and Physiology. Conducted by Professors G. M. HUMPHRY, WM. TURNER, and J. G. McKENDRICK. Vol. XVII, Part I. October, 1882. London: Macmillan & Co.

THIS number contains eleven articles, namely:—
1. The Lymphatics of the Walls of the Larger Bloodvessels and Lymphatics, by George and Elizabeth Hoggan. 2. Micrococcus Poisoning, by Alex. Ogston. 3. Omphalo-Mesenteric Remains in Mammals, by Dr. W. Allen. 4. The Action of Saline Cathartics, by Matthew Hay. 5. A hitherto undescribed Fracture of the Astragalus, by Francis Shepherd. 6. A Secondary Astragalus in the Human Foot, by William Turner. 7. Note on the Rectus Abdominis et Sternalis Muscle, by G. E. Dobson. 8. Ectopia Vesicæ, and other Imperfections of Development in a New-born Infant, by Francis Ogston. 9. Nickel and Cobalt, their Physiological Action on the Animal Organism, by Dr. Anderson Stuart. 10. A Kerato-thyro-hyoid Muscle as a Variation in Human Anatomy, by S. G. Shattock. 11. Cæsalpino and Harvey, by Professor Humphry.

Schematic Anatomy; or, Diagrams, Tables and Notes, treating of the Association and Systematic Arrangement of Structural Details of Human Anatomy. By W. P. MEARS, M.B., co-Lecturer on Anatomy, Supervisor of Dissections, and Medical Tutor at the Durham College of Medicine, Newcastle-upon-Tyne. London: Baillière, Tindall & Cox. 1882.

THE aim of this work is decidedly novel. Students and lecturers have always made use of diagrams and notes of associated facts in learning or teaching the numerous details of human anatomy, but we have never before seen such an ambitious attempt at "aids to memory" as is here presented to us. The bones, ligaments, muscles, vessels, and nerves are tabulated and delineated—we cannot say described—and we are promised the viscera in a second volume. The student is recommended to display the facts on the dead subject in the first place, and then to fix them in his memory by means of a corresponding schema or diagram. If there were any real relationship between the dissected part and the mathematically-drawn figures in this work, it would be a valuable addition to the text-books used by the student, but the more elaborate the schemata and diagrams become, and the more closely the associations are urged, the more apparent are their divergences from the true details of human anatomy. In the sketch of the femur, facing page 36, the relative attachments of the muscles are inaccurately shown, for the insertion of the adductor longus is made to correspond in extent with the origin of the femoral head of the biceps, and more space is allotted to the plantaris than to either head of the gastrocnemius. The diagrams of some of the

plexuses are most extraordinary, and representations by exactly similar outlines of the inferior dental, gustatory, glosso-pharyngeal, and hypoglossal nerves and their branches (p. 176), must confuse the student rather than diminish his labors. The book has evidently caused Mr. Mears much trouble and thought, but an instance on the constant use of the scalpel and forceps is the only true method of teaching anatomy, and a few diagrams and tables constructed by the student himself from his own dissections will remain much longer in his memory than the elaborate and somewhat complicated system drawn up by the author.

The Tissues and their Structure. A description of the Elementary Tissues of the Human Body. By A. S. KENNY, M.R.C.S.E., Senior Demonstrator of Anatomy in King's College, London. London: David Bogue. 1882.

THIS small work of 120 pages contains a very clear and accurate description of the elementary tissues and their functions, and is especially adapted for beginners in histology. It will enable them to form some conception of the general structure and functions of the tissues which they are practically investigating, and should be used with the text-book, which directs them how to proceed with their manipulations. The book is well printed, and the illustrations, many of which are quite new, are excellently drawn.

The Compend of Anatomy. By JOHN B. ROBERTS, A.M., M.D., Lecturer on Anatomy and on Operative Surgery in the Philadelphia School of Anatomy, etc. Second Edition, revised. London: Henry Kimpton. 1882.

THE fact that a book has rapidly run through a first edition is a recommendation in its favor, but we entertain a great distrust of small works that assume to give concise statements of what is deemed essential to the student in human anatomy or any other science. This distrust is not removed by the volume before us, for all the *essential* details are contained in less than 200 pages. The necessary conciseness has been obtained at the expense of adequate description, for the only details of muscles and nerves which the author gives are those which can be seen at a glance in a series of tables. It is announced in the preface that the statements and general arrangement of Gray have been followed, and this is evidently true, for the book appears to us to be merely an abridgment of that work, whilst many of the advantages and excellences of the latter are lost. The only novelty is a partial substitution of English names for Latin ones, and this is not always an unmixed gain—e.g., is "compend" a better word than "compendium"?

Publications of the Association for the Advancement of Medicine by Research. London: J. W. Kolokmann. 1882.

THE Association for the Advancement of Medicine by Research has issued its first batch of publications, consisting of four pamphlets. They are none of them new, but are reprints of addresses on the aims, methods, and purposes of scientific experiments on animals. We are glad that the Association has utilized the excellent address of Mr. Simon at the opening of the State Medicine Section of the International Medical Congress. This bears the title of "Experiments on Life," as funda-

mental to the science of preventive medicine, and set forth in a most masterly manner the value and extreme economy of direct experiment upon living animals. Two other of the pamphlets regard the practical results to surgeons of vivisectional experiments; these are Dr. Humphry's short address at Hyde, entitled "Vivisection; what good has it done?" and Dr. McDonnell's address delivered before the Surgical Society of Ireland, entitled "What has Experimental Physiology done for the Advancement of the Practice of Surgery?" With the former of these our readers are familiar, as it has already been widely circulated among the profession, with whom it is judged to have but one failing—brevity. Dr. McDonnell's Address is an extremely useful one, and deservedly ranks with those already mentioned. No attempt is made to detail all the benefits surgery has derived from experiments on animals; reference is chiefly confined to their value in the study of anaesthetics, the introduction of the administration of potent remedies by hypodermic injection, the bloodless surgery now so generally practiced, the arrest of hæmorrhage, and the treatment of wounds. The fear that performing or witnessing such experiments blunting the moral perceptions is shown to be entirely groundless. The fourth of this series of pamphlets is Mr. Wm. Bowman's Address in Surgery, read at Chester, at the meeting of the British Medical Association in 1877. The main topics of this address are the essential unity of the art, its dependence upon science, and the advantages of union and organization for the promotion of common objects. Incidentally Mr. Bowman vindicates the right and duty of experiments on living animals; and this it is, we presume, which leads to the republication of this address at the present time, and in its present form. We congratulate the Association on so quickly setting to work, and on the choice it has made for its first publications, which we hope will be very widely read and studied. The best support the profession can give to the Association is to become apt pupils, to avail themselves of the opportunities afforded of obtaining thorough acquaintance with the part scientific experiments have played in the vast strides our art has made during the last century; and a wise distribution of their pamphlets among the more intelligent of the general population will also greatly aid the cause we have at heart.

Die Parasitären Krankheiten des Menschen. I. Entwicklungsgeschichte und Parasitismus der Menschen Cestoden. Von SIGMUND THEODOR STEIN. (*Parasitic Diseases of Man. I. Developmental History and Parasitism of Human Cestodes.* By SIGMUND THEODOR STEIN.) Lehr: Schauenburg. London: Trübner. 1882.

THIS handsome monograph upon the very interesting class of tapeworms is, as the title-page and introduction inform us; but the first of a series of similar works dealing with the parasites of man that Herr Stein has in view. He intends to issue another part dealing in like manner with the nematode, trematode, and arachnid parasites; a third with the dermatozoa, epizoa, and epiphytes; a fourth with the protozoa, infusoria, and fungi. The present treatise commences with a brief historical introduction, in which the labors of von Siebold, Leuckart, and Küchenmeister are especially dealt with; but we fail to find any reference to English writers in this place. In justice to the author, however, it should be added that in the body of the work he shows himself fully acquainted with Dr. Cobbold's labors. The first chapter deals

with the larval condition of tapeworms, and is copiously illustrated with figures of mealy flesh and the cysticerci. Indeed, the whole volume is most fully adorned with engravings, in addition to fourteen large photo-lithographic plates at the end. The second chapter treats of the developmental history of the human tapeworm: first the characters common to *Tænia solium* and *T. saginata* (*T. mediocanellata*) are described, and then the differential points. Then comes a description of each of these worms in the adult form, followed by full and minute details as to the formation of the generative organs and the development of the embryo. The genus *Bothriocephalus* forms the subject of the third chapter; the same minuteness of description characterizing the previous studies being also shown here. Of course, most of this chapter deals with the common form, *Bothriocephalus latus*; but a section is devoted to the rarer species, *B. cordatus* and *cristatus*. In the fourth chapter we have descriptions of such rarer *tæniæ* as *T. nana*, *T. flavopuncta*, *T. cucumerina-elliptica*. The fifth chapter is entitled, "The influence of tapeworms and their progeny on the human body, including therapeutical measures." The sixth chapter treats of the echinococci, and concludes the work. The following figures compiled from Davaine, Cobbold, Finsen and Neisser are interesting as showing the comparative frequency of hydatid disease in various organs:—Out of a total of 1,862 cases, the liver was the seat of the parasite in 953, intestinal tract in 163, lungs and pleura in 153, kidneys, bladder, and sexual organs in 186, brain and spinal cord in 127, bones in 61, heart and bloodvessels in 61, and other organs in 158. The work bears evidence of considerable original research and an extended study of the literature of the subject.

Spirillum Fever (Synonyms, Famine or Relapsing Fever), as seen in Western India. By H. VANDYKE CARTER, M.D. Lond. London: J. & A. Churchill. 1882.

THE terrible famine that ravaged the western provinces of India some five years ago was succeeded by an epidemic of fever which in its leading features was unlike any other type of fever hitherto recognized in that country. As the sick flowed into the great centres of population, the fever spread there also, and Bombay became the focus of an epidemic; its hospitals were crowded with patients, and a medical commission was soon actively engaged in studying the disease. Chief amongst these was the author of this work, who has here presented us with the results of his investigations and matured experience. Taking up the work with his characteristic thoroughness and energy, it may truly be said that he has probed the disease to the bottom, and his monograph will occupy a foremost place in literature. It is a monument of patient, prolonged, and exhaustive labor; and adds to the reputation of its author as a careful and conscientious investigator.

We have indicated that until the occurrence of this epidemic, relapsing fever was hardly known in India. This no doubt was because, as Murchison, indeed, points out (and Hirsch writes in the same sense), it had been confounded with "bilious intermittent" and other tropical fevers of malarial origin; and this or a like confusion relapsing fever probably shares with other specific fevers, modified by the climatic conditions under which they arise. There can be no question at all as to the identity between the fever described by Dr. Vandyke Carter and the relapsing or famine fever formerly so well-known nearer home. Ireland used

to afford the most numerous examples of epidemics of this contagious famine fever, and Scotland and England have suffered also, but not of late years. We question whether a single case has been seen in London during the past ten years. No doubt there is great cause for congratulation in this fact, although it has prevented our home physicians from following up the remarkable discoveries which more than any other have so stimulated research into the relation between micro-organisms and specific diseases—we mean the discovery by Obermeier, of Berlin (who fell a victim to his zeal), in 1873 of the spirillum in the blood of patients suffering from relapsing fever, of its occurrence during the pyretic paroxysms, and its disappearance in the apyretic interval. The peculiar form of the bacterium and its constantly observed presence in such cases soon led to the discovery being confirmed wherever opportunity offered. Such an opportunity came to Dr. Vandyke Carter and his colleagues in this Bombay epidemic; the result being that Obermeier's researches were not only confirmed, but the essential part played by the organism became so evident that, as the title of this work shows, the term "relapsing" has been thrust aside, and for it has been substituted the name by which the bacterium is denoted. It is at all times a hazardous thing to import new terms to designate well-known affections, and some may doubt the wisdom of Dr. Carter's step. For it will be long before the phrase "relapsing fever" will be universally discarded, even although, as Dr. Carter insists (and this is the strongest justification for the change he adopts), there are many cases in which the "relapsing" feature, hitherto adopted as the criterion of the disease, has been lacking, whilst the other, and on scientific grounds the sounder criterion—viz., the presence of spirillar infection—has been present. The occurrence of the spirillum as the leading and most constant feature of the disease cannot, after these researches, be gainsaid; and when to this is added the fact of the high degree of contagiousness and the results of inoculation, which Dr. Carter and Professor Koch have successfully performed, there is left no room for doubt as to the very important part played by the spirillum in the disease.

Dr. Carter's work deals first with the history of the epidemic upon which it is based, and shows that the cases occurring in Bombay were imported or developed by contagion from these. He contrasts the prevalence of famine and the fever, and raises the interesting question whether relapsing fever may not now become endemic in Bombay as in other regions. The occurrence of cases since the epidemic and within the last twelve months is in favor of this. The clinical history of the disease is dealt with in a most exhaustive manner, first by a general summary, and then in a very elaborate analysis of each symptom, of the pyrexia and its variations, and of complications. Many illustrative cases are given, and the amount of information sifted and analyzed is very great. Chapters on its mortality, on the anatomical lesions, on diagnosis, prognosis, and treatment, follow; but it is not possible within our present limits to analyze these here, and we prefer to pass to the section entitled the Pathology of Spirillum Fever, as it contains those facts which, where all is interesting, are perhaps of most interest.

The examination of the blood is fully detailed, and its characters during the non-febrile and febrile stages are described. In the incubation period, as observed chiefly in inoculation experiments on monkeys, the main difference from normal blood consisted in the presence of granular protoplasmic masses, and by the third day a few spirilla, and during the apyretic intervals in man

protoplasmic granules preceded the first appearance of the parasite as the pyrexial stage was reached. In the febrile stages, during the first attack, the spirilla increased in number until the height of the pyrexia, when they rapidly disappeared, being replaced by granular masses and an increased number of leucocytes. In the first relapse the spirillum reappears and remains longer than in the primary attack; in the second relapse it is less abundant, and in cases of third and fourth relapses the spirillum is often not seen, but only some immature filaments. By means of charts the author represents graphically the fact of the increase in number of the spirilla concurrently with the rise of the pyrexia in two typical cases of the first relapse, and gives the following data as pointing to a "real connection of spirillar blood contamination with the pyrexial attacks of relapsing fever:—(1) Infection is always followed by fever. (2) With the advent and progress of pyrexia the blood-parasites increase. (3) They disappear with the cessation of fever. (4) By contact with the sick and by inoculation of blood containing the spiral organisms or their germs, the disease may be conveyed to new or old subjects." And he adds as "modifying the connection above implied—(1) The presence of the blood-parasite during several hours, or for one or two days, prior to fever. (2) The sudden onset of pyrexia is not preceded by or attended with a proportionate visible augmentation of the spirillum. (3) The absence of any fixed relation between variation in form and intensity of fever, and varying numbers of the organism. (4) The persistence of the parasite during pseudo-crises and defervescence by lysis." (p. 361). In the next chapter, dealing with etiology, we find much valuable information upon the propagation of the fever by contagion and by direct inoculation (as in the making of post-mortem examinations of infected subjects), with the important conclusions that the disease spreads solely through means of actual contact with the sick; and that no immunity is conferred by a first attack. The author indicates the cutaneous transpiration and the breath of the sick as the probable channels of contagion. The concluding chapter upon the nature of the disease is a review of its main features in the light of the doctrine of spirillar infection. "Regular relapsing fever was never seen without spirillar infection, and though the infection may fall short of producing such clearly recurrent fever, yet it always tends to induce it. The question whether or not the spirillum alone and *per se* produces the fever cannot be answered until the organism be completely isolated and its pathogenic power tested then as well as after cultivation in other media than the blood. At present no pathologist has succeeded in doing this; but in some comparative instances (e.g., the organisms of anthrax and some kind of septicæmia), such testing has been accomplished, with the result of demonstrating these parasitic growths to be the *vera causa* of disease."

In an appendix Dr. Carter gives an account of his experimental inoculation of spirillum fever in the monkey, some culture experiments, and concurrent fevers at Bombay, chiefly remittent and typhoid. A large number of temperature-charts are given illustrative of the different modifications of the disease.

Although we have but cursorily glanced through this work, it is not because we deem it other than one of the most original and valuable contributions to medicine that has appeared of late years. The pages are full of facts personally observed by the author, and the conclusions he derives from these are drawn up with the caution and pains so characteristic of all his work. The appearance of such a

monograph as this adds to the obligations which medical science already owes to the earnest band of inquirers who have done so much to advance our knowledge of fevers in India, whilst it will also do much to stimulate research into the intimate pathology of the fever of which it treats, and of allied specific diseases.

The Surgical Treatment of Hæmorrhoids. By WALTER WHITEHEAD, F.R.C.S.E., Surgeon to the Manchester Royal Infirmary. London: J. & A. Churchill. 1882.—Mr. Walter Whitehead has published, in a separate form, his paper on the Surgical Treatment of Hæmorrhoids. His mode of operating is, after clearing out the bowels thoroughly by repeated enemata, and with the patient fully anæsthetized, to begin the operation by paralyzing the sphincter ani by stretching and massage; each pile to be removed is then seized with a forceps, and the mucous membrane dissected from its pedicle; the pile is then left attached to the rectum by its bloodvessels and submucous tissue only; this pedicle is then twisted through, the torsion being relied upon to close the vessels. The little flap of mucous membrane that is left is then stitched with fine catgut to the verge of the anus. It is urged in favor of this operation that it is precise, removing the whole pile and nothing more, that no open wound is left, and that it is easy and quite safe.

First Aid to the Injured: Five Ambulance Lectures. By Dr. FRIEDRICH ESMARCH, Professor of Surgery at the University of Kiel. Translated from the German by H.R.H. Princess Christian. London: Smith, Elder, & Co. 1882.—This is a far more attractive-looking little manual than that published by the Order of St. John of Jerusalem. It is printed on good paper, nicely bound, and the few illustrations are well executed. But it does not contain so much nor such exact information as its little black rival. The part that strikes us as being best done is the last lecture on transport, in which the instructions are plain and simple. In some other places too much space is devoted to a description of what the surgeon will do, and what therefore the reader is not to do, and is quite out of place. Many details which are necessary are entirely omitted: for example, in speaking of the temporary treatment of a fracture, the materials out of which splints and bandages to fasten them on are enumerated, but there is no hint of how long or how wide the splints should be, nor as to where they should be fastened. For burns a mixture of carbolic acid and oil is one of the dressings recommended, but we do not read that it is desirable to add any particular proportion of acid to the oil. But these criticisms merely indicate how difficult it is for even a very eminent surgeon and experienced lecturer to impart the desired amount of knowledge in five ambulance lectures. Her Royal Highness has, however, furnished the numerous pupils of these ambulance lectures with a very pleasant, readable manual which contains a great deal of useful information imparted clearly and well.

A Manual of Instructions for Stretcher Bearers. By Dr. G. A. RUEHLEMAN, Surgeon-Major, Saxon Army Medical Corps. Leipzig: Alfred Lorenty. 1882.—This is a small album of twenty-five plates, originally prepared for the Imperial German Army, but now published in several languages. The first plate gives a view of the skeleton, the position of the main arteries and most important viscera, which is by no means accurate; thus the bifurcation of the aorta is placed opposite the second instead of the fourth lumbar vertebra; the femoral artery at the groin is shown close to the outer side of the

pubic spine; and the brachial artery is shown dividing into the radial and ulnar above, instead of below the elbow joint. The following plates show simple and ready means of applying pressure to control hæmorrhage; the various modes of applying the triangular bandage, and temporary splints of all kinds; the different plans of lifting and carrying wounded persons; the ways of extemporizing stretchers and ambulances, and the Silvester method of performing artificial respiration. The text does not give any directions, so that the album is only of service in refreshing the memory of those who have been previously practically instructed, but for this purpose it is well adapted, as the drawings, with the single exception we have already pointed out, are admirably done.

Medical Annotations.

"Ne quid nimis."

THE TREATMENT OF ENLARGEMENT OF THE SPLEEN.

INJECTION of drugs into the substance of the spleen has been lately tried as a means of obtaining a reduction of the bulk of the organ in cases of hypertrophy. Hammond obtained a rapid reduction in size by the injection of ergot. Kusmaul, of Strasburg, endeavored to lessen the size of the organ by simple puncture with a large needle, hoping thus to produce a hæmorrhagic infarct which might cause atrophic shrinking, and by repetitions of the process a considerable reduction in size of the organ. The result, however, disappointed his expectation, for no marked effect was produced by fourteen punctures. Galvano-puncture was tried four times, with no better result. A parenchymatous injection of .1 gramme of sclerotic acid was made, and death followed in six hours. At the autopsy, no trace of hæmorrhagic infarct could be found in the organ; only around one of the punctures was there a reddish zone. The patient was suffering from leucocythæmia, and, whether death was caused by the sclerotic acid or not, the lesson is certainly taught that injections should be made into the substance of the spleen in that disease with extreme caution. Mosler, of Greifswald, has tried injections in other forms of enlargement with success, but prefers Fowler's solution to ergot, and has found those cases most suitable in which the spleen is hard. He thinks it well also, to apply ice to the splenic region for some hours before an injection is given. A remarkably good result has been reported by a St. Louis physician, Dr. Emanuel, of the internal use of ergot. The patient was a gentleman forty-three years of age, whose spleen was so much enlarged as to fill almost the whole of the abdominal cavity. It was firm and tender, and the patient affirmed that the swelling had existed for two weeks only. There was no history of malarial disease. Thirty drops of Squibb's extract of ergot were given three times a day, and the dose gradually increased to sixty drops. In three days the spleen had lost much of its hardness, although its size remained nearly the same. A week later, however, it was distinctly smaller; every day the diminution went on, and in a few days more the spleen was reduced to nearly the normal size.

THE PROTECTIVE POWER OF VACCINATION.

ANTI-VACCINATIONISTS have been desirous to find in the interesting quarrel which is now going on in Switzerland between the Cantons and the Fed-

eral Council evidence of the growth of an increased objection not only to compulsory vaccination, but to vaccination itself. It has, however, been clearly shown that the dispute which has arisen has really no reference to vaccination at all, but is simply an unwillingness on the part of the Cantons to allow the Federal Council to legislate on subjects which have until recently been solely under the control of individual Cantons. There is, therefore, nothing in recent events in Switzerland to lead to the belief that vaccination is less valued than formerly. That public opinion should not be equally strong upon this or any other subject in every part of Switzerland or England is no matter for surprise, but the question of the extent to which individuals are protected against small-pox is one which does not alone concern the particular town in which they are resident, and cannot therefore in our country, where the railway gives such ample opportunity for the communication between one town and another, be wholly entrusted to local authorities. A correspondent, Dr. Mitchell, writing from Meudon, in France, urges that the real issue involved in the difference of public opinion with regard to vaccination is, whether vaccination really protects, and he offers to join in an experiment by which he and an unvaccinated person shall submit to the inoculation of small-pox. In a letter to *The Times* some two years ago, Dr. Cory pointed out that this was the simplest way of proving by direct experiment the amount of protection afforded by vaccination. There are legal difficulties in the way of intentionally carrying out this proceeding in England, but the unintentional inoculation with small-pox matter of vaccinated attendants in small-pox hospitals is a matter of daily occurrence; and although an occasional local abscess is produced, the fact that these people escape small-pox is well known. It can hardly be expected that people who are unwilling to accept this evidence, which is constantly before their eyes, will be convinced by other experiment, however definite in character it may be.

THE GERMAN APOTHECARIES' CONGRESS.

THE Union of German Apothecaries numbers 2,755 members, who are distributed throughout all parts of the empire, and who have in most cases, for local purposes, their own separate organizations affiliated to the central body. This Union was held at Berlin during the month of September, being its eleventh annual congress. Amongst the matters of interest brought forward was the action which has been taken by the Mecklenburg Apothecaries' Union in conjunction with the Mecklenburg Medical Society for the purpose of restraining the sale of advertised specifics. Reference was made to the new edition of the *Pharmacopœia Germanica*, which contains many changes as compared with older editions; a work is in preparation which will give a summary of these changes. Professor Reichardt, of Jena, furnished some interesting details as to volumetric analysis according to Gay Lussac's system, with special reference to the testing of preparations connected with pharmaceutical chemistry. He remarked that volumetric analysis combines the use of measures with chemical analysis, and has certain advantages over analysis by weight, from the fact that it does not depend upon the exactness of the scale and the skill of the analyzer, but upon the visibility of a reaction much more easily observable than is the case with other methods. The funds of the Union amount to about £13,000. There are thirty stipends of £7 10s. per annum granted from the pension fund, and an extension of the pension list from another branch of the revenue of the Union

is in contemplation. Out of the general fund for the maintenance of the families of deceased apothecaries the estimated annual grants for 1883 are 100 in number, amounting in the aggregate to £600. The question of the employment of persons without any pharmaceutical training as salesmen in chemists' establishments was discussed, with reference to the regulations introduced this year by the Government of Saxony. It was agreed that such a step was both unnecessary and unadvisable in the interests of the safe exercise of the apothecary's calling, and that if adopted it would lead to further evils by the fact that persons would be introduced into the calling who might afterwards be found injurious to it. Dr. Tschirch read a paper upon micro-chemical methods of reaction in the service of technical microscopy. Dr. von Waldheim, of Vienna, reported upon the progress which has been made in the preparation of a *Universal Pharmacopœia*. An international commission of thirty-two delegates (from Europe and America) has been engaged in the task. Its object is the publication of the formulæ of those simple and compound medicinal substances respecting which, on account of the potent nature of their component parts, it is in the interest of the public that when prescribed by a physician of any country they should be dispensed of the same quality and strength by any apothecary in the civilized world. The questions of deodorization and disinfection were discussed by Dr. Franke, of Charlottenburg, in an exhaustive paper, which completed the programme. Weisbaden was chosen for the next annual congress.

MICROCOCCI IN MEASLES

WE mentioned a few weeks ago the purport of a paper lately read by Dr. Keating before the Royal College of Physicians of Philadelphia on the above subject. The full text of the paper has been published in the *Philadelphia Medical Times*, and the interest of the subject should be sufficient apology for dealing with it again. It may, however, be remarked that four years ago Drs. Braidwood and Vacher communicated to the Pathological Society of London a paper upon the same subject, in which they described highly refractile spherical bodies in the breath of measles patients, and similar bodies, together with rod-shaped, fusiform and ovoid forms, in the corium, lungs, and liver. They pointed out the resemblance of these bodies to the vaccinia-micrococcus, and referred to some earlier work by Hallier and G. Simon in the same line. At the time, if memory serves us aright, these observations of Braidwood and Vacher were not followed up, and, perhaps owing to the fact that bacterial pathology was then less in vogue, were not much accepted. Dr. Keating's research seems, however, to substantiate their facts, although he limits his microscopical investigations to the blood. These investigations were made by Dr. Furniss, who had previously carried out a similar research in diphtheria, in association with Dr. H. C. Wood. The blood was examined daily and micrococci were found in the malignant cases only, not in those of a mild type. Dr. Keating gives notes of eight cases, all but one of which were fatal. The blood was examined after death in most of the cases, and micrococci were found not only in the liquor sanguinis, but also in the substance of the white corpuscles. In some of the cases notes are recorded of observations made on the blood during life nearly every day. In the fatal cases death occurred from cardiac thrombosis and pulmonary congestion, attributed to clogging of the capillaries by the micrococci and the destruction of the corpuscles. Believing that in this fatal

type of the disease the condition is one of blood-poisoning, and that the occurrence of micrococci can thereby be explained as resembling that found in erysipelas, puerperal septicæmia, and diphtheria. Dr. Keating sought for the most active germicides as a basis of treatment. In brief, alcohol in large doses (it was given in the form of whisky) was found to be most efficacious, and its employment was suggested by its known action in checking the development of micrococci in culture solutions.

CHLOROFORM CATASTROPHES.

Two fatal accidents in the administration of chloroform have recently been added to the list of the lamentable records of chloroform catastrophes. They were very different in character, and one of them ought not, in fairness, to be attributed entirely to the anæsthesia. This was the case of James Butterworth, who as (the inquest held on him on September 2nd showed) was admitted into St. Bartholomew's Hospital with fracture of the jaw. Death occurred during the administration of the chloroform, but at the post-mortem it was found that the larynx had been injured, and that there was extravasation at the base of the tongue, and accumulation of blood in the trachea. In the second case the death occurred at the London Hospital on September 4th, also during administration. In this instance cancer of the tongue was the disease for which the operation was intended. The death in the first of these cases was evidently largely due to asphyxia, and we should be inclined to excuse chloroform as the destroying agent, while we should admit that for the particular operation it was a better agent than ether. In the second case the phenomena were those purely of chloroform death during the stage of excitement and muscular contraction. There were the usual sudden arrest of the heart, lividity of the face, cardiac apnoea, and collapse.

A POISON FOR TUBERCULAR BACTERIA.

A PAPER was recently communicated to the Paris Académie des Sciences, by M. de Korab, on the action of helenine on the bacteria of tuberculosis. The facts mentioned deserve notice, although we fear that the hopes suggested are too bright to be realized. The bacilli were cultivated in bovine blood serum, which was daily heated for a week to effectually sterilize it, and was then coagulated by a temperature of 65° C. A guinea-pig having been rendered tubercular by inoculation and inhalation, small tubercle masses were taken from it, introduced into ten tubes containing the tubercular serum, and the tubes plugged after some helenine had been poured into three of the tubes. All were kept at a temperature of 37° C. for a week, and at the end of that time inoculation experiments showed that the organism in the tubes to which the helenine had been added no longer caused tuberculosis, which was readily produced by the contents of the other tubes.

THE CURE OF HÆMORRHOIDS BY CARBOLIC ACID INJECTIONS.

At a recent discussion at the New York Clinical Society on the Treatment of Hæmorrhoids, Dr. C. B. Kelsey referred to his experience with injections of carbolic acid. He uses a solution of one part of pure carbolic acid in six and a half parts each of water and glycerine, and of this he injects about five drops into each hæmorrhoidal tumour. For the operation no anæsthetic is required, and the subsequent pain is said to be very slight. In

one case in which he used a solution of double strength each pile sloughed, and in another case, treated by one of his colleagues, Dr. Kelsey saw extensive ulceration caused, but this he attributes to want of skill in the manipulation. He has usually repeated the injections at an interval of about a week, so as to see the full effect of each injection before making another, and in this way the treatment may extend over months, but as it is painless and does not necessitate rest or even the abandonment of ordinary work, this is not a serious objection to the plan in many cases. This method of treatment, when carefully carried out, appears then to be safe, efficient, nearly, if not quite, painless, and not requiring rest or special nursing. It may be useful, therefore, where for any reason the ligature or clamp operation cannot be performed, and especially where it is important not to lay the patient up during treatment.

SUDAMINA IN TYPHOID.

M. ALBERT ROBIN has examined the liquid of sudamina in a case of typhoid fever, in which the eruption was so abundant that the vesicles were confluent, and formed bullæ of considerable size, some of them being as much as a centimetre in diameter. More than three grammes of liquid were collected from them. It was transparent and colorless, but on standing, a deposit formed, consisting of whitish flocculi, and at the same time the liquid became opalescent. It had a slightly acid reaction, and a strong, unpleasant odor. The microscope showed only a number of fine globules of fat and some epidermic cells. It contained neither albumen nor sugar, and was not rendered opaque by the addition of alcohol. No uric acid could be discovered in it by the murexide test. An analysis showed that it contained a considerable quantity of chlorides, but no trace of sulphates or phosphates: the proportion of water was 982, of solid matter 18, per 1,000; the solids consisting of 14 parts of organic and 4 of inorganic substances. Hence the amount of organic material eliminated by the perspiration in typhoid must be regarded as considerable.

EDUCATION BASED ON THE LAWS OF HEREDITY.

ATTENTION has been recently directed—notably in a little book entitled "Youth; its Care and Culture"—to the wisdom of basing education on the laws of heredity. This is something more than a mere recognition of what are called "physiological principles." If that term, as commonly used and understood, expressed all it actually implies, there would be no need to amplify its import. Mind is brain-function, just as locomotion is one form of muscle-function. The brain, when it acts, thinks and reasons, and judges and forms purposes. As the size, weight, form, and development of the bony skeleton, with its muscular apparatus, determine the limits and nature of physical power and activity, so do the size, weight, form, and development of the brain, with its apparatus of sense-organs, determine the limits and nature of intellectual power and activity; and as the personal characteristics of the physique are in great part inherited, in like manner the personal characteristics of mind are handed down from parent to child, so that the mental and moral qualities offering themselves for culture by processes which are, in the true sense of the word, *educational* in any individual, are the sum, or the resultant, of the aggregate qualities of the two parents, *plus* the influence of congenital conditions and immediately surrounding circumstances. It is essential to recognize this initial fact, and so to

order and apply the processes of education as to develop the good and repress the evil elements in the inherited character. Education ought to be individual and to comprehend a complete system of influences and processes adapted to the cultivation of the physical and mental nature in its concrete form and potentiality. There can be no greater or more ignorant blunder than to regard education as *teaching*. "Training" is a better term to use than teaching, but education in its full and practical sense means much more than both the ideas indicated by these two terms; it implies *improvement*, and "improvement, as applied to the compound organism, the physical and mental nature of man, must include the essential processes of culture, planting or grafting, uprooting or pruning, and growth-stimulation and training. Unless this threefold purpose of education—employing that term in its comprehensive and only true sense—is fulfilled, genuine improvement is impossible, whether consciousness strive to improve self, or others labor to nurture and train it. This is true of both body and mind, subject to the mutual relations which exist between these two parts of man's nature, if, indeed, they are separate. Every child born into the world is charged with potential energies that need to be stimulated, and with some which, in the interests of individual happiness and social expediency, it is necessary to eliminate, or, at least, repress." This being so, two consequences must be seen to ensue. First, to be really effectual, each child in a school or family should be trained and taught in a manner and upon principles peculiar to himself or herself, and not by a common method or to a common pattern. Second, the surroundings of child-life, the influences brought to bear upon it, the tasks imposed, the exercises body and mind are required to perform, the food with which they are severally fed, and the *régime* to which they are subjected, ought to be carefully selected and graduated to the individual nature and its special needs. If only a tithe of the truth about education were clearly understood, it would be seen that the care of the young is not only a responsible duty, but one which calls for special knowledge, rare sagacity, and exceptional skill.

HÆMORRHAGE AFTER EXCISION OF THE TONSIL.

THE removal of an hypertrophied tonsil is a frequent and simple surgical operation, in connection with which any complication is so infrequent as to be unheeded by many operators. Experience abundantly proves, however, that it is not unattended with danger from hæmorrhage, one of the most serious features of which is that it may not be primary but intermediary, or what is usually spoken of incorrectly as "secondary." There may be only the usual slight amount of hæmorrhage at the time, and then some hours later a profuse flow of blood occurs. This fact it is which gives additional import to the complication. Dr. Lefferts, of New York, has recently drawn attention to this subject, and has recorded cases in which the bleeding has been profuse, and discussed the appropriate treatment. In this country, we believe it is a not infrequent plan to give every patient an astringent powder to be moistened with water and introduced into the back of the throat should bleeding come on. Dr. Weir has recently recorded a case of this intermediary hæmorrhage, which illustrates well one cause of it, and the explanation of its mode of occurrence. One tonsil of a young man was removed with a guillotine; there was slight hæmorrhage at the time, but several hours afterwards, severe loss of blood—estimated at a pint—ensued, which was controlled by the application of per-

sulphate of iron and by pressure; the bleeding recurred twice subsequently. When Dr. Weir saw the patient he found that the bleeding vessel was an artery in the anterior pillar of the fauces. The vessels of the tonsils are small and lie in soft tissue, which readily permits of their natural closure when severed, and the various movements of the throat do not of themselves disturb the wounded vessels. Not so is it with the palatine arteries; they are, in the first place, larger, and, as they lie in the muscular tissue of the palate, when wounded they are constantly exposed to disturbance from the contractions of the palate muscles in deglutition. If one of these vessels be wounded then, in the operation of excising the tonsil, not only is the hæmorrhage freer than from the tonsillar vessels, but there is a great tendency to recurrent bleeding from the constant movements to which the wounded vessel is exposed.

THE MILK OF INTEMPERATE MOTHERS.

WE have lately received a letter from a correspondent, who stated that at a "blue ribbon" meeting (for women only), a working man's wife said that she was present at a similar assembly a short time before, in the course of which a physician, by way of proving to the nursing mothers present the injurious effect of intemperance on their offspring, left the room and presently returned with a sample of milk drawn from the breast of a drunken woman, to which he then applied a light, the result being that the milk burnt for five seconds. Our correspondent, who signed herself "Incredulous," asked if this were possible, and although we had no hesitation in answering in the negative, the question raises several very interesting issues. First, as to the presence or absence of alcohol in normal human milk. It is of course well known that koumiss is an alcoholic liquor prepared from milk by vinous fermentation of the lactose; the change is a slow one, lactose being of all sugars the least susceptible of fermentation. In the milk of the cow and ass, even when freshly drawn, alcohol was found by Béchamp, the alcohol increasing if the milk was allowed to set. This of course suggests the same origin for the alcohol as in the case of koumiss. With regard to human milk, the presence of alcohol, even if found, would suggest a similar explanation, but its presence has never been proved. Still, the wife of the working man is not the first person who has made assertions as to the alcoholic milk of alcoholic mothers. On examination, however, these assertions are seen to be founded not on chemical analysis, but on statements as to the effects of the milk on the infant. In an adult these would of course consist of exhilaration, followed by swimming eyes, inarticulate speech, unsteady gait, "dyskinesia" (uterine, no doubt, in female children,) and even inability to stand. We may observe many, if not all, of these symptoms in most infants at the breast; and, indeed, in this way the inability to recognize one's own father might be taken as evidence of double vision. Is, then, the whole infant population to be regarded as more or less permanently drunk? Again, evidence may be obtained from the remoter effects of alcohol. We have heard a story of a child who died of cirrhosis of the liver from the prolonged exhibition of steel wine; but we may safely affirm that if even a trace of the alcohol constantly imbibed by a large proportion of nursing mothers were to find its way into their milk, specimens of infantile cirrhosis would be far from rare. On the other hand, there is no doubt that some of the alcohol of alcoholic mothers not unfrequently finds its way into the system of their infants by a more direct route than the milk. Set-

ting aside, therefore, the question of alcoholic human milk as contrary to fact, one question still remains—namely, that of the general effects of alcoholic drinks on the milk of nursing women. To this question no short answer can be given. It may be stated at once, that the diet which ensures the best state of health and nutrition also ensures the best milk, but that no hard-and-fast rule can be laid down on the subject. Overfeeding as well as underfeeding, will often impair both the quality and quantity of the milk. It is, however, as in so many other questions, highly unscientific to lump all alcoholic drinks together, seeing that in those most generally useful, the alcohol is by no means the principal ingredient. To put gin and mild beer and claret together is to collect strange companions, who have, indeed, a common property, but little more. We are, however, within the mark in saying that, special medicinal questions apart, no nursing woman should drink spirits; that the less stimulant she can take (consistently with good health) the better; but it is no less true that in mild malt liquors, and especially in sound porter and stout apparently from the special preparation of the malt, we have a very simple and excellent stimulant to the lacteal secretion in many cases where it flags, and even in some cases where malt alone or other stimulants have failed. Of the impoverishment of the milk of women whose health is impaired by drinking there can be no reasonable doubt, and too much can hardly be stated in this respect. We quite agree with the blue ribbon orator so far as this, that if all nursing mothers were teetotallers it would be far better for the totality of British babies. In saying this, however, we must add that some infants would, in our opinion, be the worse; but that on the principle of "the greatest good for the greatest number," more would be benefited than injured. If only these nursing mothers took stimulants whose health was really improved by them, it would be better still. There are facts which seem to show that alcoholism produces in some women a functional or temporary sterility. On this question, being beside our present subject, and also as not unlikely to serve as an incentive, or at least an excuse, for intemperance, we will not enter. Is it not somewhat of an irony of fate that the teetotal cow and ass should produce alcoholic milk, while the alcoholic human female produces none?

Correspondence.

Audi alteram partem."

AN AMERICAN CONVALESCENT HOME.

(From a Roaming Correspondent.)

THE first convalescent institution ever established for hospital purposes in America was opened on April 25th, 1882. It was founded by Miss Mary Russell, to whose devotion it owes much of its success. It is called the Waverley Convalescent Home, and is worked by the trustees of the Massachusetts General Hospital. Waverley is about seven miles from Boston, the country around is hilly and well wooded, and the site selected for the convalescent home is a singularly beautiful spot. With all the progressive genius for which the Americans are famed, for some unexplained reason they have not heretofore recognized the advantages of convalescent hospitals. I shall have

more to say of the Massachusetts General Hospital on another occasion, and so need not refer further to it here. The Waverley Convalescent Home has been erected from a fund of \$100,000, which was specially raised for this purpose, \$30,000 being spent on the buildings and furniture, and \$70,000 being invested as an endowment fund for the permanent maintenance of the Home. It contains thirty beds for patients, and has two wards of nine beds each, one with three beds, two with two beds, and four single-bedded rooms. The Home is intended mainly for the use of the patients at the Massachusetts General Hospital, and both free and paying patients may be admitted. The proportion of accommodation for paying to free patients is about one to five; but as the object of the trustees is first to benefit the poor who are unable to pay the expense of procuring fresh air and change, so far none but free patients have been received. This is remarkable, and shows how easily the combined pay and free system works in the general hospitals of America. Although the majority of the patients treated in the Massachusetts General Hospital pay something towards the cost of their maintenance during their residence within its walls, the trustees enact that the Convalescent Home shall be for the minority—i.e., the poor; no pay patient is admitted, and no difficulty whatever arises. The whole arrangements at the Waverley Home are admirable, and the cheerful and cleanly appearance of everything fills the visitor with gratification. Every ward, every room, every office, from roof to basement, is admirably arranged and perfectly kept. Indeed, I have never seen a more model institution than the Waverley Convalescent Home.

The sanitary arrangements have been very carefully planned. The w.c.'s and slop-sinks are on a new and very simple but excellent plan, and might with advantage be introduced into English hospitals. The closet consists of a simple glazed earthenware hopper fixed upon an S-pipe placed upon a floor of glazed white tiles. No wood-work whatever is used except the seat, two seats being fixed with hinges, one on each side of the pan, so that the same closet serves for nurses and patients. The nurses' lid is raised, fixed to the side, and locked, except when in use. The slop-sinks are large and of galvanized iron, being two feet in diameter at the top, so that they serve as urinals when necessary; they are also fixed on a tiled floor. The partitions between the closets are of wood; they are placed six inches above the floor, the doors to the closets being one foot above the floor at the bottom and louvered throughout. Thus all parts of the closets and lavatories can be washed out with ease, there is no accumulation of dust or dirt, and all pipes are exposed. The woodwork and doors throughout the home are of pitch pine varnished, and the furniture is made of the same wood. This, the first American convalescent home, is well worth a visit, and I have little doubt many others will soon be erected. The plans and arrangements reflect great credit upon Dr. Whittemore, the able superintendent of the Massachusetts General Hospital, whose knowledge of hospital administration and the zeal with which he enters into his work must prove invaluable to the trustees.

GONORRHOEA.

To the Editor of THE LANCET.

SIR—I trust you will find space for the following remarks in your valuable journal.

Gonorrhoea is such a common and important disease that we must all feel glad that attention is at last being directed to it. The results are often

so disastrous and the complications so many that it is high time we tried to obtain some more definite cure than we have at present at command. I find by reference to notes and inquiries amongst other medical men that 75 per cent. of adult males have had it once; 40 per cent., twice; 15 per cent., three or more times. I find that the average duration is about nine months varying from eight days to four years. No two medical men treat their cases in the same way, but most of them agree that the duration of the disease is long, and the treatment very unsatisfactory. The disease seems to be greatly on the increase, and the older practitioners say that it is becoming more virulent. Could not some inquiry be made into the whole theory and treatment of this dangerous disease? If the treatment so strongly advocated by "M.R.C.S. Eng." is found to be satisfactory, the thanks of the profession will be due to him for bringing under its notice so valuable a remedy. In conclusion, I should like to ask "M.R.C.S. Eng." to give fuller particulars, so that a fair trial may be given. I remain, Sir yours, etc.,

C. H. W.

Sept. 18th, 1882.

P.S.—While on the subject, I should like ask whether gleet is contagious or not?

"THE USE OF THE FORCEPS IN MIDWIFERY."

To the Editor of THE LANCET.

SIR—I am not all addicted to the use of instruments where they can possibly be avoided; yet I find, on referring to my obstetric list, that of the last 400 cases attended by me, the forceps were used 12 times—i.e., 8 times in primiparæ and 4 times in multiparæ, or an average of about 1 in 33. I think it likely that half these cases might have been terminated without the use of forceps had I felt myself justified in exposing the poor women to several hours' further unnecessary agony; but I may say that I make it a rule of practice not to wait more than three hours when there is no advance in the second stage of labour.

I disapprove as much as anyone of meddlesome midwifery, and can scarcely believe that in a run of several hundred consecutive cases it can ever be necessary or desirable to employ the forceps in so many cases as 1 in 8—the proportion in which they are said to have been employed by the late Master of the Rotunda.

I am, Sir, yours faithfully,

B. A. RUGG.

Wood Green, Oct. 9th, 1882.

"HAMAMELIS VIRGINICA."

To the Editor of THE LANCET.

SIR—I cannot give your correspondent, "C.," any information regarding the tincture of hamamelis, not having used it; but I can speak most highly of hazeline, the active principle of the witch hazel. I have prescribed hazeline as an injection (twice daily) in several cases of hæmorrhoids with most satisfactory results, relieving cases that had resisted all other treatment. It does not cause pain; on the contrary, relieves all unpleasant symptoms.

Hazeline was highly recommended two years ago for cases of hæmoptysis, epistaxis, melæna, etc.; but administered internally it has disappointed me in such cases. As a local application I have never known it fail, and I consider it invaluable as such in the treatment of indolent and varicose ulcers, etc. Injected into the nostrils in that common

complaint, "cold in the head," it gives immediate relief.

While the correspondence on the "abortive treatment of gonorrhœa" was being carried on in THE LANCET I had opportunity of using hazeline as an injection in a case of "old gleet," and was agreeably surprised to find that, after a few injections, my patient was cured. I also had the opportunity of using it in the early stage of gonorrhœa, and with good result; and I believe that if any of your readers who may have more opportunity should give the drug a fair trial they will not be disappointed with the "abortive treatment of hazeline" when using hazeline as an injection. A glass syringe should be used; metals decompose hazeline.

I am, Sir, yours truly,

W. S. STILES.

Chesterfield, Oct. 30th, 1882.

CASE OF IMPERFECT DEVELOPMENT.

To the Editor of THE LANCET.

SIR—The following case of imperfect development occurred in my practice last week, and as it appears of somewhat an unusual nature, I send you an account of the same. The original has been sent to the museum of the College of Surgeons. The placenta was attached to the upper part of the child's skull, and took the place of any bone in that situation, and also of any dura mater, as the portion of brain which protruded, owing to a rupture occurring during birth, was destitute of that membrane. There were no fingers on the left hand, only a thumb; and the left leg completely twisted outwards. The child was born before my arrival, and I found it crying strongly. Although it was evidently a case of partial placenta prævia, there seems to have been but very little hæmorrhage at the time, although a week before the patient appears to have lost considerably. The mother is the wife of a strolling actor, and is slightly deformed from old hip mischief.

I am, Sir, yours faithfully,

JOHN B. HARRIS.

Violet bank, Lower Norwood, Oct. 27th, 1882.

CASE SIMULATING HARE-LIP.

To the Editor of THE LANCET.

SIR—The following case may be deemed of sufficient interest for insertion in your pages.

Being called to see C. H.—, ten months old, on August 5th, about 12.30 p.m., I found a severe cut on the upper lip, extending through the septum of the nose right through the lip. This accident occurred as follows:—The foot of an iron bedstead went through the flooring of the bedroom and upset some ornaments that were on the mantelpiece close by. On examination I found that the wound was quite through, and sloping rather to the left side, and that she could take the breast very well. The wound was put together by means of two silver sutures, and adhesive plaster was applied to give it a better support. One suture, nearest to the nose, was removed on the tenth day; the other was left till the fifteenth day, when it was removed, and has left hardly a mark to be seen.

The points of interest in this case are—(1) there was very little hæmorrhage, (2) the child could suck all along, and (3) the rapid recovery.

I am, Sir, yours, etc.,

W. E. WILLIAMS.

Duylan, Oct., 1882.

THE OIL OF MALE FERN.

To the Editor of THE LANCET.

SIR—The question as to whether the oil of male fern is a poison when administered in small doses is one by no means devoid either of interest to the practitioner or of importance to the public. In my opinion it must be regarded as such, at least in the case of individuals of a certain temperament—viz, the nervous.

In 1856 I recommended a friend—a thin, spare man, possessed of extreme pallor of countenance, and aged about about twenty-three years—to make trial of the drug. He took but a single drachm, and that drachm followed, after the lapse of ten hours, by a tablespoonful of castor oil. The results were as follows:—Diarrhoea, nausea, vomiting, colonic spasms, and semi-collapse for about two days; nausea, a burning sensation at the epigastrium, and inability to stand erect for about a fortnight afterwards. A very slow and tedious convalescence. At this date—twenty-six years since taking the dose, please to recollect—the bare mention of the drug causes him to shudder, and to declare that he has still the smell of it remaining in his nose.

Was he not actually and veritably poisoned? Is he still, to some extent, suffering from the toxic influence of the medicine? Will he ever become perfectly free from that influence?

I am, Sir, yours faithfully,
JOHN BEADNELL GILL, M.D.

Canterbury, Nov. 1st, 1882.

TRACHEOTOMY TUBE.

To the Editor of THE LANCET.

SIR—Will you kindly allow me to draw the attention of the profession in your columns to a new tracheotomy tube which Messrs. Maw, Son & Thompson have manufactured for me. It is made of the new material, celluloid, is cleanly, light, and very smooth, and possesses a quality which is not found in india-rubber or metal—viz, the property of being readily moulded by immersion in hot water to any shape required.

Having recently performed tracheotomy in a case of malignant disease of the oesophagus, I found that the growth was pressing upon the trachea to such a degree that the india-rubber tubes became flattened. It occurred to me that a tube made of celluloid would be sufficiently firm to resist any pressure from without, and the result has so justified my expectations that I can confidently recommend them to the profession.

I am, Sir, yours faithfully,
F. KING GREEN, F.R.C.S.

Guy-street, Bath, Nov. 7th, 1882.

ON THE INTERNAL ADMINISTRATION OF CHRYSOPHANIC ACID IN PSORIASIS.

To the Editor of THE LANCET.

SIR—Since the publication of Dr. Napier's interesting article on the above subject, which appeared in your columns recently, I have given this drug an extensive trial, and have been remarkably struck with the result.

In the first case in which I tried it its action proved so rapid and effective that I think it worthy of record in connection with the other cases that have been brought forward. A young, delicate lad, fourteen years of age, came to me with well-marked psoriasis of five years' standing. The abdomen and chest were covered with numerous rings

about the size of a florin. The upper and lower extremities were also affected; the patches were here, however, much smaller and less numerous. I ordered him one-fifth of a grain of the acid three times a day in sugar of milk, with directions to take the powders about half an hour after meals. No external application of any kind was given. I saw him the following week. Some of the patches were beginning to fade, whilst a few had actually disappeared. The following week those on the chest had entirely died away; the others were fading quickly, especially those on the belly. At the end of the third week he was practically cured, only a few small spots remaining on the arms and legs. He continued the medicine (one-tenth of a grain) for a month afterwards, and, as I have not seen him since, I conclude there has been no return. The dose (one-fifth of a grain) was not increased throughout. The boy never complained of any nausea or sickness, or any other ill-effects from the use of the drug, so common when larger doses are given.

I have tried it in several other cases with marked benefit, but not with such success as in the case mentioned. I have generally begun with one-fifth of a grain, and have rarely exceeded that amount, having found that where the smaller dose failed to do good a larger dose was equally ineffectual. I have also noted the fact that the disease is more amenable to treatment when occurring in strumous cachectic patients than in those of a stronger and healthier constitution.

I am, Sir, yours, etc.,
F. W. CLIFTON, M.R.C.S. Eng.
Easy-row, Birmingham, Oct. 31st, 1882.

"REMOVAL OF HAIR FROM THE FACE."

To the Editor of THE LANCET.

SIR—Your correspondent, "A Puzzled Practitioner," asks in a recent issue, "by what means he can permanently remove a patch of hair from a prominent position of a patient's face?" May I suggest the following a treatment, which I have seen very successful in several instances. It is applicable both for the removal of hair and moles.

A small cautery is necessary. It should be something of the following form:—From a small bone handle passes a stem of platinum-wire three inches long, curved at a right angle half an inch from the end, which resembles a blunt needle. At the angle is a bead-like bulb, which serves as a reservoir for the heat when in use. The bulb and point having been made white hot in the flame of a spirit-lamp, the affected skin (previously shaved) is to be deeply punctured by a number of stabs, close together, and over a space of about a sixpence. Repeated heatings of the cautery will be required, but the process is almost painless, and when the sore heals a white cicatrix will appear, free from pigmentation or hair bulbs. The same process can be repeated at subsequent sittings until the whole affected area is cured. I do not remember the name of the cautery or the maker, but I could easily procure these particulars should your correspondent desire it.

I am, Sir, yours, etc.,
Plymouth, Nov. 5th, 1882. G.C.

ENGLISH SPORTS.

To the Editor of THE LANCET.

SIR—The following report is extracted from the *Daily Telegraph* of Wednesday, Nov. 1st:—

"Catching the Stag.—Our Oswestry correspondent telegraphs: 'The annual sport of catching the stag to be hunted on the anniversary of the

Earl of Powis's birthday took place yesterday morning in Powis Castle-park, Welshpool. His lordship and a number of equestrians—ladies and gentlemen—were present, and a large field of pedestrians. The stag was pursued by men on horseback and on foot, but not by hounds. After an hour's pursuit the stag fell dead. His lordship gave another stag, which ran for about an hour up and down the park, and was ultimately taken in the net. The stag seemed somewhat distressed, and after his horns were cut off the fine animal died. This second fatality created a great sensation, and the hunt was at once abandoned."

Assuming the above to be true, it would be interesting to know whether his lordship and friends belong to the anti-vivisection party. I am surprised that such gross brutality is allowed in a country where vivisection, for possible and probable good to human kind, is guarded by most stringent laws, and which possess a Society for the Prevention of Cruelty to Animals. Without further comment on the apparent inconsistency of the law on the subject,

I am, Sir, yours obediently,

A. PHILLIPS HILLS.

Battersea-park, Nov. 3rd, 1882.

COMPRESSED AIR BATHS.

To the Editor of THE LANCET.

SIR—A patient of mine asked me for some information respecting the above. Can you or any of your readers tell me anything about them?

I am Sir, yours faithfully,

M.D.

Oct. 12th, 1882.

"* Compressed air baths are an old remedy, especially carried out at Reichenhall. They are apt to cause tinnitus aurium, pains in the ears, and headache. They slow the pulse; raise the arterial tension. They have been recommended in emphysema and whooping-cough. They are said to increase expectoration and excretion (Burdon-Sanderson in *Practitioner*, vol. i.). With only slightly compressed air the effects are mainly those of increased absorption of oxygen. Ducrocq, Waldenburg, Biedert, and Moutard-Martin have written on the subject.—ED. L.

URTICARIA AND MOSQUITO-BITES.

To the Editor of THE LANCET.

SIR—"L.R.C.P." asks for a suggestion as to the treatment of a case of urticaria. My experience of the subject being small, I feel the greatest diffidence in venturing upon an opinion, and only do so because no response has hitherto been forthcoming from more competent authorities. I read recently in a medical paper that Dr. Schwimmer treats urticaria by the internal administration of atropine. I cannot say that I have had the opportunity of verifying the efficacy of the remedy in the ordinary form of the affection, but I can testify to its value in the variety produced by the bites of gnats and mosquitos.

The past summer, notwithstanding the moderate degree of heat, has been remarkable in Paris for the number of these insects, and I for one have been severely visited by them. In my case each bite gives rise in the course of a few minutes to a raised white lump, which disappears after a variable time, leaving an irritable papule, lasting for

some days. I find that the application of a solution of atropine shortens the whole process, and instantly relieves the itching. The solution I have used is one part in a thousand.

"L.R.C.P." does not say what are the remedies he has employed. I take it that, with the exception of the sluggishness of the liver, all other likely sources of reflex irritation have been eliminated. Whether there be any gastro-intestinal disturbance or not, this condition of the liver might be benefited by a course of rhubarb and quinine. If all means of removing and allaying irritation fail, there still remains the possibility of inhibiting the morbid reflex by bromide of potassium; and if it comes to this, it would be well to associate it with arsenious acid.

I am, Sir, yours faithfully,

OSCAR JENNINGS, M.D.

Paris, August 31st, 1882.

A TACK IN THE EAR.

To the Editor of THE LANCET.

SIR—I presume the discovery of a carpet-tack in the external auditory meatus is not a very usual occurrence, and I therefore send a short note of the case.

A lady consulted me a few days ago for deafness and occasional throbbing in the right ear, and on examination with the ear-speculum I found a black mass on the bottom of the meatus. Being firmly imbedded in a mass of clotted blood, wax, and cotton-wool, it resisted all attempts at removal by the use of a large syringe and hot water; but by the aid of a small artery forceps and short hooks set in a handle, I succeeded in extracting a carpet-tack, head foremost. As the mass completely plugged up the meatus (in which it had been for years), it was very difficult to extract. She now hears perfectly.

I am, Sir, your obedient servant,

EDWARD HAUGHTON, M.D.

Spring-grove, Upper Norwood, S. E., Oct. 10th, 1882.

THE TREATMENT OF GONORRHOEA.

To the Editor of THE LANCET.

SIR—Some years ago, when this subject was under discussion in THE LANCET, I advanced the opinion that the most rational, and, consequently, most likely to be successful, mode of treatment was a local one, and gave the results obtained by it. Further experience has proved that those results, which were so favorable as to have their accuracy called in question, were not exceptional, and that the view upon which the treatment was based was correct.

I am, Sir, yours very faithfully,

PHILIP FOSTER.

Leeds, Oct. 17th, 1882.

HORSFORD'S ACID PHOSPHATE.—In preference to acid phos. dil. in general debility, Dr. O. A. Boothby, Philadelphia, Pa., says: "I have tried Horsford's Acid Phosphate in several cases of general debility, with faulty digestion, also in sick headache, and am much pleased with the results obtained. As far as my experience goes, your combination is far preferable to the ordinary dilute phosphoric acid."

PRINTED AND PUBLISHED BY

THE INDUSTRIAL PUBLICATION CO., 49 Malden Lane, N. Y.

THE LANCET.

A Journal of British and Foreign Medicine, Physiology, Surgery,
Chemistry, Criticism, Literature and News.

JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

PUBLISHED MONTHLY.

No. 2

NEW YORK, FEBRUARY, 1883.

Clinical Lecture

ON A CASE OF

MEDULLARY SARCOMA OF THE LIVER, RIGHT LUNG, AND HEART.

By DAVID DRUMMOND, M.A., M.D., T.C.D.,

Physician to, and Joint Lecturer on Clinical Medicine at, the
Newcastle-on-Tyne Infirmary.

GENTLEMEN—I take for my subject to-day the case of a patient whom you saw in the Bishop ward of the infirmary, and on whom you witnessed a necropsy a few days ago. He was a coal-miner, aged thirty-two, and of very intemperate habits. Ten weeks before admission, when in his usual health, he lay out all night in a drunken condition, exposed to rain and cold. The result of this exposure was an attack of shivering, followed by a "stitch" in his right side, and cough. He then sought advice, and was told he had "caught cold in his chest," for which he received medical treatment. Though ill, he continued to follow his employment, which he did for a fortnight subsequent to the initial attack, though evidently "against great odds," as the medical man, under whose care he afterwards came, wrote when he kindly supplied me with the early particulars of the case. He then was confined to bed; the pain in the right side became more severe; he complained also of pain in the abdomen (hypogastrium) and back; his cough increased; profuse perspiration occurred; and the expectoration which previously was mucopurulent, became sanguinolent in character. About this time he suffered much "from what seemed most like diaphragmatic cramp." (I quote from his doctor's notes.) The bowels were irregular, generally costive, and his appetite was very bad. Three weeks before admission the result of physical examination was as follows: "The right chest was dull on percussion to the spine of the scapula; the respiratory sounds were feeble, and without vocal resonance; dullness in front extended up to the nipple, this continued over the liver two fingers' breadth below the ribs." All this time he was emaciating rapidly. The case was regarded as "fluid in the chest, probably pus, which depressed a congested liver," which undoubtedly was the most obvious construction to put upon the data at that stage of the case.

(7)

When brought to the infirmary the patient looked exceedingly ill; he was markedly wasted, and his face wore a most anxious expression. He was unable to lie on the left side or on the back on account of the pain across the abdomen and back, which was always much increased in severity when he assumed either of those positions; it was especially painful for him to lie on his left side. He also complained of "shoulder-tip" pain, right and left. His favorite posture was on his hands and knees, with his head buried in the pillow; but it was also a relief to lie on the right side. When he assumed the dorsal decubitus, with the abdomen exposed, a tumour at once became apparent, which was evidently the liver. The right lobe, the sharp edge of which could be distinctly felt, reached down to the crest of the ilium; the left extended down to one centimetre below the umbilicus, and completely across the abdomen. On the surface, the organ (on admission) felt comparatively smooth, and, although firm, not what is generally termed hard. At the extreme border of the right lobe an indistinct nodule or two could be felt; but handling the liver caused so much pain that this method of examination was not pushed beyond what was considered necessary to elicit the few points already referred to. There was no ascites, nor was he in the slightest degree jaundiced. A short "hacking" cough attracted our attention to his chest. The right thorax was one centimetre larger than the left; the ribs were slightly separated, and the interspaces somewhat flattened. The side expanded very imperfectly, being almost still on the deepest inspiration. On percussion the side (right) was found to be absolutely dull posteriorly, conveying to the finger the sensation of marked resistance. Auscultation revealed the vocal and breath sounds to be notably diminished, such distant respiratory sounds as were present being evidently conducted from the opposite side. In front, also, the right chest was dull on percussion, the dullness extending across to the left parasternal line. Here the stethoscope revealed nothing beyond abnormal silence, the feeble sounds which were audible being conducted from the heart and bronchial tubes. The left lung appeared to be normal, for beyond puerile breathing, accompanied by a few râles, physical examination elicited nothing. The heart sounds were feeble, especially the first; there was no murmur. The apex beat was with great difficulty localized, but seemed to be in the left nipple line between the fifth and sixth ribs. The cardiac area of dullness

was not accurately mapped out, merging as it did into the right lung dullness. The patient suffered considerably from dyspnoea. There were no signs of pressure upon the large thoracic vessels, neither oedema nor superficial veins. The expectoration was distinctly of two kinds—viz., mucopurulent, and like red currant jelly (bloody). The urine was scanty, but beyond being loaded with "vermillion" urates, it was normal, containing no albumen. Our patient's appetite was excessively bad, indeed, he had a great dread of swallowing food, either liquid or solid, as the slightest distension of the stomach enhanced the pain beyond endurance; consequently, the only sustenance he received had to be administered per rectum. The perspirations were very profuse, especially about the face, neck, chest, and hands, the skin of the abdomen being generally dry and harsh. The temperature was, as a rule, sub-normal, ranging between 96° and 98° F. The diagnosis, those of you who saw the case will remember, was made of malignant disease of the liver and right lung—most probably encephaloid cancer. The grounds on which such a conclusion was founded were, as far as the lung was concerned, dullness, markedly increased resistance (solidity), absence of vocal and breath sounds, the knowledge that the pleural cavity did not contain fluid—for the patient had been tapped in a special hospital before admission into the infirmary, a little blood alone being drawn off, according to his wife's account—with the presence of disease in other organs (liver). And, as regards the liver, the last-named fact—i.e., extension of the disease—rapid progress of the case, and the existence of a painful, somewhat nodular, enlargement. The medullary form of cancer was chosen because of the rapidity of the increase, scirrhus being generally much slower in its advancement.

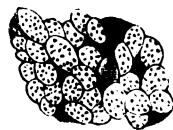
A few days after his admission it was observed that the nodules on the surface of the liver were much better marked than when the patient was first seen, especially was this the case on the edge of the right lobe, where the tubera, as the nodules of new growth are sometimes called, were distinguishable. It could be made out with ease that the whole organ had increased in size within a few days, the left lobe extending down to two centimetres below the umbilicus; on its surface also, at that date, nodules could be felt which distinctly changed the character of the hitherto almost smooth left lobe. It was thought desirable to try, if possible, to make the diagnosis more certain by ascertaining the description of cells of which the apparently new growth was made up; consequently, to this end, the hypodermic syringe was used, following the practice which you know is constantly adopted in the wards of the Newcastle Infirmary. And here I would take the opportunity of impressing upon your attention the utility of employing the hypodermic needle as a routine act in medical diagnosis; by its use you will often be saved from grave errors. One well-known physician remarked to me, in conversation upon this subject, that he had used the hypodermic syringe constantly for the past two years, ever since he had made a serious error, which probably could only have been avoided by the possession of such evidence as the needle could have furnished. As the patient—the subject of the present case—was getting hypodermic injections of morphia to relieve pain, I endeavored, as you will remember, to add as little as possible to his sufferings in pursuing the method of investigation of which I have just spoken; consequently, on one or two occasions, I administered the morphia immediately over the part of the liver I wished to puncture, and then, after a second or two had elapsed, I thrust the "needle" into the liver.

By this means, without causing any pain, I was enabled to draw off a few drops of fluid resembling pus, or cancer juice. My object in injecting morphia before puncturing was to guard against the risk of causing pain by groping about with the point of the needle, should the site at first selected be not a suitable one. The cells drawn off in this way were of two descriptions—the most numerous resembled pus cells very closely, there being also a few somewhat larger, irregular-shaped, cells, some oval and others almost caudate with a single nucleus. It was thought then that in the juice from the liver we had discovered pus and cells usually found in the alveoli of medullary carcinoma; though this view was somewhat shaken, especially as regards the pus, when a subsequent puncture into a part of the liver not nodular furnished dark blood which contained a number of the same small round cells. Microscopical examination of the sputum, which as before stated, contained blood, yielded no information of importance. The liver rapidly became more distinctly nodular. The harassing cough, almost constant retching and hiccough, severe pain, profuse perspirations, and inability to take food soon brought the patient exceedingly low, and he died ten days after admission, and eleven weeks from the commencement of the attack.

The post-mortem examination showed the body to be very markedly emaciated; there was no jaundice or anasarca. The cavities were free from fluid. The liver, which occupied nearly the whole of the abdominal cavity, weighed 9 lb.; it was adherent to the diaphragm, especially by the right lobe. The surface was studded with pale yellowish nodules, varying in size from a pin's head to a small orange, the larger of which were umbilicated,



Left auricle.



Lung.

a condition which you can see well yet. Though the specimens before you have been in spirit for some days these nodules are still quite soft, and when cut into, as, for example, when a section is made through the liver, a considerable quantity of "juice," evidently rich in cells, flows from the surface. The liver substance itself was exceedingly pale, but apparently comparatively little of it is free from the new growth. The right lung, which was adherent, is, as you see, completely solid, the greater portion of the consolidation being due to so-called "grey hepatization;" but a large mass of new growth, similar to that found in the liver, the size of a small coconut, embraces the root of the lung, and extends into its substance and down to the base, apparently infiltrating the pleura and diaphragm. The left auricle is also affected by the same growth, the extension having probably occurred along the pulmonary veins, which are surrounded and slightly compressed, the capacity of the auricle being reduced considerably. The left lung was congested, but otherwise normal. The kidneys, spleen, and pancreas were unchanged, though the latter was surrounded by a mass of diseased glands. The stomach presented no unusual appearances; in short, there was no other disease but that already described. Those of you who were present at the necropsy will recollect that the opinion was advanced, from the naked-eye appearances, that the disease was encephaloid

cancer. From the three sections (microscopical) which I have prepared from the heart, lung, and liver, you will see that that opinion was only correct in a limited sense, for the true structure of the growth is evidently sarcomatous, being composed of cells which resemble the small round-celled sarcoma, but with extremely little basement



Liver.



Isolated cells from liver.

substance; only here and there is it possible to discover any intercellular substance. The cells are not uniform, like the small round-celled sarcoma, but vary considerably in shape and size; at the same time they are all of one type, being from round to irregularly oval. They are also larger than the cells of the ordinary lympho-sarcoma; for example, when compared accurately with sections of glio-sarcoma and lympho-sarcoma (so called) the cells appeared nearly twice as large, though apparently not at all so large as the cells of the large round sarcoma.¹ In the section from the liver it will be noted that the growth has in certain parts taken on the appearance of encephaloid carcinoma, the cells being isolated by alveoli made up of delicate connective tissue, at the same time the greater part of the growth in the liver resembles the lung growth, but in the lung or heart no such arrangement can be found. In Wagner's "General Pathology" (translation) you will find the statement made that "transitions to medullary cancer (from round-celled sarcoma) arise." Other authorities allude to the coexistence of these two forms of disease. To the minute structure of the growth before us, differing slightly as it does from the "round-celled" sarcoma I have been unable to attach any other more accurately descriptive name than that of "medullary sarcoma." In its clinical history and microscopical appearances it approaches so closely to that of encephaloid cancer that it is impossible to distinguish the two. Had I made out the true character of the cells drawn off by the puncture from the liver it is possible the disease might have been more accurately diagnosed, but, using as I did a strange microscope with a low power, I mistook the round, and somewhat oval, cells for pus. I have said that the clinical features of this form of sarcoma resemble medullary cancer very closely; certain it is that the former at times is quite as malignant in its nature as the latter. Virchow remarks in his "Cellular Pathology" (Trans., second ed., p. 487) when speaking of sarcomata, "in many cases they occur throughout the whole body metastatically, to such an extent that scarcely any organ is spared by them." In the rapidity of the growth also is there a near resemblance; medullary cancer of the liver being generally of very short duration, a fatal termination occurring within a few months, or even weeks. Comparing my observations upon the case with those of the medical man who saw the case first, it would seem that in a period of about twenty days the liver extended from occupying a position "two fingers breadth" below the ribs down to the crest of the ilium. In-

deed, from what I have been able to gather both from the patient himself and from information kindly furnished by another medical man who saw him, and also taking into account his wife's version, the period during which the rapid growth took place must have been a very few days. I am inclined to view the growth in the liver as secondary to the lung, which in turn was secondary to the mediastinal glands and connective tissue. Primary growths of the malignant type being rare in either of these organs, especially before thirty-five or forty years of age. I am unable to advance any view as to the means by which this form of sarcoma might clinically be distinguished from encephaloid cancer unless it be by the recognition of the true nature of the cells drawn off by the hypodermic syringe. It is worthy of attention that, in spite of the manner in which the liver tissue was encroached upon and compressed by the new growth, there was no ascites. Effusion into the peritoneal cavity in cases of cancer of the liver does not occur, as a rule, as the result of venous obstruction in the liver, as in cirrhosis of the organ, but it generally depends upon a chronic peritonitis originating in the neighborhood of the diseased liver. At the autopsy we found the peritoneum remarkably free from disease. Ascites has been found to occur in about half of the cases, and jaundice, perhaps about as frequently; this latter symptom may be said only to be present when a cancerous nodule compresses the bile-duct in the liver, or when the duct is encroached upon by enlarged glands in the portal fissure; it is generally supposed to be characteristic of the jaundice of hepatic cancer that it continues to the end, having once occurred. The diagnosis of cancer in the lung is generally a matter of difficulty, especially where there are scattered nodules, in which case there may only be very slight alteration in the percussion and respiratory sounds. However, as primary cancer of the lung is extremely rare, it will often be found to be accompanied by mediastinal growth, from which the pulmonary affection has sprung, when there will be dulness extending across the sternum, which will either be due to aneurism, fluid, or tumour—consolidation of the lung almost never causing dulness, which extends across to the opposite side. Such was the case in our patient, and as neither aneurism nor fluid could be entertained, it was consequently supposed that a mediastinal tumour existed, which with the physical signs, dulness and diminished vocal and breath sounds, viewed in the light thrown upon the case by the discovery of the liver disease, led to the diagnosis of cancer of the lung. The diminution in the vocal and breath sounds depended of course upon occlusion of the bronchial tubes. Had the air passed to the lung—consolidated (grey hepatization) as it was—the difficulty must have been much increased. It is not at all unusual to find the lung infiltrated with caseous matter, where the root is affected by cancer. I recently made a post-mortem upon a case of cancer (scirrhus) of the penis, where this condition was well-marked in the left lung, secondary scirrhus deposit having attacked the root of the lung, and also the kidneys. I know of no means of recognizing cancer of the heart during life, though it often occurs when the new growth occupies the anterior mediastinum.

DR. GAILLARD THOMAS has, it is stated, consented to resume his occupancy of the chair of Gynecology at the College of Physicians and Surgeons, New York, with Dr. Charles S. Ward as chief clinical assistant.

¹ Grosszellige Rundzellensarcom, Rindfleisch, fourth edition, p. 105.

Introductory Address

DELIVERED IN THE

UNIVERSITY OF GLASGOW,

To the Students of Medicine of the Session 1882-83.

By W. T. GAIRDNER, M.D.,

Professor of Medicine in the University, and Physician-in-Ordinary to the Queen in Scotland.

GENTLEMEN—I appear before you to-day at the request of my colleagues, not, certainly, without a feeling of satisfaction and even pleasure in my task, but also with a most serious sense of responsibility. Only on two previous occasions has it fallen to my lot to address to medical students the very first words of exhortation at the opening of a new session—once in Edinburgh, in 1856, and once in Glasgow, in this university, but not in these halls, in 1866. When we consider that sixteen years have elapsed since the last of these occasions, and that during this interval almost all of my then colleagues in the Medical Faculty have either been taken from us by death, or have passed into an honorable retirement, the very facts themselves seem to raise the question, Where shall we all be after another sixteen years? And although I am assuredly not bound to answer this question, and have no personal misgivings leading me to despair of being permitted to labor for some years to come on your behalf, yet it cannot but be present to my mind that this may be the last occasion for me, as it is the first for some of you, on which words like those I have it in my mind to speak may remain to be spoken between us. Let us, therefore, strive together to make the present occasion one which we may look back upon, if God will, as tending to confirm in us whatever of good, honest purpose we are conscious of having devoted to our work in the past; and not devoid, also, of some new inspirations or glimpses of insight as regards the unknown future that is before you, and equally before all of us, your teachers. I am sure that I speak the mind of all of them, when in welcoming you anew to these benches, we add the expression of an earnest desire, or prayer, that we may also be enabled to perform our share in the duty aright, and that the good work done and the friendly associations formed during the session of 1882-83 may be of such a nature as to be an abiding influence for good over all the years to come.

In considering the materials before me for a new Introductory Address, it is impossible to avoid looking back for a moment on these two former addresses. I would fain not absolutely repeat myself, and yet there is much of what falls to be spoken which could only be spoken again in similar, if not identical, words to those already used. It would not be altogether impossible, perhaps, to commit this justifiable plagiarism without a chance of detection on the present occasion. For introductory addresses are, like the occasions that give rise to them, soon forgotten, at least by all who are not immediately concerned in them. But I am not without hope that such reminiscences as cling to my own mind of these earlier addresses may be turned to account, not for the purpose of reproducing their ideas, but rather of inquiring how far the progress of the medical art has, in any degree, confirmed or controverted the impressions entertained of it by a teacher sixteen or twenty-six years ago. And with this view I intend, as soon as possible, perhaps in a few days, certainly some time between

now and Christmas, to place at your disposal the whole of these addresses, including the present, so that you may at your leisure, if so minded, follow out with more full understanding and appreciation the few suggestions, imperfectly expressed as I fear they will be, called forth by the present occasion.

And while in this retrospective mood, I am reminded that only the other day we had set before us, in the shape of a leader in *The Times*¹ and in connection with the opening this month of the various medical schools in London, a singularly clear and luminous appreciation of the changes introduced into medical study and practice in England, as the consequence of the Medical Act of 1858; from which anonymous, but not unauthoritative, statement it may be admissible to borrow a few sentences as an illustration of our present position; keeping in view always that the writer of the article in question, well informed and thoroughly impartial as regards his own division of the United Kingdom, has had England, and apparently England alone, in view, in describing the state of medical education before 1858, and the changes gradually effected, owing to the legislation of that year. Were one at liberty, indeed, to guess (for everyone knows we can do no more) at the authorship of that particular article, to see with the mind's eye the Vulcan that forged the thunderbolt of Jupiter on that particular morning, I should be disposed to say that, judging from internal evidence alone, the brain that guided the hand that wrote that particular article was also one of the most active of those recently at work in elaborating the Report of a Royal Commission appointed to inquire into the Medical Acts, with a view to their consolidation and amendment. If this be so, it gives, for us, an additional interest to the sentences of that article which I shall presently lay before you; and although it is by no means my intention to make this address in any respect a political or controversial one, it is certainly a fact to be noted that an Englishman, presumably well acquainted with the facts, and speaking of England, and for England alone, in the columns of *The Times*, should employ the following expressions as regards the state of medical education a year or two before the passing of the Medical Act of 1858, and yet a year after my first introductory address to medical students in 1856:—

"Five-and-twenty years ago, except in the case of the small number of men who graduated in medicine at Oxford or Cambridge with a view to consulting practice as physicians, the education of a medical student commenced by an apprenticeship to a licentiate of the Apothecaries Company, which was then the chief source of the medical qualifications of general practitioners. The apprenticeship was rendered necessary by the Act of 1815, from which the Company derived its powers, and it usually commenced at about the age of fourteen years, so as to break prematurely into school education. The first year of the apprenticeship was often spent in the work of a surgery boy, varied by the preparation of medicines, and by the attainment of some knowledge of their properties. The later years were devoted to learning the business of conducting a medical practice, the art of talking to patients, and so forth; and, when the apprenticeship was concluded, a short term of hospital study formed a prelude to the single examination which, when passed successfully, permitted the candidate to work his will upon the sick under the protection of the law. Originally, the full term of five years' apprenticeship was served in the house of the master; but as the term

of hospital study² was gradually extended from one year to nearly three, the two demands were found to consume an inordinate amount of time, and the last two years of apprenticeship were commonly remitted, and were suffered to form part of the period of hospital study. Even then the total period of professional as distinguished from general education extended over about six years; and, as the examination might be passed at the age of twenty-one, was usually commenced not later than fifteen."

I interrupt the quotation at this point simply to say that one has to go back a long way in the history of medical education in Scotland to find a state of matters at all resembling the one here described. We had our errors and deficiencies, no doubt, and to some of them I shall allude more or less distinctly before I have done; but at no time within my recollection, nor, I think, within the recollection of those who preceded me, and whom I remember as my own instructors, was it even possible in Scotland to mistake a "surgery boy" of fourteen, prematurely withdrawn from school in order to manufacture pills and potions, and run errands, and make himself generally useful in a "shop" where he was under indentures to an "apothecary," for a regular student of medicine. To whatever extent the apprenticeship system held its ground in Scotland twenty-five or even fifty years ago (and far be it from me to say that in the hands of such men as Abercrombie, and others like him, it was not a system capable of much good), it was always controlled by a regular academic discipline, emanating mainly from the universities, but largely reinforced, I am bound to say, by the coordinate influence, and often rivalry, of some of the corporations in building up what is now called the medical curriculum. In Scotland, at the period here referred to, a medical student so-called, was rarely less than seventeen, or, at the very earliest, sixteen years of age; and he was bound at the very outset to constitute an *annus medicus*—i.e., to engage in an amount and kind of real study which effectually precluded the possibility of his being allowed to run wild as a "surgery boy," such as is alluded to in *The Times*' article; a type from which the Bob Sawyer, and Ben Allen of Dickens' well-known story was only a too natural outgrowth. I venture to claim for the Scotch medical student of twenty-five years ago, even while admitting many deficiencies in his education both general and professional, that he was (saving a few sad exceptions) for the most part not only bound over to learn, but really in earnest in learning, the scientific as well as the practical work of his profession; that he was not devoting days or years which should have been occupied by ordinary school training, to "the preparation of medicines, and the attainment" (by chance) "of some knowledge of their properties;" but that he was, as I hope and believe you are, seriously impressed with the need of really scientific training as a foundation, and actually carrying out such training in anatomy and chemistry, even during his first year. Moreover, it lies strictly within my personal experience in 1856, when I had already taught several classes of Practice of Medicine, some of them numbering more than 120, to declare that the type of medical student existing at that time in Scotland was one which it was quite easy and natural for me to address as an assembly, not of

undisciplined schoolboys out of school, but as "gentlemen" preparing, not without the solemnity and gravity proper to men, for the great business of life. I will add that this has been my uniform experience of medical students as a class from first to last; and I appeal to the words of both my introductory addresses in proof of the fact. I affirm that it would have been practically impossible to use the words of these two addresses, seriously and sincerely, to a body of men in whom the Bob Sawyer element formed any considerable intermixture; and I claim for our Scottish system of university and other regular medical education whatever credit may accrue to it from that fact.

I now return to the quotation from *The Times*; but what remains of it, though most important to us, is very short:—"The Medical Act of 1858 introduced changes by which apprenticeship was abolished and the hospital course extended to four years, so that up to the age of seventeen school education might be continued. In order that the opportunity thus given might not be neglected, the student was required to pass an examination in general knowledge before he was permitted to commence his hospital career, and two professional examinations were instituted in place of one. The general result of the change was to occasion a marked advance in the intellectual status of students and of young practitioners. They lost, it is true, the familiarity with the management of a practice which apprenticeship was calculated to afford, and they lost opportunities of seeing many common forms of disease which are hardly severe enough to enter hospitals, but they gain more than an equivalent for these losses in their better education and their greater self-respect. They gained an advance in intellectual training which rendered them better able than their predecessors to grapple with the complicated problems so often presented by disease."

It thus appears that the changes introduced by the Medical Act of 1858 into English medical education were in a great measure those which had been in operation in Scotland long before, under the influence of our three teaching universities, and the medical schools associated with them in Edinburgh, Glasgow, and Aberdeen. Not that I wish you to infer that our state was all that could be desired, or even all that, under more favorable conditions of medical legislation, it might have become. The Apothecaries Company, which I by no means wish to disparage, inasmuch as it has honorably striven to fill a position left to it by the other corporations, and thus to maintain the organization of the medical profession in England, long enjoyed a practical monopoly for its licentiates of most of the offices in that division of the kingdom which formed the usual introduction to general practice. The Royal College of Physicians during the same period long declined to admit, even as licentiates, any but the graduates of Oxford or Cambridge, thus aiming at a degree and kind of exclusiveness which effectually barred all possibility of its becoming the College of the medical profession. The Royal College of Surgeons, with a much more generally accessible, and therefore more popular, diploma, confined its whole attention to anatomy and surgery, under the theory that the other branches of a complete medical education were the province of the sister college, or of the apothecaries. Hence the anomaly of the "double qualification" which distinguishes England from almost every civilized country in Europe, for it involves the still more serious anomaly of the "single," or, as it may justly be called, the *half-qualification*, in virtue of which a man may enter into practice capable of performing operations, but entirely ignorant of medicines, and the diseases re-

² To a reader unaccustomed to the phraseology here employed, it may be necessary to explain that "hospital study" throughout this quotation corresponds to what in Scotland would be called regular medical study within the curriculum, whether in hospital or not. In the London schools, which are all attached to hospitals, this is well understood, but not so in Scotland.

quiring their use; or, *vice versâ*, capable of dispensing medicines, but almost entirely ignorant of anatomy and of surgical operations; and in either case far too much of a mere craftsman, far too little of an educated professional man.

The Scottish universities early perceived this anomaly, and long before the Medical Act of 1858 was passed, a regular curriculum of study had been instituted which was unquestionably (though still defective in many points) far more complete than anything hitherto attainable in Great Britain as a qualification for general practice. Not only so, but by a preliminary training in what we should now call the elementary biological sciences, botany, natural history, chemistry, comparative anatomy, and physiology, the mind of the student was opened to more than merely utilitarian views of his profession; the "surgery-boy" type, to which I have already alluded, was effectually eliminated, and replaced by a far higher kind of professional culture, founded upon a broad and generous estimate of the utmost that was then held possible between the ages of seventeen and twenty-one, to fit a man for the practice of every department of a profession which requires, and fully engages, all the energies of a well-disciplined intellect. It is true that in respect of what may be called scholastic training the Scottish graduates were often found deficient; the trifling modicum of Latin which in my time represented the whole of the non-professional culture required being a very poor substitute for the M.A. degree of Oxford and Cambridge, or any of the other insignia of the ideal academic man. True, also, that on the other side it was sometimes objected that the Scottish graduate in medicine was not sufficiently conversant with the details of compounding and dispensing powders and pills and mixtures, and, above all, draughts (at 2s. 6d. a piece) to be taken two, three, four, or five times a day; in other words, that he had not sufficiently mastered the technical details by which his neighbor, the English apothecary, was able to accomplish the great ideal of the developed "surgery-boy" type--the dispensing of immense quantities of "physic" in the most complicated prescriptions, to pass unquestioned down the willing throats of Her Majesty's lieges. But in spite of these two grave deficiencies, and perhaps many more in detail, of a mere real character than either of them, the Scottish University medical graduate has struggled on, with every precedent and every national prejudice against him, to a position of great credit and influence in the sister kingdom; and what is far better than that, to a more and more elevated conception of his art and the sciences on which it rests. The cause of this gradual elevation of his ideal is that the universities, which did not wait for the Medical Act of 1858 to make a beginning, were, nevertheless, fully prepared to advance with the times, and carry out as rapidly as possible all the improvements suggested by that Act and by the Medical Council which it created. A Royal Commission, appointed in 1858, in accordance with the Universities (Scotland) Act, enabled them greatly to improve their internal organization, just at the time when the Medical Act was initiating the revolution in English medical education and practice to which I have already referred. And now we are able to cite the very words of another Royal Commission, to show that our labors have not been in vain. "We readily acknowledge," write the Commissioners on the Medical Acts in 1882, "all that the Scottish Universities have done for medical teaching and examination, and we should hesitate to make any recommendation which, in our belief, would interfere with their usefulness or prosperity. We do not propose to interfere in any way with their

teaching, nor do we believe that students will cease to recognize the cheapness and excellence of their teaching." These, gentlemen, are not the words of Scotsmen, or of Scottish graduates, for on this Commission of eleven members there is only one Scottish M.A., who is also a professor in Oxford, and one Scottish medical professor, who is also M.B. of the University of London: the others being a peer, a bishop, an eminent English judge, a distinguished statesman, an equally distinguished naturalist, and others quite removed from the least suspicion of any but a dispassionate judgment upon the facts presented to them in evidence, so far as we or you are concerned.

The two addresses which I propose to reprint along with this one will, I trust, convey to you some idea of the direction and scope of these advances in medical education; not perhaps, by any distinct and separate statement of them, but by the glimpses they afford of the aspirations, hopes, and fears on your behalf of one who has been associated with medical students, almost without interruption, since he was a student himself; and this, not in the class-room alone, but in the hospital, and at the bedside of the sick, for nearly thirty years. This double relation to you as your teacher, continued over so long a period, may perhaps be considered to give the weight which comes from experience to suggestions in themselves not otherwise remarkable or profound; at all events you will, I have no doubt, receive them as tending to show how much the mind and heart of a university professor are put into his work, and how much the labor of teaching is for all of us lightened by the secure conviction that we possess your sympathy in all honest efforts to raise the work to a higher level. I am also glad to be able to tell you, and especially the juniors among you, that the testimony of all my colleagues goes to show that an increasingly high standard is being attained, gradually, almost from year to year, and that in particular the studies of the first year in anatomy, biology, and chemistry, show, to a very marked degree, increasing thoroughness. As I attach the greatest possible importance to these studies, not only in respect of their actual details of fact, but still more as a training of the mind into the paths of observation and reasoned experiment, which lie at the very root of all safe and sound medical education, let me press upon you the importance of continuous diligence and zeal at this the very commencement of your studies. Be assured that the labor of acquiring even what is commonly called *practical* information and skill in your profession will be greatly lightened, and your success greatly aided, by application to what is, and must ever be, the only foundation of a medical art that reaches beyond the merest empiricism. And now that all these departments may, according to the arrangements of this, and I believe all the other Scottish Universities, be studied in the laboratory as well as in the class-room, you may be assured that all the benefits which, in the first of these addresses, I ventured to anticipate for the development of practical methods of teaching, will be yours. It is, indeed, the increase of these methods in every department of our work that is mainly characteristic of these latter years of our Scottish University medical education. New buildings, new arrangements, new apparatus, new instruments of research, are everywhere found necessary, not only to convey the old truths, but to interrogate *nature* directly as to what is and what is not truth. And this *habit of mind*, which is nowadays not less than essential for success in every medical inquiry, can never be so easily and pleasantly acquired as in the first year of your studentship, in the fascinating

pursuit of biological research, whether in the animal or the vegetable kingdom. "Don't think, but try," said that mighty man of biological science, John Hunter; not that he meant to discourage thought or intellectual activity, for his own was of the most unresisting character; but that in his opinion all intellectual energy should resolve itself into active work, in the way of experiment and observation. This habit, so different from that of the mere literary student, finding his inspiration and materials alike in the knowledge that is got from books, must be acquired as completely as possible before you come to engage in clinical studies, for it is only to a limited extent that we can, in these, afford you the means of acquiring it. How are we to teach you effectually the fleeting phenomena of disease, if you have not for yourselves investigated the corresponding phenomena of health? How instruct you either in the one or the other to any purpose unless you have systematically cultivated your own faculties of observation and experiment by active personal research?

In the second of the introductory addresses to which I have referred I used these words in characterizing the existing state of the science and art of medicine:—"The art of medicine is at this moment in a peculiar position. The day of *orthodoxies* is over; the day of *real science* is only just dawning." It is worth while to return to these words for a moment, were it for no other reason than to inquire if the dawn has been at all brightening into day since they were written. The sixteen years since these words were written have been years of immense activity in research, and very much of what has been done in them tends, at least to fulfil the promise of a medical art of the future founded not on mere hypothesis, still less on dogmatic statements fortified by authority, but on accurate, continuous, and patient demonstrations of fact. In the first place, the art of diagnosis is constantly being improved by the introduction of new methods; and the basis of all these methods consist in this, that diseases hitherto quite obscure, or called only by conventional names corresponding to their most obvious symptoms, are being daily defined and rendered into much more exact conceptions in the light of an improved physiology and pathology, resting upon observation and experiment; so that what were formerly mere ancient names, surrounded by a halo of antiquity and traditional learning and skill, are now recognized symbols guiding the mind to well-understood lesions, as of the brain, spinal cord, heart, arteries, lungs, organs of special sense, and other well-defined points of the living economy, where, in many instances, the presence of the change, or lesion, can be actually demonstrated by such novel instruments as the sphygmograph and cardiograph, laryngoscope, ophthalmoscope, etc. I mention these newer instruments of precision, as they have been justly called, without prejudice to the much older and more established means which are now in the hands of every practitioner—the stethoscope, microscope, thermometer, and simple applications of chemical analysis—all of them employed in accordance with modern pathological investigations of a far more exact kind than any known to those great and wise men, from Hippocrates and Galen downwards to Hoffmann and Boerhave, from whom the art of medicine derives, or derived until the present century, the greater part of its current nomenclature of diseases. This great progress in the direction of realism in diagnosis is apparently quite boundless; for no one can tell, nay, no one can even conceive, how far the progress of a very accurate physiology and pathology, based upon physical

and experimental science, may lead us in the years to come; any more than anyone could in these latter years, by mere inspiration or study, have anticipated the splendid researches of Pasteur, the triumphs of antiseptic surgery, or the discovery of Koch's tubercle bacillus.

The mention of these splendid achievements, mainly of the last twenty years, and the last of them only of yesterday (as it were) recalls the fact that it is not only, perhaps not even chiefly, through the perfection of diagnosis, that the medicine of to-day is advancing from dawn into daylight. The enormous labors, the multiplied and varied observations and experiments, that have been bestowed upon these modern researches, in the genuine spirit of exact physical investigation, show that the progress even of diagnosis, and much more of the prevention and treatment of disease, is coming to depend to a greater extent than ever before upon that discipline of the mind which is to be found only among the consummate masters of physical science. Every day and every year removes us further from the period when it is possible merely to make chance hits in therapeutics, and so, by an individual happy thought, or particular prescription or nostrum, to compete with those who are investigating cautiously and experimentally the results of remedies in disease. The thorough investigation of remedies, in their action both on the healthy and diseased organization, is proceeding at a rate that seems, I confess, sometimes to be almost too rapid for security, but which has resulted, and no doubt will yet result, in achievements not less remarkable than the advances in diagnosis. And here let me give in my adhesion, in passing, to every word of the admirable address delivered the other day to the students of the Veterinary School by my colleague, Professor Cleland.³ Like him, I am not personally engaged in experiments on living animals, and have no reason to expect that I shall soon, or perhaps ever, be so engaged. But I hold it to be all the more on this account necessary to protest against a law under which neither the invaluable experiments of Pasteur on the bacillus of anthrax, nor those of Koch on tubercle, could legally have been performed in this country without repeated special applications to the Secretary of State, which might with great probability have been refused, or unreasonably delayed. Punish cruelty by all means, and repress it by restrictive enactments, provided you can devise such enactments as will strike impartially at the cruelties of science and of sport; but for a Parliament which tolerates, or even encourages the latter to single out men of science, some of them the most distinguished benefactors both of mankind and of the animal creation, and to place them under ban, forbidding them the freedom of action that is conceded to all other men until they are proved to have done amiss, is to my mind one of the most monstrous and inconsistent, if not hypocritical, positions that any Legislature could assume.

The rapid progress of sanitary and preventive medicine during the last twenty-five years is a subject on which I might well detain you, were it not that I feel that this address has already run to a length sufficient for its purpose. Nor is it necessary, nowadays, to draw special attention to this point. For the progress here has not been from dawn, but from almost absolute darkness into daylight. Every newspaper, every monthly magazine teems with the popularized results of sanitary investigation. He that runs may read. And nowhere less than in Glasgow are we likely to be allowed to forget the importance of this line of in-

³ Glasgow Medical Journal, November, 1882.

vestigation, or the many admirable results that have been brought to light by our excellent medical officer, Dr. Russell. The danger rather is, in my opinion, that feeling ourselves so well served, and at the same time so well represented in him, the medical profession at large will cease to interest itself in details which can be so easily handed over to a large and well-organized staff of public officers. This, I think, would be a great evil for us, not less than for the public. For preventive medicine, or the scientific study of the causes of disease with a view to their removal, is an integral part of the art of medicine in general, and cannot be withdrawn from the consideration of its professors without great injury to their function as healers. For these reasons, which I have always insisted upon in detail at every fitting opportunity in my own course of practice of medicine, I should be sorry to see the preventive medical service, or as it is called, the *sanitary* work of the medical profession, too completely specialized, and thus separated altogether from the rôle of private practitioner, as has been too much the tendency of late years. To you, as students, I would strongly recommend not to lose sight of either aspect of your future duties. Having acted as a public health officer for nearly ten years previous to 1872, I am able to speak from personal conviction of the valuable effect of such a career in educating the mind towards the recognition of some of the highest duties of the practitioners in the ordinary sense. And this education I shall hope to convey to you, in principle, even if I shall leave to others (as must need be) the development in your instruction of the daily increasing details which form the proper subject of a distinct sanitary course.

Gentlemen, I have done. All that remains for me is to wish you, on behalf of my colleagues and myself, a prosperous, animated, and a successful session. That will not be wanting, if you and we together approach our work in the right spirit. Be in earnest. Be diligent. Be modest and truthful. Help us, as we desire to help you, by mutual sympathy in our joint labors. Finally, *ora et labora*. Look for the blessing from on high. And if modern science seems, at times, to wean your minds away from God, look again, and look further and yet nearer, till in the reign of law you can perceive a truly divine order; in nature a living force behind nature; in the mystery of your own will the faint image of a higher will than your own, neither less nor more mysterious in its essence; in the endless descent of species, whether by evolution or otherwise, the infinitely multiplied reflection of a relationship to Him, who, while He is the Father of our spirits, and the framer of our bodies, is also "nigh to everyone of us," the Father of all the families of the earth, from everlasting to everlasting.

Inaugural Address

DELIVERED AT THE

GLASGOW INFIRMARY MEDICAL SCHOOL,

On November 1st, 1882.

By EBEN. WATSON, M.D., F.F.P.S. Glas.,

Surgeon and Lecturer on Clinical Surgery at the Infirmary.

MY LORD PROVOST AND GENTLEMEN—I consider it an honor to be asked to take part in the interesting proceedings of this day. I congratulate you all—teachers and students alike—on your taking possession of the admirable building in which we are now met as the future home of the Royal Infirmary

School of Medicine. I have in my time visited several such schools in this country and on the Continent, and I will say that I have not seen any one better, if so well, adapted to the purposes of medical teaching. The lecture-rooms are well lighted, well aired, and suitably seated to give all a good view of the lecturer's table, while the laboratories are convenient, and well fitted up with the necessary appliances for work. On the whole, I feel sure that if my friends the lecturers have not ample audiences to listen to their prelections, and if you students do not make good and satisfactory progress in your studies, it will not be the fault of the architectural arrangements for your comfort, or the educational requirements at your command.

Yours is comparatively a young school, and has much of its reputation still to make, and therefore I think it is a matter of no small congratulation to you that you have such a close connection with one of the oldest and best schools of medicine and surgery in the West of Scotland—I had almost said anywhere to be found—I mean the Royal Infirmary. You share its name, and to some extent its high prestige, and situated as your building is you almost seem to form part of it. Yet here, in passing, I cannot but express the hope that the day is far distant when the management of the infirmary will depart from that catholicity which has hitherto characterized it, and when that institution shall become in any degree less of a common platform on which the teachers and the students of all schools may meet on terms of perfect equality, and be dealt with in a spirit of thorough impartiality. I am sure I may take it for granted that none of you would wish for such a change. You are willing to stand, as a school, on your own merits, and one of the chief of these must ever be the advantage you are able to take of that older institution which has been doing such good service in the past.

I believe it is eighty-eight years since our infirmary first opened its wards for the reception of the sick and wounded poor, and it is pleasant to let one's imagination wander over that long period and lose itself in the attempt to estimate the amount of good it has done, not only to the immediate objects of the charity, but also through the medium of the many generations of physicians and surgeons who have owed to it their training and their skill. Then there is another aspect in which we may well be proud of our infirmary, for it has amply borne its part in contributing to the advancement of the healing art. Much in this respect has been done indirectly, as I may say, by those who after studying here have gone far away from our city, but much has also been done directly and immediately in the very wards of the infirmary. I feel that I cannot and ought not to enter here into details on this subject, yet I may be allowed to give two examples of what I have now said. There has lately departed from among us a veteran in surgery—Dr. Andrew Buchanan—whose ingenuity, guided and called forth by his experience in our infirmary, has afforded us several new procedures, and especially one great operation which will make his name long remembered with esteem. Then you doubtless know that it was in the wards of the Royal Infirmary that Mr. Lister was first led to make that application of Pasteur's discovery to the healing of wounds which has resulted in the antiseptic system of surgery—a system which has revolutionized the art, and now enables us to perform with safety operations at which the boldest surgeons of former times would have stood aghast.

Now I have thus, in few words, brought before you the high and established reputation of the Glasgow Royal Infirmary as a field of medical and

surgical training, not to boast of it, but for the purpose of urging upon you that your best policy is to make your character as a school mainly rest on its practical nature. Surely this is to be expected of a hospital school, and I think it will best recommend you to all concerned, to the authorities who legislate on medical education, as well as to the students who may fill your halls.

Some time ago medical education in this country, especially in England, was too practical. The young aspirant to our profession was sent as an apprentice to some general practitioner, and he was taught to make pills and potions, and by-and-by to visit patients, and only after this course of instruction was he sent to school or college to pick up what science he could. After that period came a reaction, and then the only desideratum appeared to be science, and not practice. It was to be taught by specialists, and studied without reference to its application. Natural history, botany, and chemistry, even anatomy and physiology, were to be studied by the perplexed and overburdened student as pure sciences for their own sakes. The idea of medical chemistry, of surgical anatomy, or of physiology, as the institutes of medicine, was scouted as far beneath the requirements of the day. But somehow it has been discovered that there is a mistake in all this; that such an education might make scientists, but would never make practitioners of medicine; and hence another reaction is, I think, now taking place, and I hope it will not be carried too far, in favor of more practice for our students, even if they learn less science. In proof of this you find *THE LANCET*, which is a very good index of opinion in our profession, enunciating the dictum that medical students of the present day are "under-educated and over-examined."

For my part, I would rather say that they are often not well—not quite rightly—educated. They are over-educated, if you like, in some things and much under-educated in other things. Take physiology, for example, with the teaching of which I am very familiar. Is it not the fact that the time and the energies of the student are often wasted on what to him are trifles, while the great and important truths which are to regulate his practice are slurred over in so superficial a way that he is apt to lose sight of them altogether, and really not to know much about them? Some years ago I visited the physiological laboratory of a distinguished university at a considerable distance from Glasgow, and it so happened that some students were sitting at the table when I was shown round by their professor. He explained to me that they were answering the written questions for one of their degree examinations; and what do you think was the nature of the questions over which the perplexed students were cudgelling their brains? Were they about the functions of the kidney, or the liver, or the lungs, or any other important organ of the body? No. The students were required to describe certain very pretty physiological instruments, fine balances, sphygmographs, recording drums, etc., which were all placed before them on the table under their appropriate glass cases. I hope that did not form the whole of their examination in physiology; but the fact of this being such a remarkable part of it showed that in the lecture-room far too much importance had been put upon the methods of physiological investigations, while the results, the facts of physiology as applicable to practice, must have been proportionately less insisted on and drilled into the students' minds. The same thing might likewise be said of what are called the practical branches of the curriculum, though in my opinion all your studies ought to be practical from ana-

tomy onwards. Suppose surgery, for example, to be taught apart from actual practice on living men and women, and anyone can see how useless it would be. The fine-spun theories of the lecturer may be plausible enough as he puts them, and the cases which he relates of course all turn out successfully, but one grain of demonstration in the wards of a hospital on the living subject must be acknowledged to be worth bushels of such oratory. The conclusion, then, to which we are necessarily driven is that lectures may be and ought to be the best preparatives, but are only preparatives, for work in the wards of the hospital; and I augur well for this school inasmuch as I hope and believe that the sentiments I have now expressed accord pretty nearly with those of your teachers, and that they will endeavor as soon and as constantly as they can to refer you to what they will excuse me for calling the best part of their teaching—viz., that which they show you in the infirmary.

With the other part of *THE LANCET*'s dictum we have not so much to do here; but I have no objection to state it as my opinion that students are over-examined, because too much is required of them at that early stage of their history, and because their examiners are too often specialists in their branch who are apt to forget how defective was their own early knowledge, and also how little they know of the other subjects, on all of which the student is expected to be well informed. Surely too much is required of our students, regarded *en masse*. The bulk of them are destined to be general practitioners, and not operating surgeons or consulting physicians, and I think that the true remedy for much of the complaint now made, both of over-examining and with still better reason of unequal and uncertain examining, lies in the institution of a single board of experienced examiners, not being teachers, for each country, and a minimum qualification essential for all, but not essentially the only one for all. I say, let there be one qualification sufficient, but not more than sufficient, for a license to practice, and let those who can and wish it add to that qualification other and higher qualifications, according to their circumstances and prospects in after-life.

But, as I must now draw these necessarily brief remarks to a conclusion, I wish, for the few minutes longer of your time which I can occupy, to urge still more specially upon you students to take fuller advantage than some of you do of the great hospital which is so near you now. Afterwards you may enjoy no such opportunities, and in your possibly distinct practices you may often long in vain for another look into the wards to see how this or that case is managed there. My advice to you in plain words is, that you should seek for dresserships early in your career, so that you may have the right and be almost forced to come into actual contact with the patients. The more and the earlier you work with them the better will you be fitted for your future duties. You may not fully understand all that is said or done in the wards at first, but taken along with the instructions you receive in your classes, it is strange how quickly the required knowledge will come to you if you put your heart into your work. "Nulla dies sine linea" is a good old maxim, which in your case may be taken to mean, Let no day pass without its lesson learnt, its fact stored up in your memory. Then by the end of your sojourn here your minds will be filled with practical knowledge, and your heads and hands accustomed to bring that knowledge to bear on your patient's circumstances.

To stimulate your zeal I would remind you that the character and success of this school depend

greatly on you. Your character and behaviour now will be regarded, and rightly regarded, as the index of the character which your school ought to bear; while your success hereafter will be its best recommendation to others. In short, I wish to more than hint at a qualification not often spoken of by lecturers, but which is almost as necessary for success in practice as a good knowledge of your profession—I mean quiet and gentlemanly manners, and a something in your style indicating kindly interest in all who consult you.

If you enter the graveyard of our cathedral and turn a little to the right you will come to the tombstone of Dr. Peter Low, the distinguished founder of the Faculty of Physicians and Surgeons of this city, and you will read in his quaint epitaph some such words as these—

“Though his physic sometimes failed,
His pleasant humour aye prevailed.”

I wish we could all have such a pleasant humor. Try to have it as yours from the first, and then your recollections of this happy student-time which you are now enjoying will be unclouded with regret; and in your future lives, if cares must come, they will be less bitterly felt by you because they will be shared, in sympathy, by others whom you have assisted and comforted in their troubles.

Considerations

BEARING ON

OUR PRESENT KNOWLEDGE OF FEVER.

A First Lecture.

By WALTER MOXON, M.D., F.R.C.P.,

Physician to, and Lecturer on the Principles and Practice of Medicine at, Guy's Hospital.

GENTLEMEN—In pursuance to the usual course, I have now, by what is rather an abrupt change, to turn your attention to the subject of Fevers. I conceive that a lecturer professing to teach the principles and practice of medicine must, when his subject is fever, proceed to explain to the class what fever is from the point of view first of principles, then of practice. Speaking now very generally, I suppose that principles must here mean a consideration of what fever is in itself, and practice must mean what you will do with fever when you meet it.

Taking the principles first, our question becomes, What is a fever? Well, then, what is a fever? As I do not know sufficiently well to say offhand, I thought it best to look in a book, and I chose what I regard as the best recent work on medicine. In it I find the esteemed and accomplished author saying, “By the term fever is meant that abstract condition which is common to all so-called febrile disorders, and the presence of which gives them claim to that designation.” Now I am always a little timid when dealing with anything that deliberately calls itself abstract, and I am ready to confess to you that I feel myself very insecure in abstract questions. There is an un-English lucidity—I might almost say an alien pellucidity—about them which estranges them from one's practical middle-class mind; so that, indeed, it is necessary for me to form a habit of familiarizing abstractions to that mind by clothing them in some concrete form, or at least by paralleling any puzzling ones with others better known to me. Let us do so in this case, and instead of fever suppose we put *heat*. We shall then perhaps get an idea as to how far our inquiry “What is fever?”

is advanced by the definition I have quoted to you. Let us ask, What is heat? and answer in parallel terms: “By the term heat is meant that abstract condition which is common to all hot things, and the presence of which gives them claim to that designation.” But really when I look at this definition I am afraid your physical philosophy will not be much enriched by such a piece of information.

Well, but what in its own nature is a fever? Be patient with me. Half the answer is often obtained, and the other half commanded, by asking the question rightly. Again, then, let us try the compass of the question as we just now tried the value of an answer by paralleling it in a better-known field of inquiry. Suppose we ask, What in its own nature is a horse? Now, you would not say, “By the term horse is meant the abstract condition common to all equine animals, and the presence of which gives them claim to that designation,” for you will see that that really involves a fallacy. As other animals than the horse are equine, just as we shall presently see that other diseases than fever are febrile. Well, from the point of view of such unlimitedly general principles as would touch the nature of the things dealt with, What is the nature of a horse or of a fever? I must answer you that, in truth, we do not know the nature of anything in itself; we do not know the nature of our own bodies, nor even the nature of our own minds. In fact, we do not know what nature is. It is a growing, and we no more know how it comes about than our bones grow than the old ecclesiast did. Our language cannot fit itself to the processes and results of nature or growing. All we do is not nature, but fabric. And our readings of nature are in language of fabric; even when they are not unconscious fabrications. The laws, or, as Bacon termed them, “forms” of unliving things, are perfectly expressed by the language of science, which follows their *a posteriori* progression with measure and rule. But the laws or forms of living things are not *a posteriori* causes, but *a priori* reasons for existence. So that, if I may so speak, dead nature exists *a posteriori*, but living nature *a priori*. And human language must in some sort be read backwards if we are to catch the meaning of the life of living things. The genius of Darwin has left us a formula which works somewhat like the integral calculus works, so that by its means reasoning belonging to straight line *a posteriori* nature is turned at an infinitude of little tangents, and so fitted to the immeasurable, unknowable curved lines of the forms of *a priori* living nature. But we must beware, lest with the aid of this powerful theory of natural selection we find ourselves contentedly reasoning in circles. This is not one of my easy ideas, and lest it should be too pellucid I will proceed to clothe it in a concrete form, and ask you to observe how, even in your simplest readings of nature, even in the description of the simplest anatomical facts the discrepancy between the nature process and the mental process at once appears in its primitive simplicity. Thus you say the biceps muscle arises from the scapula and is inserted into the radius; but, in fact, the biceps muscle grows in its place, and grows in continuity with the scapula and radius, and it never arose from the one or stood in a past participle relation of the verb to insert as regards the other. You cannot conceive how it really comes about that the continuity of bone and tendon and muscle grows into being, and when you proceed to state a history of it you can only do so in such terms as your mind and its language are capable of, and so you speak as if the growing of it were much the same thing as your making of it would be, and talk as if you, or somebody like you, had made first a scapula

and then sprung a biceps from it, and afterwards fastened it on to the radius.

Thus, it is true that in dealing with living nature our language tends to put us mentally athwart the facts of the case, even as concerns things that you can realize and handle, like the biceps muscle. But inasmuch as what we have to know of and to do with the biceps is comparatively simple, we are not led into any practical inconveniences, for the biceps, capable of that measurement which constitutes science, is there before your eyes, to keep you steady and prevent your imagination from playing its tricks. But our question is of the nature of a fever. And we find our last new book on medicine defining fever as an abstract condition which gives claim to a designation; and you will at once see that a thing of that kind is not so easily got hold of as the biceps. And I am saying all this so that we may understand each other as to the proper character and the limits of our inquiry; and not carry it too far, lest we should feel dissatisfied because we cannot know of fever what we do not know of the biceps, and that we may not lose ourselves in wandering after questions as to the nature of fever, such as could not be answered regarding the most tangible and ponderable living objects.

We begin, then, if you please, with the clear knowledge that we cannot know the nature of fever, and so we will not ask it. We must, then, resign so much of what we, in the most general view, may seem to profess in the term principles of medicine.

But it is now time that we take up a more positive position and endeavor to learn what the principles of medicine in relation to fever really are. Yet it may be well to quite clear up this word "principle," lest it should contain anything vague and pretensions. The word "principle" is very ambiguous in its signification; you find it in the sphere of morals with the most noble absoluteness of meaning in the whole range of language—as when you say "a man of principle." And there are sciences in which the principles are abstract and absolute, as in the case of mathematics. And thus the term "principle" assumes to us, since we all have been taught morals and have learnt mathematics, an absoluteness coming from our prior experience of its use; so that the word "principle" claims to express an absolute masterfulness of obligation. And in expounding the principles of medicine with regard to fever, we naturally look for some general principles about fever whose obligation is absolute, and masterful, and commanding. But in truth, it must be confessed that when we come to deal with the facts of living nature, we are obliged to let go the commanding style in any application of the word "principle." In short, we have to seek for our principles patiently and laboriously amongst the facts of the cases. And, indeed, we have to find our principles amongst the facts, and we have to be content with the most commonly and generally recognizable facts and consider them our principles. Thus in physical science, and especially in the physical science of living things, the greater and more absolute facts. For in dealing with real things, and especially in interfering with the health, even if it be the grossly bad health of other persons, we must have a direct grasp of our principles, and this I have shown you to be the same thing as to have a direct knowledge of the general facts, so that what we say may be as little as possible second-hand, for to get in the habit of speaking or acting at second hand is to lose the power of meaning, and the value of a doctor varies according to what he can himself mean to do, and do. And when you say a thing at second-hand you do not

quite mean it. Of course, when you say a thing is, you mean that it is. But if you have not seen that it is, your meaning that "it is" is necessarily less directly grounded. And, in fact, if you say a thing is, and mean it all you can from hearsay knowledge, your "is" comes—as the hearsay is more distant—to be really worth no more than its value as a copula in an abstract proposition, such as the "is" in the statement that "a griffin is a dragon with wings." The value of the copula varies as the directness of the utterer's knowledge. You can only mean when you know and believe, and from this digression I wish to lead you back with a firmer grasp of the greatest truth a young medical mind can inform itself upon. The great truth, that inasmuch as your future is of value to others in proportion as you can mean to do and mean to say, and inasmuch as you can have no proper meaning from indirect knowledge, you must know the principles or general facts of your art at first hand and for yourself.

Our question has now transformed into, What are the general facts common to the several kinds of fevers? Now, I am really afraid that you will accuse me of deliberately drawing you aside into obscure questions whenever we approach a clear one; but though I am speaking to very various minds, various in capacity and tendency, some of which will think I am talking nonsense, and others will think that there is much more of profundity and importance than there really is in it all, yet I must follow my own judgment of what is needful, and ask you now to consider, in an abstract way, What do you mean by a kind of fever? This word kind is so constantly employed by every one of us with variations in its import, that it is worth our while to clearly understand in what sense we may rightly use the word "kind" when speaking of a kind of fever, as compared, say, with the sense in which we use it when speaking of a kind of inflammation. It is well not to use this important word vaguely. Shall I tell you a little anecdote to impress one of its possibly clear significations on your memory? The anecdote involves, I regret to say, a confession; but it was in the days when I was young, and not under proper self-control. I chanced to be placed, for the purpose of tuition, with a gentleman of an entomological turn of taste. The delight of this gentleman in discovering a new fly inspired my always sympathetic nature with the wish to afford him such a gratification. But new kinds of flies could not always be found, especially flies new to him, so one very hot afternoon it struck me to give him his favorite pleasure by a somewhat indirect and factitious proceeding. Inspired with this purpose, I caught a large housefly and rolled it carefully in the carmine powder and set it free, taking care that it was well within sight of my instructor. The fly was seen, and I do not think I ever witnessed such eagerness of pursuit. The day, as I said, was hot, and the fly was lively, so that my instructor, and I at second-hand, had good sport. When the insect was at length captured, I may tell you at once that, after handling the insect for a moment, my master concluded that it was not a distinct kind of fly; yet in the mere matter of color it had as much ostensible claim to be considered a new kind as digitalis purpurea to be considered a distinct kind from digitalis alba. But the reason why he never thought of allowing the red fly to be a distinct kind was that he at once understood when he touched it how the fly came to be red, and, I am sorry to say, shrewdly guessed who made it so. Now if, instead of finding red powder on the fly, he had caught such a fly red in a manner he could not explain, he would have pinned it out on cork, and have called it "*musca rubra*," or

something equivalent. What I want you to perceive is, that a usual and a true ground of distinction of kind is the existence of differences which you are unable to explain; and perhaps, indeed, that would be the only general philosophical ground for distinction of kind, were it not that with reference to living things another system of facts affords narrower and more special and proper grounds of distinction of kind. I mean in the power which living things have of reproducing their kind which power of reproduction is the basis of zoological and botanical distinctions of kind. But even amongst cattle breeders who are most concerned in this question, the idea of kind belongs rather to resemblance than descent, as you may note from their speaking of a casually varying individual of a flock or herd as being out of kind.

Now, with reference to fevers, I wish to draw your attention to the fact that we are able to be clear upon the idea of kind, both in the wider and the more restricted sense which I have just laid before you; and that in this relation of kind fevers differ from all other classes of diseases; at least this is true of the contagious fevers, in which the disorder is propagated in a manner only comparable to descent by generation. Indeed, one of the most practical of the fruits of wisdom which experience will develop in you when you have seen much of professional work amongst families will be the readier conclusion of the nature of an attack of illness by tracing the kind of fever to which a child has been exposed. And, again, it may be said that the chief evidence of the distinctness of kind among some of these contagious fevers has been obtained through most patient investigation and watching of local epidemic attacks of one fever or the other, by which it has been proved that each disease spreads in its own kind, and not in any other. This is the only conclusive argument to prove that typhus fever is distinct from typhoid fever; for all the differences which I shall have to detail to you as characterizing typhus in its diverg-

become dogs, nor dogs to become cats; so typhus never varies to become typhoid, nor typhoid to become typhus. This certainty of kind in fevers marks a vast difference in their nature and relations as compared with those diseases which I shall have to introduce before you when speaking of disorders of the lungs, heart, and brain. I shall then detail to you the characters of many things spoken of as kinds of diseases; but the word kind is much looser here, and indeed has only a quite vague and popular application. I remember being amused by a passage in some story. The author had got one of his characters into a hospital, and made a little poor fun in setting out the effect on the ignorant patients of the learned doctor's clinical remarks to his group of students. The impressions of the patient were rendered something in this way, "The doctor said as how the thing what No. 3 has got in his head is the same as No. 6 has got in his stomach."

I suppose that the clinical teacher must have been asserting in the hearing of the author of this character that inflammation of the brain was of the same kind as inflammation of the peritoneum, and if the question was raised, Is meningitis the same thing as peritonitis? you would certainly see that meningitis differs from peritonitis, not like typhus and typhoid differ as generated kinds differ from each other, but meningitis and peritonitis would be always held to differ by differences untraceable in their nature, as the purple and white foxglove differ, so long as you consider them to be separated by the inalienable peculiarities of origin and relationship which separate the meninges from the peritoneal sac. But if you think that the physiologist and the pathologist could really set forth and explain all the differences between these membranes, then would peritonitis and meningitis differ in kind to you only when you used the word kind in a vague popular way, as when one might say that a knife is a different kind of a thing from scissors, or a pen from ink, in which case the phrase "different kind" means no more than that

PYREXIA OR FEVER.

PRIMARY.				SECONDARY.	
CONTAGIOUS.		NON-CONTAGIOUS.		CONTAGIOUS:	NON-CONTAGIOUS:
ERUPTIVE.	NOT ERUPTIVE.	Miasmatic:	Autogenetic:	Epidemic wound fevers. Erysipelas.	Pneumonia and other inflam- matory fevers.
<i>Continued:</i> Typhus. Typhoid. Relapsing.	<i>Brief:</i> Small-pox. Measles. Scarlet fever. Rötheln. Roseola.	Whooping-cough. Influenza. Erysipelas.	Intermittent. Remittent. Rheumatic. Gouty. Erythema nodosum.		

ence from typhoid might be differences through accidents. I have seen a very crowded outburst of typhoid eruption amongst the rash in typhus, and *vice versa*. Ulcerated intestine might be a character superadded to some cases of typhus, as pneumonia is superadded to some cases of measles, or as diphtheritic disease of the fauces is fatally superadded to some cases of scarlatina. But when you find typhoid always breed typhoid, and typhus always breed typhus, then all question as to distinctness of kind ceases, or at least lapses into the more general question, whether species of fever can be constant when, as modern biology has shown or brought up to a general belief amongst all biologists, no species of any living thing either is constant or ever has been constant. Not that this last reflection brings existing species nearer each other; for though they vary they do not vary towards each other, but always away from each other. They ever diverge; cats never varying to

the differences are untraceable as regards the intents and purposes before you at the time. In short, popularly the word "kind" is applied to things in virtue of any likeness sufficient for the purposes of the occasion. This digression has been so long and our progress in the direct line so short, that you may scarcely remember that we digressed from the question, What are the general facts common to the several kinds of fever? into the question, What do you mean by a kind of fever? And now we must go back to the original question, and I must proceed to show you what those general facts are which are common to all fevers.

Stay though, we must have another digression, for I am afraid you might be content to regard every distinct kind of fever merely as a distinct sort of fever, and thus to ignore the relations of the several kinds of fever to one another. But if you take the facts of the several kinds of fever you

will find that there are some of these facts special to each distinct kind, and others that are general to several of the kinds. And on perceiving and admitting this you must perforce regard the group of kinds of fever which have general facts amongst them, which facts are common to all of the group, but absent from all other kinds not included in the group. I say you must regard the group of kinds which have the common characters as in some sort genera of fever. And when you further find that some of the groups of kinds have facts common to such groups but absent from other groups, the groups thus connected must associate themselves into yet more general groups which become orders. So that, for example, Mr. Jones's fever has characters which bring it together with all cases of scarlatina, but amongst those scarlatinal characters is the fact of shorter duration, which makes scarlatina differ from continued fevers, but agree with a group including measles and small-pox, etc. But, again, amongst the characters common to all the group so included are some characters, such as the possession of a specific eruption, which bring Mr. Jones's scarlatina into association with the more continued fevers, typhus, typhoid, etc., but which separate it from all non-eruptive fevers. Mr. Jones thus becomes a case of the species scarlatina of the genus not continued of the order eruptive of the class contagious fevers, and thus you, as it were, perceive whereabouts Mr. Jones hangs upon the family tree of fevers, and you view his position with a greater total comprehension. Such a family tree view is a nosological view of fevers. You can construct such a tree as to the family of fevers, but not as to other diseases. The nosology of other diseases is only an appendix of the anatomical and physiological arrangement of the several organs and parts of the body.

You will, I daresay, remember that all the while our question is, What are the general facts common to the several kinds of fevers? Well, now, you can see that we have reached a point from which we are at an advantage in solving that question. For when we have recognized what are the general facts that form the bonds of association of the several generations and families of fevers, then, as we have seen that these facts are themselves the principles of medicine with regard to fevers, we find that we thus reach at once our general principles, and can study them with due observance of their order of succession in importance. The facts common to the most inclusive group will be the most general facts and principles, and so on with less general facts to the less inclusive groups. Now, if you look at this scheme of fever, you observe that the most general division of fever is into primary and secondary fever. This is, indeed, not only the first in the order of nosology, but the first in practical application. In every case of fever that comes before you the first question is, Is it primary or secondary fever? One question only can precede this—namely, Is it a fever at all? What is fever? In its most general sense fever is still febris, fervid heat, and its only and sufficient criterion is heat. Not the feeling of heat. A patient may feel hot to you or to himself when he is really not so, and may be shivering with cold when he is thermometrically very hot, as in the cold stage of ague. But since the introduction of the clinical thermometer you can easily be quite sure of fever, or, as in this widest and most general sense it is more properly termed, pyrexia. You decide it by the thermometer. If his temperature is above 100° the patient has pyrexia. But in a vast proportion of cases pyrexia or feverishness is secondary to inflammation; and, in fact, before you pronounce a case to be fever you must be sure there is no local cause

on which the pyrexia depends. Search for local inflammation. If there is no local inflammation, then it is fever, and it is called primary, or essential fever, or "fever" as distinguished from mere pyrexia. The next great characteristic, in which you find the first line of division of essential fevers is the character of contagiousness. This, too, is not merely first in order of generality, but in order of practical importance. When you are sure that the case is some kind of essential fever you will be asked by the friends, Is it contagious? A very serious consideration, on which depends the taking of immediate steps to ensure the safety of those around, steps which are annoying, troublesome, and costly, and which therefore must not heedlessly be enforced, but which are so imperative when necessary that there is no forgiveness if you fail to take them in due time.

And here I think it will be well to consider in a general way, and once for all, the great fact of contagion which is common to the more dreaded and deadly of the fevers. What do we know about contagion? Well, we seem on the very brink of knowing all about it, and yet we must perhaps on that very account be cautious. It is well to be circumspect on brinks. And the attitude of science is properly one of caution, especially of caution against the very probable. Science used to be always being misled by the probable. Therefore now let us challenge strictly all evidence when a general conclusion is to be drawn. The general conclusion is none other than that all contagious fevers arise through the entrance into the system of what are called "germs," and that these germs are of the nature of living organisms, such as have from the first microscopical ages been known to microscopists as bacteria spirillum, micrococcus, etc. Many an hour have I spent in watching these, but never thought of associating them or any of their kind with fever; yet what I witnessed many years ago might have awoke a quicker perception to the anticipation of recent discoveries. I was watching floscularia, a stationary species of rotifer, resembling a relatively large bell with a Japanese quaintness of design about its figure. These creatures had come in large numbers in the aquarium at my dining-room window. Their textures are entirely transparent, and I was discovering their sense organs and the ganglion that represents their brain, and in particular I was watching the curious disappearance of a pair of bright-red eyes, which these creatures possess whilst they are young and active—eyes which, like some other creatures, they lose when they grow old and acquire established positions. But, to my great sorrow, my floscularias, which had been thriving and multiplying freely, began to die away before I could finish all the observations I had hoped to include in a paper which is in the Linnæan Society Transactions. As the creatures sickened they became turbid instead of clear; and whilst I was endeavoring to follow the nerves from the ganglia I saw that the obscurity which clouded them was due to the presence of countless bacteria, exactly such as I am now familiar with in Koch's figures. I now know that I was witnessing an epidemic of bacterium fever in a population of floscularias, but I was not seer enough to see what was before me then, as I looked for and thought only of nerves.

In 1873, Oberheimer, of Berlin, discovered spirillum in the blood of persons suffering from relapsing fever; and the fact that such organisms are in the blood in relapsing fever is beyond all question. This discovery might at first seem only a further extension of the knowledge we have of scabies through the finding of the itch insect. But there is this vital difference, that whilst the itch

insect is living his quiet little life as an unwell-come guest, he creates no general disturbance except for some importunate sensations; whereas when spirillum gets into the system there is fever, and indeed intense fever. Evidently, then, the spirillum has a much more intimate and general relation with the system than the itch insect has, and it becomes a most interesting question what those relations really are. The facts are simple enough; indeed, are they not precisely such as science has long been aware of as occurring in the popularly well-known processes of vinous and acetous fermentation? In the fermentation and in the fever have we not definite systems of turbulent changes determined by the presence of living germs? Even before the discovery of the yeast plant fever was seen to resemble fermentation. Well, there we have a familiar and apparently close analogy to incline us to the view that relapsing fever, at least, is a colonization by foreign living creatures which in some way breed a poison, or which, as some think, fill up and choke the life out of vital parts of the frame. This is a simple and plain view, and is easily accepted and understood. But the truth may not be so simple and plain, and I wish to draw your attention to an alternative view. This alternative view will appear to you if we ask the question, Are these spirilla—which, by the way, much resemble some spermatozooids—spermatic in any sense useful to recognize? Are they the offspring of the human body endowed with powers to disturb the vital processes of other human bodies? In a general way, there is a range wherein life and fever show enough in common to have been more than merely poetically or metaphorically parallel. For fever is like life in having its times of duration limited though uncertain, and in having its stages so that you can anticipate them, and you can recognize whether the fever is a young or an old fever; and, as our very question shows, fevers reproduce their kind. Here, then, are all the characters of a life: its uncertain yet sure limits; its stages of development; its power of reproducing itself. And so a fever might appear to be another life lived in and by its sufferer, and the human fevers would thus become as it were, episodic lives supplementing human life; so that you have not quite lived until you have had your fevers; though it may be found for you that you have quite lived when in the middle of one of them.

There may be too much of some sorts of life. In strychnia poisoning or in laryngismus stridulus, for instance, the convulsions themselves cause death. But convulsion is itself an act of life, and so you may die by too much life. Life is a paradox, look at it as you will. You know that from the chemist's point of view life ought to settle itself at once by the several elements obtaining their favorite affinities, and being forthwith satisfied, which they never do until life is over. Life is such a paradox. But from my present point of view life itself is, as it were, a protracted infection of the germ by the sperm, and the living body remains during its life germinal to other infections when suitable spermatic elements come in contact. If this view seems to you more fanciful and supported by less analogy than the fermentation theory, I will at once put before you what is a serious difficulty in accepting the fermentation theory of fever. On this theory it is not very difficult to explain how it comes to pass that one attack of a contagious fever protects from the danger of that fever ever after? This, as we shall subsequently see, is not strictly true, but it is generally true. If fever is merely colonization with germs who feed upon and live in the body, why should they not come and feed and live again? The only

explanation I remember to have seen offered is that the unsophisticated human frame is born with a small amount of some very special food of which the fever germs are very fond, and it is supposed that these little organisms are so fastidious, that they will not take any other nourishment, so that when they have consumed the whole supply of this kind of food, they die or depart to other feeding-grounds. Now, seeing that according to biological science these germs are only protoplasm, it would be very surprising if it turned out to be true that minute unspecialized organisms such as swarm in every puddle where organic decay is progressing should refuse to accept any nutriment other than some inborn kind of delicacy; and when you reflect that there must be a number of these delicacies, for no fever germs will pasture on the food of others, and in fact the ambrosia of one is caviare to the rest, it puts no little strain on the highest genius for imaginative scientific belief to suppose that we are all sent into the world each to bear a little special supply for the several kinds of fever germs to thrive upon.

On what seemed to you perhaps the more fanciful view we may suppose that the human frame can cast off spermatic elements which when they enter other human frames engage in an activity remotely like that which originates germination, so that for awhile, if I may so speak, the protracted germination which constitutes life is itself reinfected and diverted. We may suppose that this activity constitutes the fever; and that when once the fever is over and its life lived, it does not return. Were this really the case, would you not expect that these episodic lives would be most probably lived during the actively growing germinal years of earlier existence, or, in other words, would not the fevers attack children? Which indeed they do. Again, if you suppose the immunity from subsequent attacks which fever affords to be due to exhaustion of materials suitable to the parasitic germs, how can you explain those rather frequent cases in which typhoid fever or measles repeats its attack upon the convalescent patient, and even recurs a third time after defervescence? For if you suppose the immunity to be due to exhaustion of a material suitable to the parasitic germs, how can you explain the reappearance of the fever, and therefore of the germs with their supplies, just after the cessation of the first typhoid attack has shown that all supplies were exhausted? But if you concede that this proves the immunity in question not to be due to such exhaustion of supply, then how do you at all explain that subsequent immunity which is so marked and so happy a feature in the history of contagious diseases?

Well, then, the recurrence of typhoid fever cannot be a question of food of the germs. And if not, we must suppose that the repetition which makes three typhoids is due to some measure of time in the life of the typhoid germs themselves, so that each brood lives just the time of one attack, and the next attack is due to other broods whose life has a time limit equal to that of the fever. But these germs are minute unspecialized particles, which reach their little perfection with extreme rapidity, and all that is known of their rate of growth is the reverse of conformable to periods of fever measured by weeks.

On the other hand, if we suppose the fever process to be an episodic vital action between the elements of texture of different individuals, there is nothing contradictory in supposing such vital actions to be sometimes lived through a second or even a third time. Not long ago at the Pathological Society, there was under debate a question how we should explain the late manifestations of

so-called tertiary syphilis and the syphilization of the foetus whose mothers, having passed through the disorder, are not then actively diseased. And I endeavored to show that these and similar facts are explicable by assuming that tissue of recent origin, or tissue by chance left unsyphilized during the syphilitic fever, undergoes impregnation with the syphilis germs which chance to come from habituated older parts of the frame into contact with the new tissue, either through such an intercommunication of the several parts of the frame as is supposed in Darwin's theory of paragenesis, or, else, in the more easily understood instance of the syphilitic foetus, through the blood of the mother. And I pointed out that the observations of Mr. Tomes on the Haversian spaces of bones, proving that fresh texture arises and replaces old texture in the life of adult bones; that these observations make it probable that similar new formation occurs in other textures, giving rise to new-formed tissue, which would be germinal to or capable of vitally receiving any poison which might be transmitted to it from the already syphilized general textures. If this is true, though I now cannot give you all the evidence in favor of such a view, then, in tertiary syphilis we have occurring within the body of one and the same individual an infection of young and virgin tissue by the poisonous offshoots of older tissues charged with a cause of infection to which those older tissues are themselves no longer susceptible. Such a fact would form a step towards the admission of a like infection by the tissues of an habituated individual of the tissues of another not yet habituated.

But I have hitherto overlooked a branch of evidence of the existence of which you must be duly apprised. Though I may be allowed to deal judicially with the facts as offered, and facts are offered by the most accredited observers which would go to prove that the germs of a fever to which mice are subject can be grown into a fungus which produces spores, and that the spores of this fungus will reproduce the fever in other mice, whilst the fungus threads fail to do so unless spores be present. Such researches are, of course, very elaborate, and when admiring the thoroughness and continuity of the work, and the skill and foresight displayed in the views of the experimenters, we must recognize also the extreme difficulties in avoiding fallacy, and the corresponding possibility that fallacy was not avoided; for to obtain the germs of fever about the 10,000th or 20,000th of an inch large, and to plant them and grow them to a fungus, you must be able to follow their individuality; nay, you should never, if possible, lose sight of the individuals. It would be well to identify these germs; and, indeed, it would be much more secure if they could be marked—say, for instance, by trying little bits of blue ribbon upon them to distinguish them from the infinitude of vulgar multitudes of other germs everywhere around them. And it might be said that these germs did deserve such a token of distinction on account of the sober way in which they behave exactly according to what the commanders in the experiment expected of them. Indeed, if you will trail a little poetry amongst bacteria, they are so numerous and light that they will gather around and give body enough to the form of your conception so as to make good your theory and set it going in living shape; and a biological theory will have a very happy life when enclosed in a body of active germinal infective protoplasm. It is, indeed, the most fashionable creation of the period. But one must not speak irreverently of protoplasm, and our subject is all too serious. The question may appear a very narrow one when we ask

whether fever germs are independent parasitic organisms on the one hand, or specialized parts belonging to the human species originally taking their life from the human body. But to be stuffed with foreign germs is really so very different a thing from having your texture life set into new vital action by spermatic particles from the texture of another person, that it would be well to know which is the truth, if we can only find it out. As to the coarser view which has been advanced, to the effect that the merely mechanical action of fermentation germs may cause the phenomena and fatality of fever, we are not without an instance to show us what really are the consequences of the presence in immense numbers of microscopic organisms in the human blood. The recent discoveries concerning *filaria sanguinis hominis* show that these minute worms may exist in myriads and circulate with the blood without producing any fever, and, indeed, without causing any grave symptoms, and this when these worms are so numerous as to be immediately found in every drop of blood examined. Indeed, the history of *filaria sanguinis hominis* seems almost to give a crucial negative to any theory which would suppose fever to arise from a merely mechanical action of germs—that is, through mechanical obstruction produced by the germs. For when we thus speak of fever germs as perhaps always present in the blood, you must not suppose that one only has to get a microscope and a slide and put a little fever blood under it to find it full of germs. No, try in any of our cases of typhoid in the wards and you will find these germs by no means very easily discovered or obvious things. At the outset of such an inquiry you must take notice that the blood serum is often crowded with minute particles which must not be confounded with bacteria, and which exist often to a large extent in the blood of healthy persons. During last winter clinical session some of my most acute and intelligent friends, perhaps now present, searched carefully for germs in the blood of several severe typhoid cases. The result was that one bacterium was seen, only one, but I was told it was a very active one. When I say that Mr. Booth saw it, you will know it was well seen, for we all regard Mr. Booth as one of the very ablest and very best students at Guy's, but perhaps the main fact was that all were quite sure that there was only one bacterium. Next lecture we will take up in detail the consideration of the history of contagion.

Abstracts

OF

INTRODUCTORY LECTURES

DELIVERED AT THE

MEDICAL SCHOOLS OF LONDON

AT THE

Opening of the Session 1882-83.

ST. GEORGE'S HOSPITAL.

INTRODUCTORY ADDRESS BY DR. HERBERT WATNEY.

AFTER referring to the loss sustained by the medical school through the resignation of Dr. Barclay, the lecturer spoke of the new examination instituted by the Royal College of Surgeons to be held by the teachers of anatomy and physiology. He considered that it will be only a guide and help to the ordinary hardworking student, and will be so easy as not to discourage any, but will

prevent the first year of student life being partially wasted, as has sometimes been the case. A short account was then given of some of the sciences bearing on medicine. He said anatomy, the foundation of the medical sciences, can now be satisfactorily studied by all who enter our profession; but this has only been the case during the last hundred years. It is, however, a question whether the pendulum has not now swung a little too far; whether the examination in the minor details of anatomy, and, consequently, the teaching of these details, have not gone further than there is any need; whether the oldest science does not engross too much of the student's powers, not as regards its essential principles, but for its minutiae. And the very strong opinion of William Hunter was quoted to the same effect. Dr. Watney then dwelt on the importance of physiology and its fascination as a study, bringing us face to face as it does with the problems of life and death, and leading us to "the borderland of the material and the immaterial;" but he pointed out that the same evil of overrating the importance of minutiae is sometimes met with in this study, saying that there is a physiology whose devotees seem to think more of the instruments or the specimens, soon to be set aside for newer and better ones, than of the valuable observations obtainable by such means. Pathology was described as being at present divided into two great branches—one, which may be fairly classed as belonging to the two sciences of anatomy and physiology, dealing with the anatomical or physiological changes wrought in the body; the other quite different in its character, aiming at much deeper knowledge, seeking to discover the causes of certain diseases, even, it is said, cultivating these causes, and so controlling them that they become innocuous. It is probable that vaccination is a remarkable instance of this method of rendering a virulent poison harmless by means of a series of cultivations in the bodies of the lower animals. The great necessity for the study of pharmacology was next referred to, and the study of *materna medica* was alluded to as being only a "survival." The value of hygiene was then spoken of, and the change in the death-rate of the population during a number of years was considered a clear indication that hygiene is giving us most valuable aid in our struggle with disease. The lecturer remarked that during the time that the sciences bearing on the healing art have been developing, much work which may truly be called scientific has been accomplished in medicine and surgery; but we are still obliged in great measure to act from the basis of experience and from a knowledge which, though it has the authority of time, has never had a scientific foundation.

He then attempted to answer the question, What should be the due relationship between the scientific and the practical in the training of the student, and in his after-life as a medical man? After showing that there is generally an intimate union of these two apparently opposite principles in those whom we regard with the greatest respect, he proceeded: A scientific education implies study with a view to the acquisition of knowledge apart from any ulterior object—that is, seeking to know what has been accomplished in any subject, and to be so placed that future progress is possible, supposing that the patience and abilities of the individual are equal to such advance. It should, however, also include the acquisition of the scientific method. Practical education implies the study of any subject in such a manner that we can bring our knowledge to bear at the present or at a future time. The scientific worker is remarkable for his dissatisfaction with

the present state of our attainments and his desire to know more; further, he is noted for the accuracy of his knowledge, it may be only in a very limited field, but in that field he is not only aware of what has been discovered, but of the manner in which the discoveries were arrived at and the extremely unsatisfactory basis on which much of our supposed knowledge rests. On the other hand, the sympathies of the practical worker are with that portion of mankind which exists near and about him, and his energies and abilities are concentrated to produce, with the present fund of knowledge, the greatest results and the utmost benefit. He said it cannot be too strongly insisted on that the study of the sciences bearing on medicine will not alone enable you to become a safe guide in surgery or medicine; these last have to be studied, they have their methods and instruments of precision, some of which, such as chemical reagents, are well known to the chemist, others, as the thermometer, to the physicist, yet it is impossible for any physicist or chemist, or even for those who have studied the sciences more nearly allied to our profession, to understand the value of certain phenomena taken in conjunction with others, unless they have studied medicine itself. "Therefore, in answer to the question, What is to be the relationship between the scientific and the practical in your course of study? I would say, If you wish to follow the practice of medicine do not devote too much time to the study of the sciences. They are to be only portions of your education; they are the sources of much knowledge, but they are not the knowledge itself."

Dr. Watney then continued: "Science is not liked by some because it makes so little of the individual opinion, and treats so lightly that power which some men have of enforcing their views and persuading their fellow men. In politics and in art we see the immense influence of the individual—how his word is taken almost as law. Yet the habit of accepting without question what is told us has been the most fatal stumbling-block to the advance of medicine. The reputation of Galen helped to retard for centuries the advance of anatomy; and the deference paid to authority during the Middle Ages did incalculable injury to the large body of practitioners of that time, who learned to work in a mechanical, self-satisfied manner, impatient of any advance, unobservant, allowing centuries of time to pass and millions of sick folk to be under their hands, without attempting anything further than to struggle with one another as to who should be the greatest, 'seeking rather to conquer their opponents in argument than to penetrate the secrets of nature.'

"It is, however, easy, standing on the platform of our present knowledge, to point out the failures of the past generation, but the question which every thoughtful man will put to himself is, not what were their absurdities, their mistakes, but what can we learn from their failures? It is clear that ability will not prevent mistakes, and even absurdities; for many of the older practitioners were men of great genius, and we have no proof at all that there is more ability now than formerly, nor can anyone imagine that we take more pains than formerly were taken. Must we, then, assume that we have a better method? And yet who can say that he has a better method than Harvey? At last we are driven to the conclusion that medicine is a progressive science, and that we are profiting by the information obtained by others, reaping the fruit sown by them at great expense, after many failures and much disappointment.

"Now, with regard to the question, What is to be the relationship between the scientific and the practical in your future life? I would urge that

everyone who practices the medical profession should, besides his ordinary avocations, work in a scientific manner at some subject, and aid in the advance of knowledge. It is very necessary that you start with one humbling thought, that you cannot finish your studies, and that you must go into practice to a certain extent incompletely prepared. It is impossible that you should be a good anatomist, or physiologist, or pathologist, or a good practitioner, when you leave this or any other school of medicine. It has lately been debated whether four years are enough for study, and whether the curriculum ought not to extend over five years. Surely ten years would not be enough to master anatomy and physiology alone, and by the end of that time so many advances would have been made that you would hardly be able to keep your knowledge current with the times; thus physiology is being split up into various departments, and few are skilled alike in physiological chemistry, in experimental physiology, and in the use of the microscope. If you grieve at the thought that your knowledge must necessarily be imperfect, console yourselves with the fact that it is found, in planting trees in exposed and windy situations, that it is necessary to take quite young and small ones, for that the older and taller trees, which have had the advantage of good surroundings and have been accustomed for a long time to cling to their supports, do not grow so well in such situations as shorter trees, which, though smaller when first put in, eventually become more vigorous. So the well-taught but not too fully-taught student, though at first he may seem behind the artificially-forced stripling, will send his roots down deeper, and obtain a firmer hold in any new undertaking he may choose. And you are sure of true success. Your aim will be to allay pain, to prevent the effects of wrong-doing, and to combat death. It is true your patients will suffer for their follies, will at times be wrung by pain, and will, at length, all die; yet you will be successful, because you will not set before yourselves, or others, the false chimera that you can finally resist death, or prevent its painful accompaniments. You will accomplish what you hoped to do—alleviate pain, in a great measure prevent the effects of evil, and delay the advent of death himself. Yes, you will succeed; but let not that be our only success, great as it may be. We may look forward to the time when we shall meet Him and be with Him who alone has conquered pain and sin and death, and who has won a complete success for us."

LONDON HOSPITAL.

ADDRESS BY MR. JONATHAN HUTCHINSON.

THE address of Mr. Hutchinson was given at the conversazione, and was devoted almost entirely to a sketch of the life of Thomas Carlyle, with a critical survey of his work.

"About a year ago there appeared," said the lecturer, "immediately after the death of one who was perhaps, take him for all in all, the greatest man of the present generation, two volumes of Reminiscences. In these we found amongst much that we valued much also that needed excuse, and some things that it was hard to forgive. Those, however, who were most pained by certain passages in that work will, I cannot but think, have been greatly relieved by the reading of the two volumes of biography which Mr. Froude has just given us. In these latter we have, full and complete, the story of Carlyle's life, his struggle, and his victory; and the hero now again claims, if I mistake not, that lofty position in our estimation from which he had been almost threatened with

dethronement. Here we are permitted to see, in full disclosure, the sources alike of his weakness and his strength, and our marvel at the work which he did, and at the uses to which he put his troubled life, rises higher than ever. The unconquerable independence, the industry, the faith in the future, unclouded in the main by the deep-rooted melancholy of his nature, the sense of duty in his work, are features in which the character of Carlyle attain sublimity. His letters to his wife and to his mother, and perhaps above all those to his brother John, claim our admiration in the very highest degree. Especially to all young men, and to all young medical men, for they were addressed to a struggling young physician, I would commend his letters to his brother. Over and over again, in his letters to his brother and in his entries in his own diary, Carlyle enforces the paramount duty of keeping clear of the 'gig-man' spirit. In one of his most pathetic letters to his wife, when their prospects were at the lowest, and he is endeavoring to incite her fortitude to further effort, he reminds her with pride that her soul was never that of a 'gig-manness.' The words in question are designed to note merit and respectability as indicated by externals alone and without regard to the inner character of the man. To be above the gig-man spirit is to be capable of maintaining our proper position in the forum of our own feelings irrespective of success in life, and to be in the habit of according such position to others quite irrespective of theirs. It is to take measure of the soul rather than of the body's trappings. There is yet another word frequently occurring in these letters which it may be necessary to explain. It is the German word *entsagen*. Carlyle repeatedly congratulates his brother on having learnt the meaning of this word, and in one place he writes 'My main comfort about you is to see the grand practical lesson of *Entsagen* impressing itself in ineffaceable devoutness on your heart.' He regards *entsagen*, he says, as the first lesson in all true life. With Mr. Froude's help we may interpret his meaning to be that we should in the first place learn the doctrine of renunciation of worldly gains and become able to say firmly that we can do without any and all of the various pleasant things with which the world usually rewards those who render services to it. It is, in fact, to learn, as we find it expressed in 'Sartor Resartus' 'to do without happiness and to find in its stead blessedness.' Were we to attempt to sum up in brief the secret of Carlyle's strength, I think we should have to say that it consisted in his perception of the reality of things. This was a feeling which was ever present with him. Men were real to him, spirit-possessing beings, never wholly without the capability of affection, never even in the degraded condition of partridge-shooters or gig-men, losing all share in the divine element of life. Their differences, too, were real and must be taken carefully into account. The world was real, the universe real, the past had really been, and the future would most certainly come. In truth, this sort of perception is the secret of strength in us all, and its absence is the cause of all weakness. It is the very basis of all motive and of all effort. It measures our devotion to truth and our belief in its value, upon it is rooted the distrust of all shams, the hatred of all forms of lying. The gospel of duty, self-restraint, and devotion to work, was one which Carlyle had well learned, perhaps no man ever better. But there was a great failing in his attainments, one which marred the happiness of his life, and which not only robbed him of the reward which was his due, but considerably diminished the usefulness of his teaching. He had not learned what we may, I think,

without irreverence style the Religion of Patience. By patience I mean not the mere passive virtue of endurance, which indeed is not unfrequently no virtue; I mean rather the ability, when we have done our best, under all possible circumstances to rest undesperingly and trustfully for the result. Dare I venture for one moment to assume the prophet's mantle myself, I would foretell that the worship of patience in this exalted sense is one upon which the present age is about to enter. If we glance back over the great mythologies of the past and note their hidden meanings, we shall observe the worship under various types, of various forms of power, of beauty, and of virtue. In the earliest ages the gods were symbols of force; they did, and not always beneficently, the great deeds which controlled the destinies of men. Next, as in such types as that of Hercules, we see force combined with human-heartedness, but still force, gross and almost purely physical in its efforts. Side by side with this sprang up the worship of beauty, especially in human and female forms, and the shrines of Juno, Minerva, and Venus, under various names in different climes, claimed their countless votaries. As the moral sense grew and human sympathy expanded, the unsatisfying nature of these Religions of the external became felt and the world witnessed events such as the self-renunciation of Buddha and the advent of what has been well termed the Worship of Sorrow. In these sublimely loving creeds there were, however, elements of weakness and of unfitness for the everyday work of the world, and the pendulum of human sentiment, as it was sure to do, swung back again towards an exaggerated estimate of physical force and natural beauty. In truth, the worship of these was far too deeply rooted in our very being for it to have ever been put aside. The other had been added, but these had not been dethroned. Nor will the introduction of a new goddess effect the displacement of any one of her predecessors. We may pay vows at the altar of patience without ceasing also to render due homage to courage, energy, and physical vigor, and without bating one jot of our admiration for the charms of external beauty, or of our reverence for that glory of soul which can find the happiness of life in pouring blessings on others. Part of Carlyle's impatience was creditable, being due to the greatness of his nature in other directions, his keen appreciation of the true making him correspondingly intolerant of what seemed to him false. This topic of life-patience is one which concerns us as medical men, perhaps, more directly than some of the others which I have mentioned. To a large extent impatience of life in its various forms—acute, chronic, and paroxysmal—is undoubtedly a result of inherited organization or of derangement of health. Its cure, if cure there can be, must be sought from physical means, and not from any new development of opinion or fresh insight into the order of the universe. That, however, the influence of opinion and of creed upon the mental health is often very great, no one knows better than the medical observer. I have said that Carlyle was impatient, and that he formed, under the influence of prejudice, very unjust opinions on some topics. Amongst others, he spoke of the doctrines of Darwin as too contemptible to be worth a moment's consideration. In putting them thus scornfully aside, I think he missed a main source of comfort in life. The truth is that what Carlyle himself was proclaiming in the language of the mystic, Charles Darwin was explaining in the language of science. Carlyle was asserting that there is a spiritual power in nature, was bidding us reverence that power as supernatural, and as working through rough and

mysterious ways towards certain and definite good. Darwin, looking at the same facts from a biologist's standpoint, explained how this result did indeed come about, and that, too, through the simplest and most unmythological ways. It has been thought by many, by believers as well as sceptics, that Darwin's explanations are melancholy ones, and that they would in short land us again in regions of mere brute force. I cannot think that this view is correct. Darwin did not impose any new 'law,' he simply interpreted the facts of nature, and nature, whether his explanations be true or false, will go on in the future as it has done in the past. Many ages have had their prophets and their seers, those who in the uttermost earnest have set themselves to deliver the messages with which they have been entrusted. If I am not mistaken, however, no age and no country has been more favored in this respect than our own. I will name to you four, not that they are the only ones, but rather that they stand foremost, and because, also, I think they may be fitly held to represent the four divisions of social religion to which I have referred. To Carlyle, of course, we give the chief place, and to him we assign the priesthood of the worship of Strength. There can be not the slightest doubt as to whom I ought to name as our Seer of the Beautiful. What Carlyle has done for the worship of Strength, his pupil, John Ruskin, has done for that of Beauty. To Wordsworth must, I think, be assigned the office of latter-day priest at the shrine of self-renunciation and human sympathy. If we go to Wordsworth to learn sympathy, we must, I think, turn to another poet for initiation into the cultus of Life-patience. In this noble worship, if I mistake not, Robert Browning stands as chief priest."

His reasons for the above selections having been set forth, Mr. Hutchinson concluded as follows:—"Now, gentlemen, students of our college, in conclusion, I can but hope that none of you will consider that I have unduly neglected an opportunity of speaking to you on subjects directly pertaining to your education. I hope to have other opportunities for doing that. It has seemed best this evening to address you on topics which concern us all as men. I might have devoted the hour to eulogy of the profession which you have chosen, but surely it needs no praise. So, also, I might have praised the school which you have selected, and paid compliments which would have been very sincere, however blunt, to those at present concerned in its management and to my colleagues. But here, again, facts speak for themselves, and you are familiar with them. I have preferred to try to find you motives for work and to give you strength and confidence in study. If now I were to sum up in one sentence what I have been enforcing it would be this: the secret of all noble life lies in belief, and the characteristic of all noble minds is the vigor with which they believe that which is true. Try to attain belief in the reality of all things, so shall you never want for motives, so shall you be able to live and work without hurry and without sloth. Finally, permit me to commend to you this formula: prize strength, love the beautiful, practice self-denial, and be patient."

MIDDLESEX HOSPITAL.

INTRODUCTORY LECTURE BY DR. CAYLEY.

DR. CAYLEY commenced by alluding to the great calamity which had just occurred, and said: "A blow has fallen upon us so suddenly in the death of Dr. Lyell, who was to have delivered the address to-day, that we are unable as yet to estimate the extent of our loss. When we remember his

great abilities, his untiring industry, and his blameless and pure life, we feel the bereavement great indeed. We are, however, in the position of soldiers on the field of battle, where if one is struck down there is no time to indulge in lamentations, and like them we must close up the ranks; and although we must feel the proceedings of to-day to be indeed clouded with gloom, we must endeavor as far as we can to go through the necessary business and not allow the occasion to pass without a few words of advice to students from their teachers."

After referring to the object of the meeting, and wishing "God-speed" to the neophytes in medicine, the lecturer went on to notice the various points of view from which medicine may be regarded; first, as a science, in which they investigated the growth, structure, and functions of the human body, and the various causes by which it was disturbed; next, as a practical art in relation to the cure of disease and all the means for its prevention; and, lastly, as a profession in which those who entered it might hope to pass an honorable career. Of all these objects the one most liable to misapprehension, especially on the part of the outside world, was the scientific one. The pursuit of knowledge in a scientific spirit aimed at the investigation of natural laws rather than any immediate practical advantage. Medicine was now threatened with a new danger, the arrest of experimental research, and it behoved the profession to meet the arguments of their opponents and to defend the cause which they believed to be so essential to the welfare of mankind. The objections raised to experimental research were based upon a misconception of the whole system of nature. We see through the whole domain of life an interecine struggle for existence, and man himself extirpates without scruple those animals he finds injurious to his predominance. He kills them for clothing and food, makes slaves of them, and slaughters them by thousands for mere amusement. If Harvey had lived in the time of Victoria (instead of that of Charles the First), under the present restriction he would never have discovered the circulation of the blood, whilst the deer upon which he would have experimented would probably have been hunted to death by the royal stag hounds. Turning to the practical side of medicine, the lecturer impressed on the students the fact, that their profession required all their energies in the study of its various branches, and in the ordeal of examinations. He counselled them to let this pursuit be foremost in their thoughts, so that they might not devote too much time to mere amusement. Many people thought the medical profession was overlooked in the distribution of honors, but they were cut off from the main source of honor—e.g., high office in the State—which was beyond their sphere of activity. Neither were they in a position to acquire wealth, but must be satisfied with obtaining a competency. On the other hand, into whatever house they entered they went for the benefit of the sick, and they would win not only the respect, but the esteem and love of their fellow citizens. If so fortunate as to acquire this, they might well let the rest go, and they should so spend their time as to be worthy of the hospital in which they had been trained, and of the country of which they were citizens.

ST. MARY'S HOSPITAL.

INTRODUCTORY ADDRESS BY DR. THOMAS KING CHAMBERS.

THE lecturer began by saying that an "introductory" is usually delivered by some active

junior member of the staff, who has at his fingers' ends all the special advantages which a new pupil at St. Mary's inherits. He, however, had not that personal experience now, and, in fact, was saying the farewell to his old chair, which illness prevented him saying a few years ago. He had, therefore, selected as his subject "The Relation of the Medical Student to the General Medical Council." He was the junior member of that mysterious body, and therefore supposed to be a proper person to introduce it. The Medical Council's most important duty is to watch over the student, to see that he gets justly that education for which he gives his time and money, to show him the path by which he may become a useful and honored Englishman, and to make that path as easy and direct as possible. That the Council is performing this duty is graphically shown by contrasting the medical student as described—and truly described—by Charles Dickens, and the medical student of to-day. "I will take this opportunity of giving you a few words of warning. Do not on any consideration make the mistake of accepting places as assistants before you have passed the qualifying examinations. By so doing you will be mixing yourselves up with a set of men who have lost all ambition of being legitimate practitioners, who have degenerated into mere drudges, whose manners and morals and education unfit them to be your companions. You run great risk of becoming like them and being equally despised; and by delaying your fitness for going up to your final examination, you are making your education more tedious, and therefore more expensive in the end. But when you have cleared examining boards off your minds, then, indeed, I do not know a more valuable part of education than that which can be got by a good assistantship. For having learnt systematically and thoroughly how to learn, you will understand quickly the details of the application of your knowledge and profit in direct proportion as you have not muddled your brains with those details beforehand. They are selfish and cruel persons who tempt you to be unqualified assistants. They do it for their own dirty profit, and it is a very bad bargain for you." Dr. Chambers then pointed out that a very great portion of this improvement of the *status* and comfort of the medical student was due to the action of the Medical Council in forcing upon parents and guardians the duty of giving a sound preliminary education to those destined for the profession. "When a student feels the satisfaction of ease in acquiring technical knowledge and a fitness for belonging to the cultured classes which early education bestows, he should not forget his indebtedness for it to the Medical Council. To the influence of the Medical Council is also due another great comfort to the student—the substitution of several examinations for that one which used to hang like a sword of Damocles over his whole career. Perhaps some may exclaim that this is worse and worse—it is the hanging up of several swords instead of one. But that is a superficial view of the matter. It is in reality a 'dilution' of the single examination, which spread over several years ceases to be a legitimate object of fear altogether. If an old man's pupilage could come over again he would certainly choose that body to examine him which most divided its examinations; for he knows that he would eat, drink, and sleep the better for his choice. Then, the curricula of the different licensing boards have been the subject of serious thought and arrangements by the Council. They are made as harmonious and as equal as possible. The student may rest assured that by following them strictly and honestly he will be making the best use of his time to ensure success in

the examinations; and success in the examinations is a pledge to you that you have those qualities which lead to success in after life. Do not, my dear fellow teachers, take umbrage at what I have said as to the need of keeping examinations constantly in view. Observe the signs of the times; examination, as an engine of education, is becoming more and more powerful, and, wisely or unwisely, all orders of men are agreed in reposing their confidence in it. Trust has begotten a resolve to deserve trust; and I feel sure that the schemes of instruction suggested by the medical examining boards and approved by the Council are the best guides we can have. Your responsibility is very great; yet it is not too great to be borne by the exercise of the simple commercial virtues of (1) sobriety, (2) punctuality, and (3) attention to business. Let your 'sobriety' be known unto all men in deed, in thought, and in speech. Words, as Homer tells us, have wings, and they fly to the ends of the earth. You can hardly fail to have been startled, if not awestruck, by the quotation of some chance sentence of yours out of a lecture or conversation in the mouth of an old pupil or pupil's pupil; it may reappear in the colonies or come back from America. Take care, then, that it is a true message which thus travels forth. Avoid all paradox, exaggeration, or inexact illustration, however brilliant. Be assured it will haunt you, and start up when you least desire. 'Punctuality' is the homeliest of virtues, but the neglect of it by teachers is visited with very public loss of reputation. Pray remember that every minute students are kept in waiting is most likely occupied in criticising you, and in commenting, not favorably, sometimes not quite fairly, upon your person, your manners, and your teaching. I will leave you to judge if that conduces to your influence for good. 'Attention to business' is an expression which seems to demand an opinion as to what your chief business is. You will, of course, say it is to make pupils into the best and safest practitioners that the time afforded us allows of their being made. Yet teachers differ somewhat as to the surest mode of attaining this end, and, possibly, some of you may dissent from my concluding sentences. A frank submission to the mastery of the inevitable examiner is, I am sure, the wisest course, and I expect this will lead in the end to changes in our method of communicating instruction. It must gradually become less professorial and more catechetical or tutorial. I mean that a considerable part of the time devoted to each study should be occupied in question and answer on matter previously prepared by the class. The subject should be explained and enforced from the chair; not, as of old, given out fresh from the chair and learnt up by notes afterwards. The catechetical method gives a shrewdness in catching the point of a question and a facility in answering it which contribute greatly to success in examinations and to readiness in the emergencies of future life, and by bringing their two minds into more immediate contact it gives the teacher a power of measuring the progress and declaring when sufficient advance has been made to sanction the issue of a certificate of sufficient attendance. To try to gain this early would be a sharp spur to early diligence, and would ensure the presence of minds as well as bodies on the benches of our theatre. Students complain, not entirely without reason, of the number of lectures they have to sit out and of the days broken up into fragments and consumed. If you adopted this plan the remedy would be in the complainers' own hands, for he would only have to show a mastery of his subject to be free for the rest of the session and give his time to reading and ward-study. I am satisfied, by observation

not limited to medical schools, that the catechetical is, of all methods, the most sure and effectual for teaching Englishmen. I should not have dared to say so much had I not observed tentative efforts made here to introduce the principle I have advocated. To succeed, the efforts must be combined, and, my new young friends, they must be co-operative; assistance on your part, hearty and forbearing, must be given, or the experiment will not be a fair one." The lecturer then took leave of the theatre, where, he said, he had begun to lecture before the plaster was quite dry upon its walls, and where he left one of his first pupils as his successor.

WESTMINSTER HOSPITAL.

INTRODUCTORY ADDRESS BY DR. DE HAVILLAND HALL.

AFTER expressing his approval of the custom of opening the session by addressing a few words of advice to the students who are commencing their medical studies, of encouragement to those already known, and of farewell to those about to take flight from their alma mater, Dr. Hall pointed out some of the advantages of a small school. He thought that Westminster had deserved well of several of its larger rivals, and cited the names of men formerly on its staff who had migrated to other hospitals carrying with them the experience they had acquired at Westminster. It should not be forgotten that, in the language of one of the old reports, Westminster is "the parent of all the medical and surgical charities of these kingdoms that are supported by voluntary contribution." Then, addressing the students who had just entered, Dr. Hall pointed out the necessity of settling down to work steadily if they would avoid the temptations incidental to the life of a medical student. The lecturer regarded the examination at the end of the first year, recently instituted by the Royal College of Surgeons, as likely to be a useful check to the lazy student, and serve as a beneficial stimulus to all. In insisting upon the mental discipline of a thorough course of anatomy, and the habit of exactitude fostered thereby, he said that it was the anatomy learnt by actual dissection which was required, and not the counterfeit obtained by the aid of cram-books and tips. He therefore advised that every opportunity of dissecting should be seized, so as to get a practical knowledge of the subject as well as to acquire the manual dexterity, which he stated to be almost as important to the physician as to the surgeon. Dr. Hall discountenanced attendance in the out-patient rooms and wards before the primary examinations had been passed. "If you begin to go round the wards before you are capable of understanding and taking an intelligent interest in what you see and hear, you will in all probability acquire the habit of doing things in a casual manner, which is destructive to anything like thoroughness." He therefore advised that only the minimum amount of attention required by the regulations of the College of Surgeons should be devoted to surgery until the primary examinations had been passed. He urged all students to make an effort to pass the first examination of the Royal Colleges of Physicians and Surgeons within the first two years, so as to leave two whole years for the practical part of their studies. He also insisted upon the importance of students having a clear understanding as to what degrees or diplomas they intend taking. "Much time is lost and inconvenience caused by the student discovering, after he has started on his career, that he requires a degree in medicine, or that the Fellowship of the College of Surgeons will be necessary. When you are once launched into practice it will be almost impossible for you

to obtain a British medical degree (unless you be over forty), as all the universities except the London require residence, and the curriculum of the latter puts that out of the question." Dr. Hall was distinctly in favor of enforcing attendance at lectures; he considered that lectures could lay stress on the more important points, and that in such a progressive science as medicine attendance at lectures was the only feasible way for students to keep abreast with the daily increase of knowledge. He advocated the plan of taking short notes at lectures, to be amplified at night. In speaking of the necessity of thoroughness, he said: "If you begin your medical career with an inaccurate knowledge of the sciences on which medicine is based be sure that you will never practice your profession with anything like satisfaction to yourself or advantage to your patients. At the best you will be little better than empirics."

"Of equal importance with the mental training is the necessity of seeing that the physical needs of the body receive their due share of attention." In speaking on this subject Dr. Hall drew attention to the demands upon a medical man's energy and decision, and to the importance of good health, unless the doctor is himself to fall a victim to the very disease he was called upon to treat. As a means of preserving health regular exercise was highly praised, and students were advised as much as possible to make their recreations such as would take them into the open air, and to avoid the billiard-room. In speaking of purity of life, Dr. Hall said: "If your purview is limited to this world only it is worth your while to lead a moral life. Infringements of the moral law are frequently visited, as, alas! you will too often have an opportunity of seeing, by immediate punishment, and by what I consider as more awful a punishment, which in certain cases is shared by innocent victims. Ruined health, early death, or premature old age, to say nothing of the misery and wretchedness communicated or transmitted to those nearest and dearest, have been in many instances the lot of youth who commenced life with bright prospects; so true is the apostolic saying, 'The wages of sin is death.'"

After a few words of caution as to the choice of friends and on the means of keeping out of the way of temptation by being always busy, Dr. Hall proceeded to discuss the different openings possible to the medical man. He assumed that the majority of his hearers were destined for general practice, and he told them that with fair education, good health, and tact, they might rest content that they would earn for themselves a living, and in many cases a very comfortable one. He strongly advised those who were intended for general practice to go as assistants for a time before starting on their own account, so as to learn something of the requirements of general practice. He then spoke of different modes of starting in practice. Those who were anxious to see something of the world before settling down had a wide field of choice—i.e., there were travelling appointments to be had or surgeoncies in the mercantile or emigration services. For those who wished for work of a still more permanent character, the three branches of Her Majesty's service were open—viz., the Army Medical Department, the Indian Medical and the Naval Services. "Ten years ago and less the Indian Medical Service was the only one which attracted good men; the two other services were literally starved. But of late years, owing to the increased pay and improved regulations, there has been a keen competition for all these services. For instance, at the last examination, held in August, there were ten vacancies for the army and thirty candidates, the same number of vacancies for the

navy and twenty candidates, whereas for the eight vacancies in the Indian Medical Service there were forty candidates." Dr. Hall then discussed the respective advantages of the different services, and pointed out that there was ample scope for scientific workers in the department of public health. After reading the Hippocratic oath in *extenso*, he concluded his address as follows:—"The enlightened morality of the oath, and the admirable rules laid down in it for the conduct of the medical man towards his patient, leave little to be desired, and if you only act up to the spirit of this document, over two thousand years old, you will attain, if not wealth, at all events the respect and esteem of all with whom you come in contact, and a happy hereafter."

Original Papers.

REMARKS UPON THE OSSEOUS LESIONS OF LOCOMOTOR ATAXY,

WITH A CASE SIMULATING MALIGNANT DISEASE.

By J. ALEX. WILLIAMS, M.B., M.R.C.S.,

House-Surgeon to the Royal Portsmouth Hospital; Late House-Physician to the London Hospital.

THE conspicuous absence from our museums, previous to the researches of Charcot, of specimens illustrating the osseous and articular lesions of locomotor ataxy, induced Sir James Paget¹ during the meeting of the late International Congress to ask Professor Charcot, "Whether these are not instances of a disease which has lately for the first time appeared, or at least has lately become much more frequent than formerly it was?" Now with all due deference to so great an authority, I cannot but think that their more frequent recognition in modern times is mainly owing to the increased facilities afforded us for the diagnosis of the disease in its early or pre-ataxic stage, and this is chiefly due to the labors of Duchenne, Westphal, Erb, Hutchinson, Jackson, Charcot, Buzzard, Robertson, and many others. For Professor Erb² writes, "this arthropathy is most common in the early stages of tabes, and chiefly in the preliminary period before the ataxic disturbances of motion have appeared, and when the lancinating pains constitute the chief feature of the complaint," and this assertion I believe holds good for the osseous lesions. Hence it is highly probable before the diagnostic significance of "lightning pains," ocular paresis, and Westphal's symptom were known, that many cases presenting tabetic arthropathies, or osseous lesions, were diagnosed as examples of rheumatoid arthritis, or of malignant disease of bone, etc., as might easily have been done in the case now recorded. The frequency with which patients describe their pains as "rheumatic" is strong presumption in favor of this view. Dr. Hughlings-Jackson,³ referring to a case of tabes whose only symptom besides lightning pains was the Argyll-Robertson pupil, says "the case might be taken for one of neuralgia only by those who have not studied lightning pains, and who do not examine the pupils." Dr. Buzzard in a footnote to his paper⁴ upon the subject, says, referring

¹ Transactions, vol. i., p. 129.

² Ziemssen's Cyclopædia of Medicine, vol. xiii., p. 126.

³ On the Eye Symptoms in Locomotor Ataxy, Ophthalmological Society's Transactions, vol. i.

⁴ On the Affection of Bones and Joints in Locomotor Ataxy, etc., Brit. Med. Jour., March 5th, 1881.

to the arthropathies, "In most of those which I have published, the nature of the underlying disease had never been suspected." He instances a case in which excision of the knee-joint was very nearly performed in a surgical ward of a hospital; also of two other patients, inmates of surgical wards, who had been exhibited to candidates at an examination for a diploma as examples of rheumatoid arthritis. Charcot, in answer to a remark of this same authority, complaining of their rarity in England, said, "You will find them in the workhouse infirmaries, and in the surgical wards of hospitals." How true this remark was recorded cases testify.

In addition to the case I am about to record, in which, although the tabetic symptoms were recognized, a diagnosis of malignant disease was nearly completed and operative procedures almost resorted to, I can remember the case of a middle-aged man who came under my observation for incontinence of urine, at a time when I was house-physician to Dr. Gilbert Smith at the London Hospital, under whose care he was admitted. Here none of the ordinary causes of incontinence could be found, but the right hip-joint was much enlarged and disorganized by large irregular bony outgrowths, which also projected into the pelvis. The patient, a dull stupid man, had never before noticed the enlargement around the joint, but he walked lame with that foot. On inquiry into his history it was found that his lameness dated from an injury received some six or seven years previously, in which he said his hip had been dislocated by its entanglement in a cart wheel. Further inquiries elicited the fact that he was the subject of marked ataxic symptoms; thus he had been subject for many years to sciatica, his pupils presented the Argyll-Robertson phenomenon, and there was a total absence of knee-jerk in both knees. He walked with the aid of a stick, and had a somewhat ataxic strut, which, however, might have been due to his lameness. The eyesight was not affected, and so far as I remember the optic discs were normal. There had been no gastric crises. He was seen by Dr. Jackson and Mr. Hutchinson, both of whom confirmed Dr. Smith's diagnosis of ataxy, and considered the osseous material surrounding the joint to be unabsorbed callus, produced in excess in an ataxic patient, as a result of previous injury to the femur close to its neck. Now, such a case, in the event of the pain not having been inquired after, and the eye and knee phenomena not tested, might readily have passed for a severe example of rheumatic arthritis, or even of malignant disease of the bone.

From the analogy which these trophic changes in bones and joints present to the arrest of the growth of bones often observed in infantile paralysis, they have been assumed by Charcot to be due to implication of the anterior cornua of the grey matter in the sclerotic process. Buzzard, on the other hand, having observed gastric crises to be more frequent in these cases, has suggested sclerosal invasion of the roots of the vagus nerve as the cause of the altered nutrition in the osseous system. Neither of these theories, however, has been satisfactorily borne out by anatomical observations, and it is to be noted that in neither of the cases here referred to were gastric crises observed. Charcot, when demonstrating the arthropathies upon the wax model of Berthelot, before the late International Medical Congress, remarked⁵ that "fracture of the bones and diseases of the joints appear to belong to the same pathological condition—i.e., when the disease attacks the diaphyses of the bone, the atrophy is proved by fracture;

when it attacks the joints, we get the wasting of the head of the bone with erosion of the surface." In this case nearly all the larger articulations were affected, and there was an excessive production of callus around an old fracture of the right pelvic bone upon its inner surface. In the main these arthropathies are characterized by a rapid and sudden effusion of serous fluid into a joint, the knee most frequently, usually unattended by inflammatory symptoms, but followed by rapid erosion and absorption of the articular extremities, with relaxation or destruction of ligaments; the joint becomes flail-like, and dislocations readily occur. Such a condition might readily be mistaken for a simple hydrops articulari were the ataxic symptoms neglected. The swelling is never entirely confined to the joint itself, but is diffuse and often extends over the entire extremity, and large osseous outgrowths often occur around implicated joints. The rapidity with which these changes are produced in ataxy is peculiar, a few days sometimes sufficing for the complete destruction of a joint (Buzzard). Osseous lesions often coexist with arthropathies, and *vice versa*. They are characterized by abnormal brittleness of bone, due to a rarefying osteitis, whereby the Haversian canals become abnormally widened at the expense of the osseous matrix—as a result spontaneous fractures from the slightest movements, such as turning in bed, etc., are of frequent occurrence. These fractures seem to possess great reparative power, and "it is common to find a more than usually exuberant callus thrown out" (Buzzard). This statement is typically illustrated by the following case, in which from slight muscular exertion the right femur became spontaneously fractured, rapidly followed by an excessive production of callus, causing great swelling of the affected thigh, and in its clinical aspects closely simulating malignant disease.

Philip H—, aged forty, street musician, was readmitted into the Royal Portsmouth Hospital on July 2nd, 1882, under the care of Mr. Rundle, with a fracture of the right femur. He gave the following account of his accident:—On April 23rd, when taking off his boot, he crossed the right leg over the left knee, but meeting with some difficulty in pulling at the boot, he gave the "leg an ugly strain," producing what on admission, the same evening, proved to be a transverse fracture of the right femur at the junction of its middle and lower thirds. The fracture was treated with plaster-of-Paris splint encasing the foot, thigh, and pelvis, and thus far successfully that on June 18th there was good bony union, and he was discharged cured, the leg for a short distance above and below the site of fracture being encased in a short plaster-of-Paris splint. No excess of callus was then observed. When at home, he said everything progressed satisfactorily, and, with the exception of slight pain beneath the splint, he had nothing to complain of. In about a week he discontinued the use of the splint, but remained cautious in his movements upon crutches. On July 1st, in walking across his room, he incautiously placed his body weight upon the injured leg, and immediately felt it give way beneath him. Next day, when brought to the hospital, he was found to have refractured his right femur at the seat of the former lesion. Next morning (July 3rd) the limb was observed to be much swollen, and very painful. In its lower two-thirds the femur appeared immensely thickened, by a hard and osseous feeling material, which below terminated abruptly at the knee-joint, posteriorly the popliteal space was almost entirely filled by a similar material; above the thickening gradually terminated so that the upper third of the femur felt normal. The super-

⁵ Transactions, vol. i., p. 128.

ficial veins of the thigh were very conspicuous; but the inguinal glands were not enlarged. Circumferential measurements of the thighs in different positions showed a great increase in the size of the right thigh, thus:—

	Just above the knee.	Middle of shaft.	Level of groin.
Left thigh, 12 in.	15½ in.	19 in.	
Right " 16 "	18½ "	19½ "	

On inquiry into the general history of the patient the following was ascertained:—He had formerly been a cork-cutter by trade, but for the last six years has been blind, and has since earned his living by playing the concertina. When seven years of age a "gristly" tumour was removed from over the right inner malleolus, the scar of which is still visible. When fourteen years old he had a bubo in the right groin. He denied syphilis, but in addition to the scar in the groin he has numerous coppery scars on both shins and spots on the chest, and, besides, presented well-marked ataxic symptoms. Thus: he has been subject to sciatica for the last seven years. His eyesight failed him six years ago; it commenced as dimness of sight, which gradually got worse, so that he is now totally blind, even to the discernment of light. During the last two years he has walked badly; "staggers slightly;" this he attributed to his blindness. When in hospital it was observed that the pupils were unequal, the left being about the size of a No. 9, the right about the size of a No. 6 catheter on the English gauge. They presented the Argyll-Robertson phenomena—inactive to light, active during accommodation. There was well-marked white atrophy of both optic discs, and an entire absence of knee-jerk in the left knee; that in the right could not be tested on account of the fracture. There were no gastric crises. On account of the condition of the limb, malignant disease of the bone being suspected, no further treatment than placing the legs between sand bags was deemed necessary. It subsequently increased still further in size, and on July 5th attained its maximum measurements of: above the knee, 17½ in.; middle of shaft, 19½ in.; level of groin, 20 in. On July 17th, iodide of potassium was prescribed internally, and oleate of mercury unguents applied locally. The limb, then, contrary to expectation, decreased gradually in size, and firm osseous union between the fractured ends resulted, so that on Sept. 23rd he was again discharged cured. At this time the limb measured: above the knee, 15 in.; middle of shaft, 17½ in.; level of groin, 19 in. There was still a large amount of unabsorbed callus surrounding the femur, most evident at the site of fracture and in the popliteal space. As a precaution, the limb was encased from the toes upwards in a stout plaster-of-Paris splint, and the patient warned to be very cautious in his movements and to use crutches.—Oct. 27th: Visited the patient at his home. He walks with aid of a stick, and has discontinued the use of a splint for two weeks past. The right knee, he says, feels very weak, and the ligaments are somewhat relaxed. Both knees present Westphal's symptom. The swelling of thigh has slightly decreased since last observation; it now measures: above the knee, 14½ in.; middle of shaft, 16 in.; level of groin 19 in. There is still great excess of callus around lower two-thirds of femur, the upper third still being free. No glandular enlargements. The right foot has become cedematous during the last month probably due to pressure upon the veins by the callus. The other symptoms are unaltered, and the fracture is firmly united.

Remarks.—This case affords a good illustration of most of the points previously referred to in

the paper. The difficulties attending a correct diagnosis were such that at one time a consultation of the hospital staff was held to consider the advisability of amputation for malignant disease. Recognizing, however, the difficulties attending the case in the absence of cachexia, glandular enlargements, and signs of secondary deposits it was thought best to watch its progress for a short period before resorting to operative procedure. The wisdom of this decision was subsequently proved by the slow but steady decrease in the swelling, and the unexpected repair of the fracture. The changes, in fact, so far as the callus was concerned, were regressive and reparative, not progressive and destructive, as in carcinoma, etc. It will be observed that the ataxic symptoms present were those which mainly belong to the pre-ataxic stage and were such that had the ocular and Westphal's symptoms been neglected the ataxy must have remained undiagnosed. Another noteworthy feature was the rapidity with which the callus was thrown out, for immediately after the second fracture when carefully examined by Mr. Olermont, the surgeon to the out-patients, no abnormal excess of callus or osseous material was observed. Yet forty-eight hours afterwards (July 3rd) when I first examined him there was then found a very excessive formation of callus as recorded in the notes. This fact becomes of special interest when we consider Buzzard's statement, previously referred to, regarding the rapidity with which the joints are sometimes destroyed in these cases.

For permission to record this case I am indebted to Mr. Rundle, under whose care he was admitted, and for many of the notes to my friend Mr. Cooke, the dresser to the case.

Portsmouth.

OIL OF TURPENTINE IN EGYPTIAN ENDEMIC HÆMATURIA (BILHARZIA HÆMATOBIA).

By JOHN WORTABET, M.D.,

Physician to the Hospital of the Knights of St. John, Beyrout, Syria.

My attention was first drawn to endemic hæmaturia about five years ago. Since that date I had seen six cases, three of which I had under close observation for some time in the hospital, affording me a good opportunity of studying the disease and trying different methods of treatment. I am induced to give the results of this study with the hope that they may be useful to the surgeons of the British army now in Egypt, where they may have occasion to see and treat the disease. I shall first give the notes of my last case, in which the oil of turpentine produced a complete cure, and then offer some remarks on the general nature of endemic hæmaturia and its parasitic origin.

B. M—, a well-made young man, aged twenty years, and a native of Egypt. He was admitted into the hospital on June 2d, 1882, and gave the following history of his case:—When he was twelve years of age he began to feel pain in voiding his urine, and wetted the bed every night. Four years ago he observed a small quantity of blood passing with his urine, or soon after it, and always with some pain. Latterly he had passed water about seven or eight times a day. At night he invariably had incontinence of urine and unconsciously wetted the bed. His strength was fair, but he was not able to sustain much or long-continued physical exertion. On his admission there was only a slight trace of anæmia, and with the exception of his urinary trouble he complained of nothing else. During his stay in the hospital the urine

was examined frequently, often daily, and with the blood, ova and free embryos of the bilharzia were at first always and plentifully found. In other respects the urine was not much changed from the normal state. Soon after his admission he was prescribed large doses of quinine, taking the first day sixty grains, and forty grains on each subsequent day for five days. But there was no change in any of the symptoms, and the blood passed was as full of ova and living embryos as before.

On June 14th I ordered a teaspoonful of oil of turpentine with a little milk three times a day, and this treatment was continued to July 8th. The blood was examined almost daily, and I was gratified to observe that in a few days it presented only broken ova and what appeared to be the debris of dead embryos. On the 25th the blood ceased, the nocturnal incontinence of urine stopped, the strangury was less, and the calls for micturition were diminished.

On July 8th he seemed to be perfectly cured. There was no blood, no ova in the urine, no strangury, and no incontinence, but there was still abnormal frequency of voiding his urine. At this date the oil of turpentine was stopped. He had taken it for a little more than three weeks. He was retained another week in the hospital for further observation, and was dismissed on the 13th. I saw him again about six weeks afterwards, and he reported himself perfectly well, with the exception of a slight pain in passing his water. I examined his urine and found it quite normal.

Remarks.—Though endemic hæmaturia has been long recognized as a distinct variety of bloody urine, its true nature and connection with the parasite was discovered in 1851 by Bilharz, a professor of anatomy in the Egyptian Medical School, who, with Griesinger, found the worm in the portal, mesenteric, and vesical veins, thus accounting for the presence of its ova in the urine. Dr. John Harley and others saw and described a number of cases from the Cape of Good Hope; and Dr. William Roberts says that the disease has been identified in the Mauritius and Brazil. To this geographical distribution I can add Syria, at least the town of Jaffa, from which place I have seen one unmistakable case, and have heard of others there; but this is the only Syrian case I met, though I have carefully watched for the disease. Bilharz and Griesinger found the parasite in 117 cases of autopsy out of 363; and they believed that probably more than half of the native inhabitants of Egypt were victims of this disease. Sonsino found it in thirty cases out of fifty-four; and he believes that nearly all the natives of Egypt have it. The symptoms of the disease are few and simple, but well marked. The patient complains of passing a small quantity of blood, varying from a few drops to a teaspoonful, just at the end of making water, with a little pain, which continues for a short time afterwards. The frequency of micturition varies from half a dozen times to a dozen. There is always more or less anæmia and a sense of weakness after any ordinary exertion. The quantity and specific gravity of the urine are natural, but there is always blood, more or less of albumen, and an abnormal deposit of mucus. In bad cases the reaction is alkaline, and the sediment shows a number of crystals of triple phosphates, indicating some degree of chronic cystitis, for which the disease may be easily mistaken. The chief point of interest in examining the urine is the ova of the bilharzia, which are found in large numbers entangled in the clots, though they may be often seen free among the blood corpuscles. They may be detected by a low power, and can be afterwards examined with one moderately high. They

are about 1-170th of an inch long, quite ovoid in form, with a spike at one extremity, and once seen cannot be easily forgotten. When the ovum is carefully examined with a magnifying power of 250 or 300 diameters, the embryo is seen within it, having a distinct border of its own lying close to the egg-shell, except at the two extremities. In some of the ova, which appear to be in a more advanced state of maturity, but not in size, the embryo may be seen to expand and retract itself, probably in a fluid which lies between it and the egg-shell. Dr. Harley hatched the eggs by immersing them in water. A more expeditious way is to crush the egg and liberate the embryo by gently pressing the two glasses. This can be done while the eye watches the process from above, and it is interesting to see the egg broken and the living embryo emerging from the shell, and its cilia put at once into vigorous motion. Not unfrequently free embryos may be seen with their broken shells among the blood-cells, occasionally, in very fresh specimens, racing across the field with incredible velocity. The form of the embryo is also ovoid, not much larger than the egg, having a somewhat pointed extremity, which appears to be the head or mouth; and projecting from its sides from one end to the other are innumerable fine cilia, which appear to be always in motion, though the animalcule does not change its relative position. It is supposed that the embryo must undergo more than one transitional stage before it assumes its ultimate shape of the adult worm. The worm, which never comes out with the urine, is described by Bilharz as a filiform body measuring from three to four lines in length. The male is thicker than the female, and has a long canal into which the female is received during copulation. It inhabits the portal vein and its branches, and the vesical veins, and can be seen only after death in post-mortem examinations. Nothing definite is known of the diseases to which this parasite gives rise, except the hæmaturia above described. The mucous membrane of the intestines is said to be affected, occasioning dysenteric symptoms, and I have been told lately by a medical man from Egypt that in such cases he has sometimes brought down with the fingers from the rectum nodules which were attached to the mucous membrane and which swarmed with ova. He has assured me also that the spine of these ova was lateral while that of the urinary ova was terminal. If this should be so, it would account for the statement of Bilharz and Griesinger as to some of the ova having lateral and others terminal spines, which has appeared strange to those who have, like myself, studied only the hæmaturic form. All seem to be agreed that the source of the parasite is infected and unfiltered water; and Sonsino adduces in support of this opinion the fact that Europeans and well-to-do natives never use the water of the Nile unfiltered, and are therefore exempt from the disease, while the lower classes use the water as it comes from the river and suffer accordingly. But I am not aware that anyone has seen the animalcule in infected waters. As a prophylactic measure it is suggested by Harley and Sonsino that drinking water should be conveyed in covered channels to prevent contamination by the excreta of persons infected with the parasite, that it should always be filtered, and that vegetables and fruits should be washed with filtered water before use. How the entozoon penetrates the bloodvessels and finds its natural habitat there is still a mystery. The size of the adult worm and of its ova and embryos precludes the idea that they can be carried through the capillaries or even through the smallest arteries and veins. In one of my cases I once opened a vein in the arm, but

found no traces of the parasite in the blood. If the ovum or embryo be the starting-point, it is difficult to understand how they can enter through any part of the absorbent system into the blood-vessels. Dr. Harley supposes that during bathing the leech-like animal may lay its eggs through the skin into some superficial vein, or more likely find its way into the bladder through the urethra.

The case recorded above is the only one in which I succeeded in obtaining apparently a perfect cure. The drug used was oil of turpentine, given in teaspoonful doses three times a day, and continued for about three weeks. I had employed in my previous cases every method which I had read of, or which suggested itself to my mind, but without the slightest effect on the disease as such. When strong tonic medicines were given the general strength may have been slightly benefited; but the examination of the urine revealed in each case the persistence of the parasite. Among other things I tried ten-minim doses of oil of turpentine, with the same quantity of extract of male fern, and carbo-lic acid, by the mouth and hypodermically, for some weeks, until the system was thoroughly saturated with it, and the urine became smoky. Injections with one-scruple doses of iodide of potassium into the bladder, as recommended by Dr. Harley, I never employed as far as I could wish, and the result was abortive. But in the case he mentioned it does not appear that the success was all that could be desired, for "the patient still passed a few eggs . . . and the ova were in a more lively condition."

P.S.—I should have preferred to delay this communication until I might have had another case for testing again the efficiency of the oil of turpentine; but in the present circumstances, when the disease is attracting so much attention, I thought it my duty to publish the only case of cure by medicinal treatment, so far as I know, and to leave to others, who are now seeing the disease, the opportunity of repeating the use of this drug, and finding out whether we have in it a real specific for endemic hæmaturia.

Beirut, Syria.

THE CLINICAL CLASSIFICATION OF BACKWARD DISPLACEMENTS OF THE UTERUS.¹

By G. ERNEST HERMAN, M.B. and M.R.C.P. Lond.,

Assistant Obstetric Physician to the London Hospital, Physician to the Royal Maternity Charity, etc.

It is a truism in medicine that for treatment to be successful diagnosis must be accurate. The backward displacements of the uterus, retroversion and retroflexion, are met with sometimes without symptoms, sometimes with symptoms; and in the latter case the symptoms, in different instances, differ widely in kind as well as severity. In some cases the symptoms are removed with striking rapidity and completeness by mechanical treatment, while in others the same treatment entirely fails to relieve. Clearly, therefore, all cases of backward displacement of the uterus are not alike; and before we can treat them with any approach to certainty of result, we must be able to make a diagnosis between those cases which require a particular treatment and those which do not; in other words, they must be classified.

The classification at present most in favor depends upon the shape of the uterus: whether it is bent or not; the sharpness of the bending; the greater or less difficulty of straightening it or keeping it straight. Such a classification of course

implies that bending is the important feature of the cases to be classified. I believe that bending of the uterus *per se*, as a rule, an unimportant condition. I have set forth the reasons which induce me to take that view, so far as dysmenorrhœa is concerned, in papers communicated to the Obstetrical Society of London; and therefore I need not here again defend it. I will only make these assertions: that there are many cases in which symptoms associated with retroflexion will entirely disappear, without any appreciable alteration in the shape of the uterus having taking place; and that there are many others in which mechanical treatment, perfectly successful so far as removing the flexion is concerned, fails to remove the patient's symptoms. Cases such as these are not exceptional, but quite common. Of course there are others in which the reverse is the case. But the existence of the former class of cases is enough to show that a classification based merely on the shape of the uterus is not an adequate one, not one which helps in the treatment of backward displacements of the uterus.

To make clear the principles upon which I think that distinctions should be drawn between different cases of backward displacement, I would ask attention to the circumstances in which such displacements occur, and the condition upon which, in my opinion, the symptoms connected with them depend.

The essential abnormal condition which produces these displacements is yielding of the pelvic floor—that is to say, the muscles, fascia, fat, and cellular tissue, which form, as Dr. D. B. Hart has pointed out, a compact layer closing the abdominal cavity below. I see no reason for attributing them to an isolated alteration in any single structure; for it has been shown by experiment² that different component parts of the pelvic floor may be separately divided without producing descent or displacement of the uterus. When slight yielding of the pelvic floor takes place, one of the first results is that the mobility of the uterus is increased, and that this organ slightly sinks. The greater mobility of the uterus which the loosening of its supports obviously involves allows it to fall either forwards or backwards. If it were rigid, a falling forwards or backwards of its body would be accompanied with a relative elevation of its cervix in the contrary direction, seeing that the uterus is most firmly fixed at about the level of the os internum. Often this is what takes place, and then we have anteversion or retroversion, as the case may be. But sometimes, instead of altering its position in the manner described, the uterus bends, the body thus sinking without much change in the position of the cervix. Retroversion and retroflexion are thus results of a slight degree of prolapse. They are often, indeed, valuable indications of a slight yielding of the pelvic floor. There are cases in which the uterus, while the patient is in the ordinary obstetric position, is not measurably lower in the pelvis than natural, and yet we find symptoms. Did we look to the amount of descent of the uterus appreciable by the medical man as the indication for mechanical treatment, we should detect no necessity for it; but the version or flexion of the uterus reveals to us the altered condition of the uterine supports.

This, then, is the first point to which I would ask attention; that retroversion and retroflexion, when pathological, are alike results of slight yielding of the pelvic floor. Without such yielding they cause no symptoms. Their presence with symptoms is an indication of a degree of prolapse

¹ Read before the Hunterian Society.

² Savage: *Surgery of the Female Pelvic Organs*, 1870, Pl. xi. Hohl (quoted by Aran): *Maladies de l'Uterus*, p. 98c.

which may be too slight to be detected in the ordinary obstetric position, except by the alteration in the inclination and shape of the uterus.

The next thing to be borne in mind is that the most common cause of yielding of the pelvic floor is parturition and its effects. After delivery the pelvic floor should return practically to its condition before the pregnancy. But this is not always the case. From the injuries to the parts which attend childbearing, and from disturbances in the process of involution, some loss of tone in the pelvic floor frequently results. Hence we find prolapse, retroversion, and retroflexion, chiefly in women who have had children, and comparatively seldom in virgins. But parturition also brings with it an increased liability to many pelvic disorders: metritis, perimetritis, ovaritis, etc. These conditions are thus very commonly associated with backward displacement of the womb, simply because they are prone to occur in the same class of patients.

Anteversion and retroversion resemble one another in being alike results of slight prolapse. But the consequences of these displacements differ, for the reason that behind the uterus there is occasionally an anatomical disposition of parts to which there is nothing analogous in front of it. There are two folds of peritoneum, containing some muscular and fibrous tissue, running back from the neck of the uterus to the sacrum—the utero-sacral ligaments. These bands vary very much. Commonly they are small, wide apart, and loose; they may even not exist at all as visible folds of peritoneum. Sometimes they are so strong, tense, and close together that Douglas's pouch is a sac with a distinct and narrow neck. When this disposition of parts is present and the uterus becomes displaced backwards, its body may, by the intra-abdominal pressure acting on its anterior surface, be forced down into Douglas's pouch, against the margins of which the veins running in the broad ligaments, and returning the blood from the body of the uterus, will then be pressed. The return of blood from the uterus may thus be obstructed, and congestion of that organ be the consequence. The body of the uterus may even, there is reason to believe, be so far pushed down as to become grasped by the utero-sacral ligaments, and incarcerated in Douglas's pouch. It is rare to find these ligaments so tense and so close together as to be capable of grasping the body by the uterus. But it is not uncommon to find one or both of them quite strong enough to be capable of exerting pressure on the veins of the broad ligaments when the body of the uterus is pressed down between them.

The utero-sacral ligaments have another effect besides this. When strong and tense they tend to restrict movement of the neck of the uterus in a forward direction. Hence when, this condition of parts being present, the body of the uterus becomes displaced backwards, the utero-sacral ligaments prevent the cervix from moving upwards and forwards. The womb therefore bends, and retroflexion is the result, instead of retroversion, which would be the kind of displacement produced if the cervix were free to move.

I would now ask permission to briefly repeat the important points in what I have been saying:—

1. Backward displacement of the uterus, when pathological, is a result and indication of slight yielding of the pelvic floor.
2. It is prone to occur in the class of patients who are most liable to inflammatory and other diseases of the pelvic organs.
3. The disposition of parts behind the uterus is sometimes such that when the uterus falls back-

wards, the veins which return the blood from it are pressed on, the return of blood is impeded, and the uterus becomes congested.

On this view of their pathology I would classify backward displacements as follows:—

1. Those which cause no symptoms of any kind.
2. Those in which the displacement (including under that term the totality of the conditions which produce it) is the only morbid condition present, and there is no congestion, the symptoms being those of prolapse only.
3. Those in which there is not only descent, but congestion of the uterus.
4. Those in which the displacement is complicated by other conditions, which may or may not be aggravated by it.

Upon each of these classes I would now offer some further remarks:—

1. It is difficult to get at a correct estimate, at least in this country, of the frequency with which retroversion and retroflexion occur without any symptoms; and it is not of great practical importance. Circumstances every now and then make it our duty to examine the pelvic organs, although the patient has never complained of any functional disturbance referable to them. No one can have made many such examinations without occasionally finding the uterus displaced backwards; and from the few such patients whom one is required to examine, one may infer as to the many whom one does not examine that such displacements occur also in them. Further, retroversions and retroflexions have been found post mortem in patients who were known not to have any uterine symptoms during life. But the most important piece of evidence, from the large numbers of which it consists, is that furnished by Vedeler.³ This physician, who practices in Christiania, examined 414 healthy virgins, and found the uterus retroverted in 45 of them, or 11 per cent., and retroflexed in 13, or 3 per cent. He also examined 506 healthy nulliparae, and found retroversion present in 47, or 9 per cent., and retroflexion in 17, or 3 per cent. (I have myself examined 111 nulliparae who sought advice not for uterine symptoms, but for local contagious disorders, and I found retroversion twice present and retroflexion once.) Vedeler also examined 584 healthy women, each of whom had had one or more children. Among these he found 57 retroversions, or 10 per cent., and 69 retroflexions, or 12 per cent. In all, out of 1,504 healthy women, Vedeler found the uterus displaced backwards in 248, or 16·49 per cent. Out of 1,158 women who were suffering from uterine symptoms, he found similar displacements present in 259, or 22·37 per cent. Other writers have published statistics showing the frequency of retroversion and retroflexion in patients not selected by their seeking treatment for uterine disease, as well as in fetuses and children; but none have investigated such large numbers, or differentiated so carefully between the different classes of patients, as Vedeler. As evidence of his accuracy, I may compare one of his statistical statements with a similar one compiled from his own experience, by Dr. Graily Hewitt.⁴ This latter author, out of 1,205 women suffering from uterine symptoms and examined by him, found retroflexion in 112, or 9·3 per cent. Vedeler, out of 1,106 patients suffering from uterine disease, virgins being excluded, found retroflexion in 112, or 10·1 per cent. As retroflexion is not common in virgins, it is possible that if the few virgins probably included in Dr. Hewitt's tabular statement were subtracted

³ Archiv. für Gynäkologie, Band xix., S. 294.

⁴ Diseases of Woman, third edition, 1872, p. 5.

from it, as they have been from Vedeler's, the result might be to make the percentage of retroflexions almost the same.

It is necessary, in classifying the backward displacements of the uterus, to recognize the frequent occurrence of these cases—viz., those without symptoms; because in practice it is essential that we should always bear in mind that as retroversion or retroflexion may exist in a healthy woman without causing symptoms, so either of these displacements may be present along with functional derangement, which it has no share whatever in producing or modifying.

(To be concluded.)

EUCALYPTUS ROSTRATA AS A REMEDY FOR DIARRHŒA.

By T. J. HUDSON, M.B., L.R.C.P. Lond.,

Resident Medical Officer, Leeds Public Dispensary.

I AM induced to bring the above drug more prominently before the notice of the profession owing to the very marked success its administration has met with in my hands in over two hundred cases of various forms of diarrhœa during the past summer. Not that it is by any means a new remedy, though noticed cursorily in the text-books. *Eucalyptus rostrata* (Australian red gum) was first brought into Europe by Sir Ranald Martin, and occurs as imported in dark-red hardish masses, its essential principle being tannic acid. It is supplied in a pure form by Messrs. Harvey & Reynolds, of Leeds. The preparations found most useful have been a concentrated decoction (strength 1 in 20), and a dilute (strength 1 in 40) made by boiling the powdered gum in distilled water for ten minutes, and filtering while hot, and a syrup (strength 1 in 3). For a moderately severe attack in the adult I commence with half an ounce of the dilute decoction every two hours. If after four doses no improvement results, the same quantity should be given every hour for four times, and if still little effect is apparent, I order half an ounce of the strong decoction every two or three hours. In the vast majority of suitable cases an abatement of the attack now occurs, going on rapidly to a cure, when the same dose should be ordered every five or six hours, only gradually discontinuing the remedy. In an acute case it is best to commence with the strong decoction at the first; half an ounce every two hours, and at times every hour, increasing the time as above. The syrup may be given to children in doses of five to twenty or more drops three or four times a day, but, mindful of the tendency of sugar or mucilage to run into fermentation, seldom prescribe it, preferring small doses of the dilute decoction (thirty to sixty drops) guarded with spirits of camphor or some simple carminative every few hours, pushing it if needful. In many of the worst cases occurring in children, when all other remedies have failed, this alone has effectually stopped the alvine flux. The forms of diarrhœa alone benefited by this drug are as follows—viz.:

1. That arising from want of proper assimilation, the unaltered food causing irritation, chiefly of use after this or other harmful substance has been removed from the alimentary canal.
2. The bilious.
3. The congestive, an inflammatory state of mucous membrane existing, most useful in the latest stages, that the result of sewer gas also coming under this head.
4. Summer or sporadic cholera.
5. That the result of amyloid degeneration of the intestines, usually the small.
6. The

chronic or white flux; of great service in this variety.

The above applies equally to children. In cases of intermittent diarrhœa, the patient having an attack every two or three days for some time, while well in the interval, the drug is very effectual, given as above twice or thrice daily. It is also of service in those cases which, when first seen, present great depression, where the offending cause must be allowed to take its course, and where opium is contra-indicated. The good results obtained are not simply owing to the tannic acid contained therein, as many cases unaffected by the latter are soon cured by the red gum, partly, no doubt, owing to the far less irritant properties of the decoction. It is contra-indicated where there exists much acidity or flatulence, and if the griping pains are very severe a few drops of laudanum may at first be added with advantage, but omitted so soon as this symptom is in abeyance. It adheres firmly to mucous surfaces, diminishing their secretion, coagulating the albumen, the uncombined portion serving to constrict and contract the vessels of the gut, and to give the latter tone.

As tannic acid diminishes the solvent power of gastric juice, the gum should not be given too near food. Its taste is rarely objected to, and can be improved by the addition of spirit of chloroform. Lastly, its cheapness is a desideratum, more especially in dispensary and hospital practice.

Leeds.

FATAL CASE OF LARYNGISMUS STRIDULUS.

By JOHN MCMUNN, L.R.C.P., Ed., L.R.C.S.I.,

Late Demonstrator of Anatomy, Carmichael College, Dublin.

On May 5th, 1882, a woman sought advice for her little daughter, aged one year and nine months. The general health of the patient was good, but at certain times she lost her breath and had to struggle hard to regain it. There were three previous children, all of whom had died in infancy. The duration of disease in the present instance was three weeks; such was the mother's story. The child looked healthy, voice and respiration were normal; the lower gum was swollen and tense over the sites of the temporary molars. Finding here a probable exciting cause of what I believed to be laryngismus stridulus, I determined to lance the gums. As the knife grated on the subjacent tooth the child commenced to cry violently, but at the expiration of one long loud cry it became silent. Breathing was suspended. After the lapse of a couple of seconds a struggle for breath ensued, the face assumed a frightened look, the mouth was widely opened, the trunk and limbs were stiffened, the toes and fingers worked, while the inspiratory muscles were thrown into violent contraction, and signs of asphyxia rapidly developed; the face grew livid, drops of sweat stood on the forehead, the pulse grew feeble and small, while with widely dilated pupils she turned and suffused eyeballs seemed to start from their orbits. Violent inspiratory efforts culminated in general convulsions. Soon all was still, the pulse vanished from the wrist, impulse and sound ceased over the heart, and general muscular reaction took the place of contraction.

Treatment.—The child was shaken, its face mopped with a wet handkerchief, its back and stomach slapped with the wet hand, attempts to excite vomiting were made, the tongue was drawn forwards, and the vapor of chloroform blown down the throat from the palm of the hand, when muscular relaxation took place; artificial respiration was carried out for some time, while

endeavors were made to excite anew the heart's action. Tracheotomy was proposed early, but no reasonings would induce the mother to give her consent.

Remarks.—The tongue of a child is fitted to the arch of the palate; it breathes through its nose; in crying the tongue is flattened, depressed, and drawn backwards. Laryngeal obstruction took place after a violent expiration, or at the commencement of an inspiration. Sudden falling of the epiglottis would be thus easily induced, this would induce spasm in the irritable muscles which guard the entrance of the wind-pipe, while further inspiratory efforts would tend to perpetuate obstruction, especially in the yielding larynx of a child.

Park-lane-terrace, W.

THREE CASES OF DEPRESSED FRACTURE OF THE SKULL, IN WHICH THE TREPHINE WAS SUCCESSFULLY APPLIED.

By H. BLANC, M.D.,

Professor of Clinical Surgery, Medical College, Bombay.

CASE 1. Depressed Fracture of the Skull; Slight Concussion of the Brain; Localized Inflammation of the Brain and its Membranes; Progressive Paralysis of the Face; Application of the Trephine; Recovery.—Appa Nartha, a Syce, aged thirty, a Hindoo of the Maratha caste, was admitted into the clinical surgical wards of the Jamsetjee Jejeebhoy Hospital on December 15th, 1880, suffering from a fracture of the skull. It appears that the horse Appa was leading suddenly reared and struck him on the forehead with its hoof. The patient fell to the ground insensible, and remained in that condition for a short time. Considerable hæmorrhage is said to have taken place. After a while, when he had recovered consciousness, he was unable to walk, even when assisted; he felt confused, his sight was dim, he did not recognize his friends for a time, and he had entirely forgotten how the accident occurred.

On admission, two hours after the accident, his condition was as follows. The face was pale and anxious; the pupils slightly dilated; the skin was hot and dry; the pulse slow (60), regular; he was conscious, and answered questions rationally; he complained only of feeling giddy and great weakness. On the forehead there was a contused wound, beginning just above the left frontal eminence, and running obliquely downwards towards the right side. The bone was exposed and fractured; a depressed fragment being distinctly felt with the probe; the parts around were swollen and painful; the right upper eyelid was ecchymosed. He progressed favorably for the following six days, but on the morning of the seventh day (Dec. 22nd) he complained for the first time of pain in the head. His sleep during the preceding night had been disturbed. There was some dyspnoea present, with increased frequency of respiration, and at the base of the right lung some dullness on percussion and increased vocal resonance were detected. Temperature 100°; pulse 60. The wound was dry-looking and of a dusky color. The following day he was better. The dullness at the base of the right lung had given way to treatment.—Dec. 26th: The pain in the head has been increasing gradually, and is now very severe; for the first time this morning some ptosis of the left eyelid is noticed. The breathing is shallow and hurried, although no physical sign of disease of the lung can be detected. Temperature normal; pulse 60, equal, somewhat compressible. On Dec. 27th the

attendant reported that the patient had passed a very bad night. The left angle of the mouth was depressed, and there was marked flattening of the whole of left side of the face. The wound on the forehead looked unhealthy, discharging sanious pus. Temperature normal; pulse 60. The progress of the case being decidedly unfavorable and localized, inflammation having been diagnosed, I decided on applying the trephine and removing the depressed fragments. The patient being placed under chloroform, a crucial incision was made, and the flaps, which included the pericranium, were dissected back. A depressed fracture was then found situated at the line of union of the frontal bones, but involving more the right bone. The fracture measured half an inch in breadth and one inch in length. All bleeding having ceased, and the parts having been thoroughly cleaned, a small trephine was applied, resting partly on the healthy and partly on the fractured bone. A portion of the bone having been thus removed, the depressed fracture was found to consist of several fragments which were easily removed, but around the fracture several detached fragments were also found, these latter belonging to the inner table of the bone, and some of them had penetrated through the dura mater into the brain. All of these were removed. A careful examination was then made to ascertain that no pieces had been left, when a little above the upper angle of the fracture a large fragment about half an inch in length was detected penetrating into the longitudinal sinus. It was very carefully removed; nevertheless a terrible gush of blood followed. I at once introduced my index finger into the wound and placed it on the spot whence the blood was flowing, and did not remove it until the hæmorrhage had entirely ceased. The parts were then cleaned and the flaps brought together by sutures, a fine drainage-tube having been previously introduced. The wound was dressed antiseptically. On the following morning (Dec. 28th) a great improvement was found to have taken place in the case. The temperature was normal; the pulse 72, of fair volume and regular; the respiration regular, 22; the ptosis of the left eye was much less marked, and the paralysis of the face had disappeared. He appeared cheerful, and answered questions rationally; he had quite lost the pain in his head.

For a while he progressed very favorably, but on Jan. 9th, 1881, he complained of difficulty in swallowing; there was some rigidity in the muscles of the jaw and neck; he vomited several times during the day; his tongue was foul at the base and red at the tip; his look vacant and stupid, and he did not answer questions readily; there was some return of ptosis of the left eyelid. He complained of no pain, and the wound looked healthy. On the 11th his condition was somewhat worse, and during the night he had an epileptiform convulsion. On the 12th he appeared somewhat better at the morning visit, but in the afternoon his condition became very critical; he was comatose; breathing hurried; pulse thready, 118; temperature 102.4°. During the following day (January 13th) he seemed several times on the point of death. Incontinence of feces and of urine; in deep coma, from which he could hardly be roused; the pulse at times imperceptible. On the 14th some slight improvement, but still very bad. On the 15th the improvement was more marked; he was again conscious; pupils still dilated, but less so; he could open his mouth better. Vomiting, which had been more or less persistent since the 9th inst., now ceased. Pulse 108, more full and regular; temperature 98.8°. The wound on the forehead, which had nearly healed, was found to be raised and pulsating, and the dressing was cov-

ared with a considerable amount of healthy pus. On the 20th he had made great progress towards recovery; the ptosis of the left eyelid had again disappeared. Temperature normal; pulse 86. He was quite conscious; answered questions rationally, slept at night, and asked for more food. Day by day he gradually improved, gained strength and flesh. His nights were good, and he seemed to enjoy his food; he was in good spirits and cheerful. A small pulsating tumour that had formed at the seat of the injury gradually increased in size, distending and partially separating the recently united skin flaps.

On the 1st of March the hernia cerebri was smaller, the granulation on its surface had healed, but it was still the seat of marked pulsations. He was soon able to take exercise about the wards and verandahs. By the 20th of March the wound on the forehead had partially cicatrized, and pulsations were no longer visible. He was discharged perfectly well on the 1st of April.

Some weeks ago I made inquiries regarding him, as I wanted to see him. His brother called at the hospital and told me that our patient had gone to his village on leaving the hospital, where he was still residing in the enjoyment of good health. He complains only of not being able to carry burdens on his head as he had formerly been able to do.

CASE 2. Depressed Fracture of the Skull; Compression of the Brain on its Convex Surface; Partial Paralysis and Contractions; Application of the Trephine; Recovery.—Pourbai Souter, a Mussulman woman of the Khoja caste, aged twenty-three, was admitted into the clinical and surgical wards of the Jamsetjee Jejeebhoy Hospital on Dec. 15th, 1881, suffering from a depressed fracture of the skull, caused by a box falling on her head from the third story of a house as she was walking in the street. She was taken to the hospital immediately after the accident. On admission her condition was the following:—There was a lacerated wound, some two inches in length, situated on the right parietal bone, near its centre, and extending backwards towards the occipital bone. The bone was fractured in the same direction as the external wound. The pupils were dilated, the left more than the right. Pulse 102; respiration 24; temperature 98°. There was no loss of consciousness, and no paralysis; but she was somewhat hysterical, and still under the influence of shock.

On the following day there was slight reaction. The temperature rose to 101.4°, and the pulse to 110. She was somewhat restless and delirious. There was retention of urine and costipation. On the 18th her condition was much the same, but some paralysis of the left lower extremity was noticed. On the 20th she experienced a rather severe epileptiform convulsion. On the 21st she was somewhat delirious, and during the night had another severe epileptiform fit. When conscious she complained of a severe pain in the head. There was increased paralysis of the left lower extremity, and some loss of power in the left arm. On Jan. 11th her condition was still worse, the loss of power in the lower extremity was more marked, and for the first time attended by muscular contraction. The arm was quite powerless. During the night she was very excited, but at the morning visit she was drowsy and listless.

In presence of the progressive and increasing paralysis of the left arm and leg, to which contracture was now superadded, the application of a trephine to the fractured bone was decided upon, and the patient being placed under the influence of chloroform, a crucial incision was made over the scalp wound. The flaps having been dissected, a small trephine was applied partly on the healthy and partly on the fractured bone, and on remov-

ing the circle of trephined bone a large fragment was found to have been pushed and firmly wedged beneath the sound parietal bone. This piece was removed by forceps. The dura mater at the spot appeared rough and congested, but it was not lacerated. The wound was united by suture, a fine drainage-tube being introduced. The wound was dressed antiseptically.

Jan. 12th.—The patient passed a good night. Moderate reaction present; pulse 104, temperature 101°. All symptoms of paralysis have entirely disappeared; she is able to empty her bladder without assistance. During the next forty-eight hours moderate reaction persisted, and she suffered also from chloroform vomiting; otherwise progress was most favorable. On the 18th the report of the case is the following: Temperature normal, pulse 76, of good volume; bowels regular, sleeps well, and asks for food. She can move her arm and leg freely. The wound looks very healthy, and is uniting. The further progress of the case was steady and good. She gradually regained her strength, and she was soon able to walk about the wards and in the gardens. When she left, on Feb. 2nd, the wound on the scalp was firmly united, and she was altogether in perfect health.

CASE 3. Depressed Fracture of the Skull; Concussion of the Brain; Contusion and Laceration of the Meninges; Acute Meningitis; Application of the Trephine; Recovery.—Rookmee Etaba, a Hindoo girl aged twelve, was admitted in the clinical surgical wards of the Jamsetjee Jejeebhoy Hospital on March 31st, 1882, suffering from fracture of the skull and other contused wounds, the result of a fall. Of somewhat weak intellect, and subject to epileptic fits, she was standing on the summit of a steep hillock (Belvidere Hill, Mazagon) when she fell to the ground, seized with an epileptic fit. Under the influence of the fit she rolled along the steep and rough incline of the hillock, some sixty feet. She was picked up insensible and at once carried to the hospital. On admission her condition was as follows:—There is a lacerated wound situated above the left eyebrow, and which extends directly upwards and backwards for about one inch and a half; the bone is exposed, fractured, and depressed at the centre of the fracture. Some deep lacerated and contused wounds are found in the following positions. One over the left malar bone, one some three inches in length over the left side of the thorax, another over the left hip-joint, and many smaller abrasions and contusions are seen on different parts of the body. Both ankles are much swollen and tense. She is still unconscious: pulse 80, small; respiration shallow, 80. She now and then starts and moans, and frequently carries her hand to the wound on her head.—April 1st: She is drowsy, but can be roused somewhat. She is unable to answer questions put to her. Bladder distended; ten ounces of urine withdrawn by catheter; specific gravity 1016. Towards noon the temperature, which had been normal until then, began to rise and acute delirium set in. Pulse 114; respiration 32.

April 2nd.—She passed a very bad night; great restlessness and delirium. This morning temperature 104°; pulse 114; respiration 32. All day she remained in the same condition, the pulse losing strength and becoming more rapid. The prognosis being very unfavorable, an attempt to relieve her condition by applying the trephine was decided upon, and at 6 p.m. she was placed under the influence of chloroform. A crucial incision having been made at the seat of the fracture and the flaps dissected back, a small trephine was applied over the centre of the fracture. This having been removed, a few loose small fragments were found lying on the dura mater. One sharp-pointed frag-

ment had lacerated the membranes and wounded the brain. From around and beneath the fracture some clots of blood were removed. The dura mater at the seat of the injury was much injected and of a violet color. A slight oozing followed the removal of the penetrating fragment. The flaps were brought together by wire sutures, a small drainage-tube being introduced. The wound was dressed antiseptically.—3rd: Still delirious, but less violent than the day before; urine withdrawn by catheter. Temperature 102°; pulse 104. She became more excited towards evening, and the temperature rose slightly.—4th: Passed a pretty fair night, neither noisy nor restless; she is still unconscious; passes urine in bed. The right ankle is much swollen and painful. Temperature 103°; pulse 100; respiration 24. Towards evening the temperature fell to 100°. The following days she remained in about the same condition, at times quiet, at times noisy and violent. She took nourishment badly. An abscess formed near the right ankle-joint, and after it had been opened (April 9th) the temperature fell to normal.—17th: Passed a fair night; answers questions when pressed to do so; generally lies quiet or moans; no longer passes water in bed, but calls for the nurse; takes nourishment fairly well; the wound on the head discharges slightly. Temperature 99°. For a while she again became somewhat violent and restless at night; several abscesses formed at the seat of the contusions, and much of the uneasiness she experienced about that time was doubtless due to these inflammatory abscesses. In the beginning of May the improvement in her condition was more marked; she understood what was said to her, but was unwilling to answer, and when she did so it was in a cross, angry tone, as if annoyed at being disturbed; she now slept well at night, her bowels were regular, she took her food better, her temperature was generally normal; the pulse averaged about 80, and was weak and compressible; the wound on the forehead was nearly healed, a few drops of sero-purulent discharge alone soiling the dressing; all the other abscesses were completely healed.

May 14th.—She is in a fair way towards recovery; is able to sit up in bed, takes her food well, is gaining a little strength; she is sulky and cross generally, and is still unwilling to speak when questioned. According to her parents she is intellectually very much the same as she was previous to the accident. Discharged at her parents' request.

The first case is one of a depressed fracture of the frontal bone, attended by slight concussion of the brain. On the seventh day after the injury the individual, who until then was doing well, was suddenly seized with progressive facial paralysis, dyspnoea, etc. These symptoms (taking into consideration the date of their appearance) indicated localized inflammation of the brain due to the presence of depressed and penetrating fragments of bone acting as a foreign body. That this was the case was amply proved by the result of the operation. The relapse which followed a few days afterwards was due to the contused brain undergoing suppuration, and owing to a free exit having been made by the trephine, the abscess was evacuated externally, and rapid recovery ensued.

In the second case we have to deal with a well-marked instance of functional disturbance of the brain. There was compression of the brain on its convex surface (a piece of bone being firmly wedged in), but unaccompanied by symptoms of compression. The paralysis and contraction which afterwards developed were due to disturbed cerebral circulation, and to localized congestion,

rather than to inflammation. This is implied by the rapid improvement that followed the operation.

In the third case there was severe concussion of the brain, with laceration and contusion of the meninges. The very rapid and unfavorable progress of the case made the prognosis a most serious one. Nevertheless, after the penetrating fragments had been removed the further progress of the cerebral inflammation was considerably lessened.

Apart from their diagnostic value, I think that these cases will assist in rehabilitating the operation of trephining the skull in appropriate cases. These three individuals would, in all probability, have succumbed to cerebral inflammation had not operative surgery interfered on their behalf.

Bombay.

NOTES OF THREE ABDOMINAL CASES OF INTEREST.

By J. A. CAMPBELL, M.D., F.R.S.E.,
Medical Superintendent, Carlisle Asylum, Carlisle.

CASE 1.—M. C—, a female, aged at death fifty-four years, had been admitted into the Carlisle Asylum in the year 1862, and at that time was described as laboring under mania and being in weak bodily health. My knowledge of her included the latter fifteen of the twenty years she lived in this asylum. She labored under many delusions, talked much to herself, enjoyed good bodily health until shortly before her death, and was industrious and useful. From the many entries in her case I find that little or no ostensible change in mental or bodily state was noticed up to January, 1879, when she had an attack of vertigo, and for some days felt out of sorts. She, however, continued in her usual bodily state during 1880. In the latter half of 1881 she became thinner, her skin became yellower than it used to be. On more than one occasion she was examined, but no active disease or indication of organic disease could be found. It was noted, however, that she had a cancerous look.

On Jan. 22nd, 1882, the patient complained of feeling ill, but owing to her incoherent expressions it was impossible to get her to say more than that she felt ill. She vomited, her tongue was moist and clean, her temperature normal; pulse 78, small. An examination of the chest showed a normal condition of the thoracic viscera, and nothing abnormal could be detected as regards the abdominal organs; as there seemed a tendency to constipation of the bowels an enema of tepid water was administered, which produced two alvine evacuations. On the 23rd there was little change in the patient; she took food, but looked ill. On the 24th the morning temperature was 99°; pulse 96. She looked worse. Abdomen tympanitic and tender to the touch; no fluid in the abdominal cavity. Ordered half a grain of opium in a pill each hour. In the evening she complained of acute pain, referable to the region of the stomach, was sick, and retched much. A hot fomentation was applied and retained for some hours over the abdomen, but as relief from pain was not at once caused by hot application a subcutaneous injection of morphia was administered above the region of the stomach. Cessation both of pain and sickness immediately followed this treatment. Pain and sickness, however, recurred later in the day, but disappeared on a repetition of the injection. On the 25th the morning temperature was 98°; pulse 96. Tongue furred and dry, pulse small, tenderness over abdomen, but nothing abnormal

could otherwise be discovered. Decubitus on the back, with a tendency to draw up the legs. On the 26th the morning temperature was 97°; pulse 74. Tongue furred; during the night the bowels had been three times moved, feces normal in color but unformed. Abdomen tympanitic, tense, and tender. On the 27th the morning temperature was 97°; pulse 80. Was weaker and looked worse. Abdomen less tympanitic and tense; has taken a fair amount of liquid food. On the 28th she was worse, pulse more feeble, skin cold. On the 29th she became worse and died.

Autopsy, forty-two hours after death.—The body was thin, and the skin tinged yellow. The brain was examined, but no abnormalities detectable by the naked eye were observed. Chest: The lungs were slightly adherent to the parietes by old adhesions; the bases of the lungs posteriorly were passively congested, and the structure of the lungs, on section, was normal. Heart: Muscular substance fatty; valves competent. Abdomen: The liver was light-colored, friable, and fatty. Gall-bladder contained twelve small dark-colored calculi (a large biliary calculus was subsequently found in the small intestine). The spleen was dark and soft, and the kidneys congested; otherwise normal. There was evidence of peritonitis of the outer coat of the intestine, more especially of the large intestine. There was no fluid in the abdominal cavity, and the peritoneum lining the abdominal parietes was in a normal state. The intestine was taken out and examined; nothing unusual, except the already mentioned biliary calculus, was noted about the small intestine; but the large intestine, down to the sigmoid flexure, was much distended and contained flatus. There was a ring of hard cancer about an inch above the sigmoid flexure, which formed a constriction, only admitting one finger; and about three inches above this there was an ulcer, about the size of a penny, with irregular and indurated edges. There were no other abnormalities in the large intestine.

CASE 2.—J. M.—, a female, aged sixty years at death, was admitted in June, 1871, laboring under melancholia, and in very weak health; pale, thin, cachectic-looking, and to all appearances very aged for years. I always suspected internal cancer from her appearance. All forms of treatment to improve her bodily health and to increase her weight (which on admission was 106 lb., height 5 ft. 2 in., and which diminished to 88 lb. within the first ten months), proved unavailing. She resented the slightest interference, never spoke, but bit, struck, kicked, or scratched, if any attempt at examination was made. She had a habit of rubbing her hands, and did so so continuously that an abscess formed connected with the first finger of the right hand, and also another abscess connected with the fourth finger of the left hand. In spite of treatment disease of the cartilage and bone set in in both fingers, and they had to be removed. Healing took place extremely slowly, in fact for a long time little or no change seemed to take place in the severed tissues. On March 1st, 1882, it was noted that she was becoming gradually thinner and weaker, and on more than one occasion, but at considerable intervals previous to this date, she had had a loose stool followed by great pallor, faintness, and coldness. She resisted all attempts at examination with extreme viciousness. On several occasions she has been examined while being forcibly held. The result of these necessarily imperfect examinations may shortly be stated—viz., that percussion over the chest was clear, that some mucous râles were heard over both lungs, that the heart sounds were feeble but distinct, and that nothing abnormal was detected by percussion or touch; as regards abdomen, her

temperature was subnormal, her bowels were moved regularly, she took a fair amount of food, but she became gradually paler, thinner, more cachectic-looking if possible, and died on March 7th, 1882.

Autopsy, forty-nine hours after death.—The body was thin, and free from marks of injury. The brain was examined, but no marked lesions were noticed, and it is, therefore, unnecessary to enter into a detailed account of the appearances. The left lung was closely adherent by old adhesions to parietes, especially at apex; its upper lobe was congested, both lungs contained some deposit of grey tubercle at apex. The pericardium contained two ounces of fluid; the heart was yellowish in color, its muscular substance was fatty, its valves competent. Liver light colored and friable. Spleen and kidneys normal. Stomach and intestines removed and examined; both were found in a normal state, with the following exception. At the caput cæcum there was a thickening and appearance of tumour, as if the caput cæcum were crammed full of contents of a firm nature; on removing and laying it open the whole of the inner surface of the caput cæcum was found covered over with irregular masses of hard cancer, but the cavity of the viscus was patent, the external surface presenting a smooth and normal appearance.

CASE 3.—E. H.—, aged thirty-four at death, was admitted in November, 1866. She was entered as a congenital imbecile in weak health, unable to answer questions though able to speak a few words, was dirty in habits, ill-tempered, passionate, and at times violent. By dint of careful attention she improved in habits and conduct, and her bodily health improved. In 1873 she had an attack of excitement which lasted nearly six months, and during which, in spite of careful feeding, she lost weight. From this date till March, 1882, she remained in her usual mental condition. During the period of more than fifteen years that she had been an inmate of this asylum she had been free of physical ailment.—March 25th: Patient had taken food the day previously as well as usual, and seemed in her ordinary state of health when she went to bed. During the night her bowels were moved. The motion was reported as natural in color, size, shape, and consistence, by the night attendant. After this she was rather talkative, and appeared as if pained. As she looked ill she was kept in bed. She refused breakfast. I saw and examined her with all the care I could shortly after 9 A.M. There were no marks on the body. Temperature 97°; pulse 80, very weak. The tongue was slightly furred, with a tendency to dryness. The heart's sounds were feeble. There was comparative dullness over the left lung, both anteriorly and posteriorly, and respiration was harsh; but no crepitation, mucous râles, or other abnormal sounds heard. The abdomen was examined, and nothing abnormal was detected. There was no increase in size, and no abnormality noticed by touch or percussion; the patient exhibited no fear of being examined; no tenderness on pressure. The patient seemed to have a tendency to sickness, though she did not vomit. I was at a loss to know what was wrong, but thought it probable that she was going to have an attack of acute chest disease. I ordered a mustard poultice to be applied to the left side, and liquid nourishment to be given to the patient. At noon, while sitting up taking some beef-tea, which she was doing with avidity, she suddenly fell back in bed, and had a slight epileptiform convulsion, her eyes turning round. She became sick, vomited the beef-tea she had taken, passed urine in bed, and died in a state of collapse within forty minutes.

Autopsy, twenty-eight hours after death.—Body free

of marks; rigor mortis present; face and lips pale; pupils equal, rather dilated; thumbs inverted. Head: Brain examined, no abnormality noticed. Chest: Right lung free in cavity, very slightly congested; left lung very slightly adherent at apex by an old adhesion; left lung was slightly congested, principally posteriorly; structure of both lungs normal. Heart: Muscular substance normal, valves competent. Abdomen: There was a considerable amount of blood-tinged fluid in the abdominal cavity, and on the contents of the abdominal cavity being fully exposed, a large portion of the ileum and of the large intestine were seen to be quite black; there was, in fact, a twist of a large mass of intestine. Ligatures were applied to the lower ends of the duodenum and colon and the mass removed. Eight feet (measured) of the small intestine were found to be black and strangled, and a foot of the descending colon was similarly affected. The intestine, though black, was found strong and fresh on traction, showing recent strangulation. There was no ulceration of intestine, and no abnormality of parietal peritoneum. The liver, spleen, kidneys, uterus, and ovaries were normal; the stomach and urinary bladder empty.

Remarks.—I have endeavored to eliminate extraneous matter and to condense the account both of the cases and autopsies from the reports in my possession so as to save the reader from needless mental exertion. In an asylum containing from 400 to 450 patients, with an average death-rate of only 7 per cent. per annum, calculated on the average numbers resident, to have within two months three deaths from causes such as are narrated above is a remarkable coincidence. That abdominal cases are about the most obscure, the most uncertain, and the most difficult to deal satisfactorily with is almost an axiom. The difficulty in diagnosing and treating physical disease in the vast majority of the insane is as great as, and in many cases even greater than, in dealing with young children; no indication of the seat or nature of the malady can be communicated by the patient. In the three cases reported no aid of this sort was really available; in one, the first case, pain was complained of, but during most of the illness many vague complaints were made, and they were made only in a semi-coherent manner. In the second case active resistance to examination complicated matters; and in the third and last case real mental defect prevented the power of communicating symptoms. In the first two cases I suspected internal cancer from the general appearances, but was unable to localize it. In the first case, that of M. C., the yellowish tinge of the skin, the sickness, and pain in the region of the epigastrium might be, and probably were, the result of the gall-stone complication. The great prevalence of gall-stones in the insane has been noted in other asylums as well as in this. Considering the gravity of the intestinal lesion, it seems rather astonishing that signs of bowel complication should not have set in earlier, and have been of a more intense character. The unformed character of the stools was noted; but this means really nothing, for I have seen in a case of very narrow stricture of the large intestine large solid and firm faeces passed, which must have solidified and formed in the lower part of the gut. In the second case the position of the cancer and its not in any way affecting the outer surface of the caput cæcum are noteworthy points. I find that out of 589 deaths in this asylum (and the cause of death is not conjectured, but is ascertained by post-mortem examination) twenty-nine, or nearly 5 per cent., have been caused by cancer; of this number eleven have been due to cancer of the stomach or in-

testinal canal. I have not data to enable me to comment on the proportional death-rate in other similar institutions from this disease. Were a uniform system of recording, tabulating, and publishing the causes of death in asylums and hospitals in force, clearly stating where the result was ascertained by post-mortem examination, a comparison of such fatal diseases would help in forwarding our knowledge of their history and habitat. In the third and last case, the symptoms and post-mortem appearances clearly point to a very recent strangulation. I believe the effusion found in the abdominal cavity took place within three hours, between the time I examined her and her death. That the strangulation should have affected the parts it did seems strange to me. The largeness of the portion of intestines strangled undoubtedly caused the rapidity of death; death in this case really resulted from shock.

SALICYLATE OF SODA IN ACUTE ORCHITIS COMPLICATING GONORRHOEA.

By EDWARD HENDERSON, M.D., F.R.C.S. Edin.,
Municipal Surgeon, Shanghai.

THE marked and speedy relief of pain which follows the administration of salicylate of soda in rheumatic inflammation of the joints has been for some time past a matter of common clinical observation. The success which I have myself had with this drug in treating these affections led me in the autumn of 1880, while in charge of the Shanghai General Hospital, to give it a trial in a case of acute epididymitis occurring as a complication of gonorrhœa. Since then I have had but two satisfactory opportunities of repeating the experiment; I regard, however, the results obtained in these three cases as sufficiently good to warrant further trial of the remedy, and, indeed, entertain the hope of finding by more extended experience that we possess in salicylate of soda a drug which exercises something very like specific influence over the disease.

CASE 1 was admitted to the General Hospital on September 13th, 1880. The patient contracted gonorrhœa about three weeks previously. For a week the left testicle had been somewhat swollen and painful. On the 11th the swelling increased considerably, and the pain became severe and constant. On the 12th he suffered a good deal, and was unable to leave his bed; that night the pain prevented him from sleeping, and he had fever. On admission, at 10 A.M., his temperature was 102°. The left testicle was about four times larger than the right, and the scrotum covering it was red, being stretched and glossy in front, and somewhat œdematous below. There was great tenderness. The urethral discharge had disappeared. I thought the tunica vaginalis implicated, and regarded the case as probably a suitable one for treatment by puncture, as recommended by Mr. Smith and others. Salicylate of soda was ordered in twenty-grain doses hourly until the pain should be relieved. At 4.30 P.M. four doses had been taken—namely, at 11.10, 12.10, 1.10, and 4. He had sweated profusely, and the pain had greatly diminished. At 8 P.M. his temperature had fallen to 100°, and the medicine was ordered to be continued at intervals of four or six hours. He slept well that night without an opiate. On the following morning (the 14th) his temperature was 98.4°, and he felt quite easy while lying down. Pain had altogether left him on the 15th, and the urethral discharge returned on that day. There was no relapse.

CASE 2.—A police constable, seen by me for the

first time on the morning of April 8th, 1881. Patient contracted gonorrhoea about a fortnight before that date. One of his testicles had been swollen and painful for five days, but, until the morning of the 8th, he had been able to do patrol duty; being then no longer able to walk, he was compelled to go on the sick list as suffering from venereal disease. The inflammation was confined to one testicle, which was between two and three times larger than the other; it was hard and very tender. The scrotal skin was red, but not glossy. The body of the testicle was perhaps affected in this case along with the epididymis. There was apparently no discharge from the urethra. The patient's skin was hot to the touch, and his tongue was coated. He was ordered salicylate of soda in twenty-grain doses every two or three hours according to the effect produced. The testicle was to be suspended in hot water from time to time during the day. By evening six doses of the medicine had been taken, and the pain was greatly relieved. The pain diminished, he said, after the first dose, when he began to perspire. In the afternoon he sweated profusely. On the following morning (the 9th) he was quite easy when lying down, and could bear the testicle to be handled freely. On the 10th he declared that all pain had left him, and asked to resume duty. The testicle was then distinctly less swollen, though still enlarged and indurated. Convalescence was uninterrupted. The urethral discharge returned, but I have not noted the date of its reappearance.

CASE 3 was first seen on June 15th, 1882. The patient contracted gonorrhoea a month before that date. For about eight days the right testicle had been somewhat swollen and painful, and at the same time the urethral discharge began to diminish, and finally disappeared. On the 13th the inflammation seemed to be subsiding; but on the 14th the patient walked a good deal, and by the evening of that day the testicle was much more swollen than it had yet been, and the pain was severe and constant. On the morning of my visit he was forced to remain in bed. He said he had had an "awful" night from pain, and had been quite unable to sleep. His temperature was 101·8° F.; pulse 90; tongue clean and dry. His bowels were confined, one small hard motion on the morning of the 14th, and the same on the morning of my visit (15th). The inflamed testicle was at least four times larger than the other, hard, and very tender. The scrotal skin covering it was dull red, stretched and somewhat glossy in front. I ordered twenty grains of salicylate of soda every two hours, avoiding any other treatment, local or by aperients. The medicine was taken at 11.30 a.m., 1.30, 2.30, 4.30, and 7 p.m. After the second dose he had some ringing in the ears and began to perspire. After the third dose sweating was profuse (the weather was warm). At 4.30 p.m., after the fifth dose, the pain was relieved. At seven o'clock I saw him again; his temperature was then 101·6°, and his pulse 84; the pain was much less, and he could bear the testicle to be handled with tolerable freedom. On the following morning (16th) his temperature was 99·4°; pulse 88. He had taken two doses of the medicine during the night. He had slept well, and now complained only of slight pain confined to the upper part of the testicle. The testicle was much diminished in size, and fluctuation could be distinctly felt in front. His bowels were not moved till the evening of that day. Convalescence was uninterrupted and satisfactory.

In further trials of this plan of treatment I would advise that only acute cases be selected, the evidence of that condition being a distinct rise of temperature as ascertained by the thermometer.

The dose of the salt should be not less than twenty grains, and should be repeated hourly until at least three doses are taken; afterwards the same dose may be continued at longer intervals.

Shanghai.

ON SOME DEFORMITIES OF THE BODY INCIDENT TO THE PERIOD OF GIRLHOOD.

By CHAS. ROBERTS, F.R.C.S.,

Late Assistant-Surgeon to the Victoria Hospital for Sick Children, Etc.

I HOPE the time is not distant when a careful study of the living model of the child and the adult, and the whole period of the development of the one into the other, will form a part of the student's ordinary course of anatomy and physiology, as such knowledge is essential to the surgeon engaged in removing and preventing deformities of the body. Orthopaedic surgery as a specialty is a great evil both to the profession and the public. The specialist who concentrates all his attention on a narrow field of study and practice is tempted to exaggerate its importance, and to analyze and disintegrate his facts till he loses sight of their relation to, and their dependence on, each other; while, on the other hand, the general practitioner is disheartened and repelled by the apparent complication of the subject, and is induced to hand over to the specialist many cases which he is quite competent to treat, or, as is too often the case, to undervalue the importance or deny the existence of many deformities. How else can we explain the difference in practice between the fussy mechanical ingenuity with which many professed orthopaedists treat the slightest deformities of children—which, by the way, they often tell us are only visible to their specially trained eye, and are hidden from that of the family doctor—and the sangfroid of the general practitioner who meets the difficulties by the administration of a few doses of steel and quinine and rest in the recumbent position?

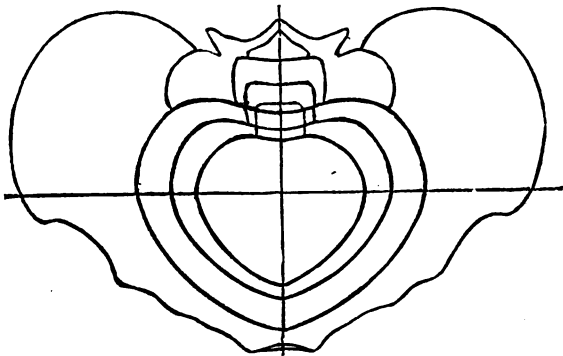
No deformity of a child's body gives rise to so much alarm to parents, or is the subject of greater diversity of treatment among medical men, as lateral curvature of the spine, and this is due, I believe, to an imperfect acquaintance with its origin. Specialists are accustomed to treat lateral curvature, knock-knee, and flat-foot as distinct deformities, while in truth they are all links in the chain of one deformity. Lateral curvature may arise in different ways, but in all cases it is due to the loss of the lateral balance of the body in the upright position, and is the result of an effort of nature to maintain the centre of gravity of the body and support the head and shoulders in the position which requires the least expenditure of muscular effort. The paralysis, wasting or loss of a limb, or the shortening of one of the legs by disease of joint, rickets, knock-knee, or flat-foot in growing children, will produce lateral curvature, and these are its chief if not its only causes. It is not a deformity arising from general debility, and I do not think it can be produced, as is often asserted, by an awkward sitting position, as in writing and other school occupations. The curvature of the spine which results from these causes is antero-posterior, or what is commonly called round-shoulder (non-carious). The tendency of debility, whether local or general, is to bring the body into the prone or recumbent position, and not to tilt it on one side.

Setting aside the cases of lateral curvature in children who have been affected with rickets, disease of joints, paralysis or loss of a limb in early

life, and which affect both sexes, and all ages equally, what may be called the idiopathic or acquired deformity is rarely found in children of either sex under the age of nine or ten years, and very rarely in boys above that age. It is, indeed, almost peculiar to girls verging on puberty, and is as often found in strong and healthy as in weak and delicately built girls, and most commonly in those who are too fat and heavy for their stature and age. It is a deformity which is less common among the laboring classes than among the rich and well-to-do, and is largely associated with a life of indolence and luxury.

A careful examination of the subject has satisfied me that this acquired lateral curvature in girls is due to the change in the position of the lower limbs resulting from the development of the pelvis from the infantile to the female type a year or two before the accession of puberty. Anyone who will examine the figures of young children below this age will find little differences between the two sexes. The legs of young girls are set on the body like those of boys, and, within the limits of their training and dress, they can run as well and as gracefully as boys; but as puberty approaches and the pelvis alters its shape, the heads of the femora are removed further from the centre of gravity, and at the same time become rotated forward by the widening of the pelvis, and especially of the outlet of the pelvis. The effect of these changes is to bring the knees closer together, and pro-

ducing girls. A little additional strain will convert it into knock-knee, and by throwing the weight of the body on the inner ankle, it will quickly break down the arch of the foot and produce flat-foot or complete eversion of one or both feet. It is here, indeed, that nearly all the mischief lies, for according to my experience ninety per cent. of the cases of lateral curvature of the spine in girls are associated with flat-foot. This deformity is exceedingly common among women, and a French *savant* recently quoted it as a proof of the physical inferiority of woman to man. To a slight extent flat-foot may exist in all women, as the position of the lower limbs after puberty would seem to produce it, and it may be nature's plan to promote what anthropologists call marriage by capture; but to a large extent, and in its worst forms, flat-foot is the result of civilization. Indeed, both the highly arched instep and the everted foot are peculiar to civilized peoples, and are absent from the lower races, especially those who go barefoot, and both conditions owe their existence to the wasting of the muscles which flex the toes and foot by the constant use of tight-fitting shoes. In India, where the native workman makes use of his toes with almost the same facility as his fingers, the instep is obliterated by the fleshy bellies of the abductor of the great toe and the short flexor of the toes, which stretch across the arch from their attachment to the heel bone. The wasting of these muscles is of little



The diagram shows the relation of the brim of the pelvis in the child, at puberty, and in the adult female, from measurements of pelves in the museum of the Royal College of Surgeons. The want of parallelism of the two inner pelvic curves shows that in the change from the infantile to the female type evolution takes place chiefly behind, and that the legs must be rotated forwards and inwards. The dimensions are:—Child: breadth 83 mm.; length 73; index 114. Young female: breadth 112 mm.; length 85; index 132. Adult female: breadth 143 mm.; length 108; index 132. The indices of the young female and the adult are the same, but the bones of the former are not united together.

duce the weak-kneed condition and the awkward running gait peculiar to women. This condition of the limbs is well seen in pictures and statues of the nude figure, and it is often exaggerated by the artist or sculptor, probably to give a more distinct idea of a woman's helplessness or modesty. The knee-cap in women looks straight forward, while in men it is turned a little outward; and in women the knees touch, or even overlap each other, while in men they are quite free. In running, a woman has to move the knees around each other, and to throw the feet out in a succession of small semicircles, which accounts for the peculiarity in her gait. This gait is not found in young girls before the onset of puberty, and is useful as a diagnostic sign of pelvic evolution long before the ordinary signs appear.

Although this weak-kneed condition is quite normal, it is a fruitful source of deformity in

importance to us who have no need to use our toes in detail; but it is far otherwise with the deep flexors of the foot and toes which are attached to the leg bones, and whose tendons pass under the ankle-joint and arch of the foot and form their chief support. It is, indeed, from the wasting or inaction of the deep flexor muscles, coupled with the turning out of the toes which fashion has imposed upon us, that the ankle and arch of the foot give way under the changed position of the limbs in girls at puberty, which I have described; and what is remarkable, and not easily explained, the deformity generally occurs only in one foot, or is greater in one than the other. In this way, however, the legs become of unequal length, and we have obliquity of the pelvis, and consequently, lateral curvature of the spine to correct the balance of the body, and bring the head and shoulders into the line of the centre of gravity. Flat-foot

also produces, or exaggerates, the natural disposition to knock-knee in girls, which, in its turn, adds to the inequality in the length of the two legs. Some observations recently made in America show that even in adults of both sexes the two legs are rarely of equal length, and there must be, therefore, slight lateral curvature in all persons, and it is probable that these natural curves become exaggerated, as in the development of round shoulder the large antero-posterior curves of the spine are exaggerated. It is to the wasting or non-development of the fleshy parts of the deep flexors of the toes or foot that Europeans owe the small ankle and the comparatively large calf of which they are so proud as distinguishing them from the lower races. It is a distinction, however, which is more than counterbalanced by the ugliness and inconvenience of flat-foot, to which it frequently gives rise. The ingenuity of an Edison could not devise a machine so favorable to the production of flat-foot as the tight-fitting, high-heeled, long-topped boot at present worn by girls. Not only does the rigidity of the front part cramp the action of the muscles, but the high heels place the foot at such an angle with the leg that the tendons are of least use in supporting the ankle-joint, and the long tops hamper the development of the muscles in the remainder of their course. The high heels, moreover, push the centre of gravity forward on the arch of the foot, and by propping up the heel gives greater leverage, and a greater space for the arch to fall when once it gives way. In the majority of cases the mischief would stop when the arch reached the level of the natural heel, but the heels of boots favor a still greater fall, which ends in eversion of the foot. It is difficult to understand how women submit to the discomfort of wearing high-heeled boots, or can be so cruel as to let their daughters wear them. It is true they give a fictitious height to the body, and disguise the slighter forms of flat-foot, but on the other hand they exaggerate the severer forms, and the boots are entirely wanting in proportion. Zeising's law of proportion requires that the sole and the heel should have the relative length of three to two, like that of the normal foot.

In treating the deformities of the spine and legs incident to healthy girls, it is obvious that attention must be directed in the first instance to correcting the deformed knees and feet. The very first signs of the giving way of the arch of the foot, which is easily detected by examination, by growing pains, and especially a change of gait, should be met by the wearing of flat-soled, well-fitting boots, with indiarubber or felt pads inside to support the arch, and special exercises favorable to the development of the deep flexor muscles. At puberty, and for two or three years before, the growth is very vigorous, and in both stature and bulk girls shoot ahead of boys of the same age, the period of rapid growth of boys coming later. From ten to fourteen years the stature of girls increases at a uniform rate of two inches per year, except at thirteen, when it is two inches and a half, but the weight increases at a much greater rate. At ten years girls add 4 lb., at eleven 6 lb., at twelve 10 lb., at thirteen 12 lb., and at fourteen and fifteen 8 lb. to their weight, and this sudden addition to the weight tells rapidly on ankles, feet, and knees placed at a disadvantage by concurrent change in the position of the lower limbs by the evolution of the pelvis and the cramping of the muscles by tight boots. The arch of the foot often breaks down in the course of a few weeks, without warning or apparent cause, and in girls in perfect health, and especially those of an indolent habit. Fortunately the remedy is as easy and complete if applied promptly at the beginning and adhered to

persistently, as it is difficult and unsatisfactory if put off till the deformity is firmly established. Support to the arch of the foot prevents the formation of knock-knee and lateral curvature of the spine. When it fails to do so, the knock-knee can be corrected by the temporary application of long splints, especially in bed at nights; but no apparatus is necessary for the curvature of the spine in its earlier stages, as it will disappear on restoring the lateral balance of the body, and all treatment will be useless until this is done. Much walking or standing should be avoided, and short but vigorous gymnastic exercises substituted, and when possible the recumbent position assumed. Sitting on the ground or on a sofa in the cross-legged oriental position serves to expand the pelvis, evert the knees and invert the ankles, and counteract all the deformities; while sitting on chairs with the legs crossed one over the other directly favors them. It is probable that most children spend too much of their time on their feet, and that their powers of walking is very much overrated. Running is the natural gait of all young animals, and children always run if left to play by themselves. The dire effect of standing and walking in producing flat-foot in children is shown by the following statistics, taken from my paper on "Flat-foot" in the St. George's Hospital Reports (1872-4): Of 10,000 children between the ages of eight and thirteen years which were examined, about one-third were school children living in country towns and agricultural districts, another third were school children living in manufacturing towns, and the remainder were factory children. Among the first, 17.1 cases per 1000 of flat-foot occurred; among the second, 30.7 cases per 1000; and among the third—i.e., the factory children, who were employed five hours' daily standing, walking, and carrying weights—79 cases per 1000 of flat feet were found. Among the latter the deformity was found to increase rapidly with age—i.e., with the longer period of employment in factories. Thus:—

Of the age of 8 years, 15.1 per 1000 had flat-foot.

"	9	"	45.6	"	"
"	10	"	51.2	"	"
"	11	"	104.2	"	"
"	12	"	132.4	"	"

At the period when these observations were made (1873) children were allowed to commence work in factories at the age of eight years, instead of ten as now, and the low rate of 15.1 per 1000 represents the normal rate before the strain of labor has begun to tell on the children's feet.

There can be little doubt that children are made to stand and walk far too much both at home and at school. Standing at lessons, parade exercise, and much of the military drill in schools are injurious to both boys and girls, and especially to the latter. Instead of listless standing about, or taking long walks with adults, children should be permitted and encouraged to play lively games, which they will generally do even if left to themselves, to dance, and to perform short but spirited gymnastic exercises with apparatus. Exercises which develop the muscles of the feet and ankles, such as hopping and skipping, are especially necessary for girls; and still better than these are the admirable exercises preparatory to stage dancing taught at the National Training School for Dancing. These exercises are directed to the development of the muscles and the free action of the joints of the lower limbs, and are far preferable to the languid movements of ordinary dancing. For the development of the muscles of the trunk and arms the excellent system of gymnastics for girls recently established by a lady in various parts of London, with the approval, after careful and re-

peated inspection by myself, of Dr. Richardson, Mrs. Garret Anderson, and others, is all that can be desired. The Swedish and other exercises effected without apparatus are of little use, as idle and indolent girls who stand most in need of physical training easily comply with the form, but evade the spirit and hearty compliance which such systems demand. These systems lack motive to complete an exercise, while simple apparatus such as balls, dumb-bells, and bars compel it by keeping the end in view and giving an impetus to its performance. With half the care which mothers spend on dressing and decking-out their children, often in unsuitable clothing, they might, with a little help from their medical advisers, prevent most of the deformities which mar the physical beauty, comfort and health of their offspring; and no time seems more appropriate than the present for directing the attention of medical practitioners, and through them of parents, to the means of attaining these objects, as the short walking dresses worn by women and girls at the present time reveal to all of us to what a great, indeed unexpected, extent the ugly deformities of the feet and ankles to which I have referred exist, especially among the well-to-do and higher classes.

A SCHEME FOR THE MORE COMPREHENSIVE STUDY AND PREVENTION OF SO-CALLED ZYMOTIC DISEASES.

By THOMAS M. DOLAN, F.R.C.S. Edin.

PROVISIONAL OUTLINE.

THE theory of creative evolution has placed the study of the genesis of species on a scientific basis. The germ theory promises as much for medicine. A richer fruition will result if the germ theory be studied by the light of evolution. We have seen its application in the animal and vegetable world; it has been extended to the sociological aspects of life, etc. It may be applied with advantage to the study of disease. Disease is not an entity standing alone. It should always be considered in its relation to the cosmos. Buckle, in his "History of Civilization," vol. iii., p. 447, tells us that the great glory of Hunter as a pathologist was that he formed the grand conception of a universal pathology. Buckle says: "With him [Hunter] the science of pathology did not mean the laws of disease in man alone, or even in all animals, or even in the whole organic kingdom; but it meant the laws of disease and of malformation in the entire material world, organic and inorganic. His great object was to raise a science of the abnormal. He determined to contemplate nature as a vast and complicated whole, exhibiting indeed at different times different appearances, but preserving amidst every change a principle of uniform and uninterrupted order, admitting of no deviation, undergoing no disturbance, and presenting no real irregularity." In the views herein set forth there is then nothing new, except perhaps in the method in which they are set forth. It is one which has occurred to many minds. There is a tendency at the present time to consider disease in its relation to evolution. The papers by Dr. Airy, Dr. Roberts, Surgeon-General Gordon, and Mr. Millican indicate the direction in which this current is setting. The principle zymotic diseases are small-pox, scarlatina, measles, whooping-cough, diphtheria, cholera, and typhoid. We have evidence to support the view that these diseases are caused by micro-organisms. These diseases must be studied in the same way that the naturalist studies animals and plants. The naturalist, when

engaged in the study of the life-history of any individual animal or plant, looks in a broad-world point of view at his subject, and by the aid of evolution throws light on the genesis, distribution, development, transmutation, and varieties of each animal and plant. The scientific physician must approach the study of disease in the same way.

The following is an outline of what I believe should be done:—

1. *The Genesis of Contagium Vivum.*—Under this head will be included the life-history of each form, tracing it as far back as possible. Evolution does not tell us when each seed, as, for instance, that of the oak or ash, first appeared. We can only go as far back as the historical period extends; so we cannot expect to be able to reach the ultimate stage when each disease first appeared. Evolution fixes in what part of the globe each plant examined first appeared, as the scientist not only traces back to the earliest period its existence, but also, by the study of its habits, is able to determine the zone in which it could exist. As regards the genesis of each individual disease germ we must apply the general principles of evolution.

2. *Reproduction.*—Under this head will be considered the mode of reproduction, whether slow, or rapid, whether the seeds are derived from seed forms, or whether multiplication takes place by fission. Example: Drs. Dallinger and Drysdale's experiments on the life-history of some monads. These observations are models of what is wanted.

3. *Development, Maturity and Decay.*—Duration of life in each form of contagium. How long may it be preserved? Average period of existence in mature and embryonic form. Morphology and physiology.

4. *Laws Controlling Contagia, etc.*—Special seasons of activity; the influence of environment on each disease; sanitary conditions and relation to physical phenomena; influence of oxygen in the atmosphere; heredity, variations; crossing or transmutation; susceptibility; relation of the habitat; progressive development of types; application of analogy of laws regulating plant life.

5. *Distribution in its Geographical Relations.*—Influence of climate; atmospheric variations; warmth, moisture, winds, barometric, electric, thermic disturbance, etc. Secondary natural influences; currents; winds; animals, transport by. Effects of human interference. Example: Measles introduced into Fiji Islands. Migrations. Effects of cultivation by civilization. Effects of extinction of diseases by sanitation, similar to extinction of weeds in the plant world. Distribution of disease in zones. Relation of disease to flora and fauna. Natural selection for localities. Latitudes in which diseases are found. General method of diffusion.

6. *Geological Distribution.*—Nature of soil, sub-soil, alluvium, clay, etc.; rock. Mountain, valley, or plain; drainage; swamps; watershed; rivers; lakes.

GENERAL PREVENTIVE MEASURES.

These can only be secured by establishing, as it were, a sanitary cordon round the world, and by the combined investigation of disease by an international method—London, Paris, Berlin, Vienna, Brussels, etc., to be in communication, so that the heads of sanitary bureaus in each country may know the sanitary state of each country. This could be done by maps, charts, and records, to be framed and kept on a uniform plan. The incidence of disease in individuals and communities will be noted; sex, age, color, nationality will have their proper place assigned; sporadic, endemic, and epidemic states will be considered in relation to causation. Hygiene will thus be carried out in

a cosmic spirit; all those minor considerations as trades and professions will be examined in their relation to disease; whilst the value of food, pure air, water, etc., will be also appraised.

Vast statistics on almost every point connected with disease will by these means be secured, and conclusions drawn therefrom. Thus will be obtained the sum of the conditions of the causes and propagation of disease; thus will be found the varying effects of climate and other agencies; and, above all, we shall learn the value of preventive measures necessary for its eradication. We have not as yet in England arrived at an appreciation of some of the simplest elementary truths in reference to prevention; for instance, the notification of infectious diseases and hospital accommodation for them are two of the first essentials. They should be State regulations. Each town is now allowed local option as to what it shall do. It seems Quixotic to attempt a broader scheme in the face of the prevailing indifference or disregard for both these measures in England. Prevention and spread of disease are not only State questions, but they have a cosmopolitan interest. Now that communication between different countries is so rapid and so much facilitated by steam, the health of one country is of vital interest to all countries; causes operating in England may affect France and *vice versa*. For example, let us take the sanitary state of Hull. Hull is a seaport town. Let us look at the sanitary state of this town in the year 1881. In consequence of the prevalence of scarlatina the Local Government Board sent down Dr. Airy to inquire into the sanitary condition of the town. Dr. Airy held the inquiry on the 9th and 10th of March. The medical profession of the town submitted a memorial from which I extract a few items. The memorial sets forth that the outfalls of the sewers are blocked for sixteen hours out of the twenty-four, and that the ventilation of the sewers is most defective. The present mode of collection of night soil is very inefficient, being effected irregularly in open carts. Refuse is deposited in various parts of the town on unused plots of ground. The connection of houses with the main drainage is notoriously insufficient. New houses are not examined during the course of erection as to their drainage and other sanitary arrangements, and building sites are frequently formed by the filling up of disused brickponds with animal and vegetable refuse and street scrapings. The Artisans and Laborers' Dwellings Act and the Sale of Food and Drugs Act are not properly carried out, nor are the sections of the Public Health Act dealing with offensive trades and the smoke nuisance. A reservoir supplying water to the town is uncovered, though exposed to the foul emanations issuing from fish and bone manure works in close proximity. The hospital accommodation for cases of infectious disease occurring in the town is totally inadequate, especially in view of the special danger to Hull arising from its close and frequent communication with the Continent. Disinfection is not undertaken by the local authorities free of expense, and the charges which the Corporation make no doubt deter many people from having their disinfection properly done. There is no mortuary in the town, and the means adopted for the prevention of epidemics are generally inadequate. This is a sad picture in the nineteenth century. Hull in this insanitary condition is a danger to the world. She may distribute scarlatina by ships as well as wind and wave currents. At present health officers of different countries are ignorant of the general sanitary state of other countries. Under my system the state of Hull would be known. Perhaps a friendly communication might be made by some foreign State to the

Minister of Public Health in England to look after the sanitary state of Hull if this international system were at work.

My leading ideas are—1. That the sanitary authorities of each country should work on one uniform plan and under central direction. 2. That all sanitary authorities in every country should interchange maps, etc., and that the methods of recording disease should be the same. It is easy to draw up forms for international use. I have given one quotation from Buckle. I shall conclude with another, as an excuse for not tracing in detail the way in which diseases have originated or spread:—"To do this would require a learning and a reach of thought to which hardly any single man ought to pretend, since it is one thing to have a perception of a large and general truth, and it is another thing to follow out the truth in all its ramifications, and prove it by such evidence as will satisfy ordinary readers"—(vol. i., p. 131).

Halifax.

SOME OBSERVATIONS ON THE CONTAGIOUS DISEASES ACTS.

By RAWDON MACNAMARA, F.R.C.S.I.,

Senior Surgeon to the Westmoreland Lock (Government) Hospital, Dublin.

Of the many burning questions at present agitating our minds, perhaps there is none discussed with greater warmth than the propriety of retaining amongst our statutes the Acts of Parliament known by the name of the "Contagious Diseases Acts." Whether they should be abolished, retained, or even extended is discussed with an amount of energy approaching acrimony, calculated to excite surprise in the calm mind of a philosopher; and yet it strikes me that in all this controversy the question has been almost exclusively approached by those who would wish, not only their continuance, but their extension, from the man's side of the case, to a very great extent ignoring that of the woman; whilst the opponents of these measures seem to me to think that any beneficial results that may flow from such enactments are confined to the male sex—on their side also ignoring the woman in the discussion. Whilst at once avowing myself as an uncompromising opponent of the "billet de santé" system—an occupation in my opinion degrading to any respectable surgeon—still I should wish to point out, from the woman's standpoint of view, why it is that I should wish these Acts not only to be continued, but to be widely extended; and the facts which I shall submit in support of my views cannot be gainsaid—facts which, if called upon to do so, I can support by unquestionable documentary evidence. During the past five years our return of patients admitted into the Lock Hospital would show an average of 700 unfortunates annually admitted. Of these I am in a position to prove that 511 were reclaimed—something like one out of every seven saved from a life of sin!—225 sent to asylums, 88 reconciled and restored to their parents, 50 sent to the poor-houses, and 148 provided with respectable situations. All this good work due to the fact that their admission into the hospital brought them under the direct pious ministrations of our chaplains, the Rev. Dr. Gibson and the Very Rev. Canon Forde, whose exhortations, ably aided by our Matron, Mrs. Hogan, bore this good fruit. It would be but to abuse the patience of my readers were I to point out how inaccessible to such influences would have been these poor sinners were there no such hospital for their reception; and it is a matter for legitimate speculation how many

more might have been rescued were the Acts compulsory, thereby bringing a larger number under such influences.

So far I have been considering the subject from its moral aspect. I should desire now to say a few words upon the physical side of the case. How often have I wished when admitting these unfortunates into my hospital that some of the most earnest of the opponents of the Contagious Diseases Acts could be present to judge for themselves the amount of suffering they would inflict upon an erring sister by permitting her to ply her trade at a period when to do so must have been present torture and future misery. How often has the question been as it were wrenched from me, "My poor girl, why have you not applied ere this?" No one in general practice and unconnected with a Lock hospital can have any idea of the fearful condition in which from time to time patients are admitted into my hospital, which is situated in a city unfortunately not under the Contagious Diseases Acts. Were these Acts in force in Dublin, it would be simply impossible for such harrowing cases to present themselves. As it is, patients rarely present themselves in the earlier stages of their disease, when their treatment is manifestly more amenable. The effect of this on our general population, and more especially upon our garrison, it is unnecessary for me to point out.

Dublin.

ON A CASE OF PSORIASIS TREATED BY CHRYSOPHANIC ACID INTERNALLY.

By LEWIS W. MARSHALL, M.D.,

Surgeon to the Children's Hospital, Nottingham.

THE following case is of interest in connection with others published by Dr. Napier in *THE LANCET* a short time since, because, while I endeavored to act rigidly up to the rules laid down for the administration of chrysophanic acid internally by the author of the paper referred to, the result was not so favorable as could have been wished.

Sarah A. C—, aged thirteen years, was admitted to the Children's Hospital, Nottingham, on May 24th, 1882, having numbers of patches of psoriasis all over her trunk and upper and lower extremities, those on the legs being most numerous and the largest. They existed chiefly on the extensor surface of the arms and legs. She gave a history of having suffered from the rash for six months, when it appeared in small spots, gradually enlarging and becoming scaly. On the day of admission she was ordered the following diet and treatment:—One-third of a grain of chrysophanic acid, with a sufficient quantity of sugar of milk, three times a day, this powder to be used after a meal, and to be continued unless diarrhoea or vomiting ensued. Diet to consist of meat, and avoidance of farinaceous products.

May 25th: Vomited directly after powder last night (5 P.M.), when they were stopped, but resumed at 11 A.M. to-day.—26th: Vomited again last night; no pain or discomfort.—31st: Dose increased to half a grain three times daily; spots fading slightly.

June 5th: Dose increased to one grain.—19th: Vomited after the morning powder.—19th: Dose to be a grain and a quarter.—28th: Two-grain doses used; spots on hands less distinct; made outpatient, but to continue treatment.

July 1st: Spots improving, but not markedly so; has vomited twice since she left the hospital.—12th: States to-day that she vomits everything she eats, and the treatment was discontinued.—19th: An ointment of chrysophanic acid with vaseline

(twenty grains to the ounce) was used locally, after which rapid improvement was noticed.

Sept 8th: The patient was discharged well.—29th: To-day I have heard that the spots have not returned.

Nottingham.

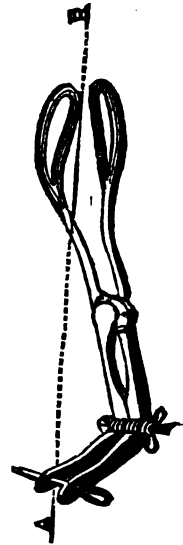
A NEW INDICATING AXIS-TRACTION FORCEPS.

By A. DRUMMOND MACDONALD, M.B., C.M. Edin.

THE leading points in the design of this instrument are—(1) axis-traction without the use of intra-vaginal rods; (2) indication of the grasp taken of the foetal head; (3) portability; and (4) minor deviations from the ordinary type of long forceps, partly suited to the three preceding points, partly by way of improvements. How this design is practically carried out is shown in the accompanying woodcut and following description.

Taking the parts *serialim*: (a) The blades are 6½ in. long, 2½ in. apart at the widest, and 1 in. apart at their extremities, which are not quite so broad as usual. When applied, and traction made, they will "give" half an inch, a point to be observed in all forceps, according to the temper of the steel, and having an important bearing on the question of grasp. The total breadth is 1½ in., the fenestrum being ½ in., leaving 7-16 in. steel, which ensures a good hold. The fenestrated portion has been made nearly straight, and the pelvic

curve lies in the lower portion of the blade and upper part of the shank, for the reason that when the blades are in apposition to the head, at or entering the pelvic brim, the natural curve of the genital canal lies below the head, consequently below the blades, and so corresponds to the curve above indicated. What we want is a pair of forceps acting as straight forceps, but without their perineal inconvenience, capable of being applied with facility, and at the same time adapted to the curve of the pelvic passages. (b) The shank measures 2½ in. (with the blade 9½ in.). This should prevent any locking in the vagina. (c) The lock is a kind of hybrid between the British and Continental locks, and allows of a scissors-action of the blades for the purpose of indication mentioned below. The lower blade has, and is easily recognized by, a hooked portion of the lock, on which the upper rounded and shielded segment is slipped in locking. (d) The handles have upper movable halves attached to the lower by a hinge joint which admits of their being folded down from right angles, so as to be easier of manipulation when required, and occupy smaller space when not in use. There are holes for a transverse traction bar through their ends, between which is a space for the middle finger to be passed through when grasping this bar. (e) The indicator is seen as a scale on the flat convex side of the binding-screw (c), passing through the centre of the hinge, and shows how far the extremities of the blades, when in position, are apart, within a range of one to three inches. This will indicate whether a sufficient grasp has been obtained to avoid risk of



slipping; and if the exact presentation and movement be taken into account, will give an idea of the measurement of the diameter of the head we are dealing with. For portability's sake the traction-bar may be screwed into the head of the binding screw. (f) Mode of application: The handle is not to be brought so far back towards the perineum as must be done with long forceps generally. Then having inserted the screw and read off its index number, raised the movable part of the handles, and placed in position the transverse bar, traction is to be commenced (assuming that the head is at the brim) with the bar opposite the tip of the coccyx, so that the line of traction (A B) shall pass through the axis of the brim. The hand is of course to be moved forwards as the head descends. The forceps are dark bronzed, to take away the formidable aspect that bright polished or plated instruments wear in the eyes of outsiders. Messrs. S. Maw, Son & Thompson have given me a ready assistance in carrying out my endeavor to produce an "instrument of precision."

Dingle-hill, Liverpool.

A WAISTCOAT-POCKET AURAL REFLECTOR AND SET OF SPECULA.

By E. CRESSWELL BABER, M.B. Lond.,

Surgeon to the Brighton and Sussex Throat and Ear Dispensary.

In comparison with some more favorably situated organs, such as the eye and the skin, the ear is placed at a disadvantage, inasmuch as it usually requires for the diagnosis even of its more common diseases the use of certain instruments. It is therefore of importance that these instruments should be made as simple and portable as possible. A great step in advance in this direction was undoubtedly made when von Tröltsch introduced into general use the aural speculum and concave reflector, by means of which an ear can be inspected either with daylight or artificial light. Under my direction Messrs. Millikin & Down, of St. Thomas's-street, Borough, have modified these so as to render them still more portable. The reflector (Fig. 1, reduced in size) con-

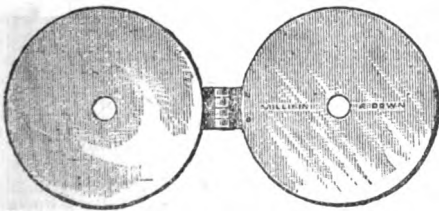


Fig. 1.

sists of two circular mirrors, each $2\frac{1}{2}$ inch (about 6½ centimetres) in diameter, and firmly jointed together at the edge, so that when folded their reflecting surfaces come into contact. One mirror is made of glass and is concave, having a focal length of $5\frac{1}{2}$ inches; the other is nickel-plated and plane. Both have a central circular aperture. With the concave mirror the ear may be examined either with ordinary daylight or with artificial light, whilst with the plane mirror sunlight may be reflected into the ear. The focal length of the concave mirror is purposely made rather long in order that it may also serve for an examination of the nasal cavities from the front, and for throwing light into the fauces in inspecting that region. With this reflector and a bent hairpin to draw out

the ala of the nose a very fair inspection of the nasal cavities can be made. The nest of specula (Fig. 2, natural size) consists of three, made of sil-

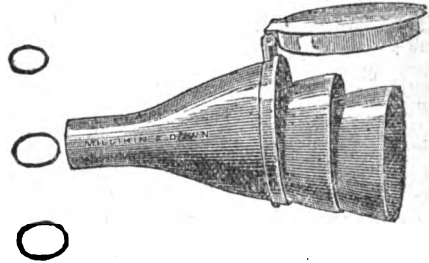


Fig. 2.

ver, fitting accurately one into the other. They are shorter than those in common use (measuring 3 centimetres—1½ in.—in length), and are made as light as possible. The smaller ends of the specula measure respectively about 6 by 7, 5 by 6, and 4 by 5 millimetres in diameter. The largest speculum, measuring at its broad end 17 by 18 millimetres in diameter, is fitted with a cap, which is preferably jointed on to the flatter side of the speculum, and not to the end of the oval, as shown in the figure. The shortness of the specula does not interfere, I have found, in any way with their practical utility, although, of course, they afford less leverage for moving them in the ear than the ordinary specula. With these two small instruments in his pocket, the practitioner can, at a moment's notice, inspect an auditory canal and gain important information as to the state of a patient's ear. Others, no doubt, like myself, have frequently been requested to look at So-and-so's ear, as he or she was suffering from earache or deafness. Instead of deferring one's examination to a future period, with these instruments at hand the auditory canal can be immediately examined, and the case prescribed for on rational principles. If, for instance, the meatus be occluded with cerumen, instillations of a solution of bicarbonate of soda can be ordered, which will facilitate its removal with the syringe at the next visit; if the meatus be filled with pus, directions can be given to syringe the ear with warm water; if the meatus be clear, and the membrane shows signs of acute inflammation, or of inflammation in the drum cavity, the immediate application of a leech in front of the tragus will probably be of great benefit, and any other instruments likely to be required, such as the Politzer bag or paracentesis needle, can be brought at a subsequent visit. Without multiplying instances, it is self-evident that, especially in acute cases, such as are met with in general practice, the earlier a case is examined the more successful and satisfactory the treatment is likely to be.

A CASE OF COLIC FROM UNUSUAL CAUSE.

By HERBERT FENTON, L.R.C.P., Etc.

On Saturday, Sept. 16th, I was called to see Mrs. H—, an Anglo-Indian lady whom I had attended in childbirth a month previously, and found her suffering from colicky pain of a particularly violent character, associated with distressing retching and vomiting.

The history the patient gave was that on the previous Thursday, whilst lifting a box, in weight about equal to a scuttle of coal, she felt a sudden sharp pain in the lower part of the stomach. No

notice was taken of this at the time, and the usual household occupations were continued until Saturday evening, though not without occasional twinges of pain. Physical examination showed the abdomen dull on percussion in the left iliac region, though there was no definite tumour on palpation. Elsewhere the abdomen was slightly tympanitic. Tenderness was complained of, and the pain was greatly increased by pressure. There were no signs of hernia. The pulse was 60; temperature normal. Tongue coated with a soft creamy but thick white fur, and the bowels had been opened once since the first feeling of pain on the Thursday. An ordinary effervescing mixture, with two drops of prussic acid (Sch.) in each dose, was prescribed, and turpentine stupes directed to be applied over the abdomen. No food, except a little milk, to be given. On Sunday morning the symptoms, with the exception of the vomiting, which was slightly relieved, were aggravated. An ounce of castor oil, with forty minims of laudanum, was then given, and the bowels were relieved about eight o'clock the same evening. One of the neighbors who was acting as nurse kindly washed and examined the motion, and found a splinter of wood two inches in length and about as broad as three matches. At the time of passing the motion most agonizing pain was experienced. After the passage of the wood the symptoms were all relieved, but what was described as a raw pain was still felt in the left iliac fossa. One grain of opium was then given every four hours, with a diet of milk and beef-tea. On the Monday there were signs of general peritonitis, which were speedily subdued by the free use of opium, and the patient then rapidly regained her usual health.

Remarks.—This case shows the necessity of carefully examining the motions in every case of intestinal obstruction, and also illustrates how the patient's own account may to a certain extent mislead; the pain experienced on lifting the box being perhaps a coincidence, perhaps due to some displacement of the previously innocuous piece of wood. The wood was probably swallowed with some French beans, which a boy who prepares them is accustomed to slice on the edge of the table, but at what time it was eaten is unknown.

Cumberland-street, S.W.

STONE IN THE BLADDER; RETENTION; SUPRA-PUBIC ASPIRATION; EXTRAVASATION; DEATH.

By O. A. INNES, M.D.,

Surgeon to Her Majesty's Prison, Hull.

W. L—, aged seventy-five years, came in as a prisoner on June 26th. He seemed a healthy, strong, well-nourished man, but stated that he had been troubled with gravel for the last ten years, and had to micturate every few minutes, night and day. Passed a No. 6 gum catheter, and found no stricture, but great enlargement of the prostate gland and irritability of the urethra. He applied every day at the surgery, and got a draught of solution of potash, hyoscyamus, and sweet spirits of nitre; which gave him considerable relief. About three ounces of slightly clouded urine were drawn off on July 8th, and tested with heat and nitric acid, but no albumen could be detected. On the 16th the symptoms were more urgent, and he was ordered in addition to the usual draught, a hot hip-bath. On the 17th he was reported as having had diarrhoea the whole night. I found him very prostrate, and complaining of great pain over the pubes, and of being able to pass his urine only by

drops. He had a hot bath and was at once admitted into the infirmary, and the following is the entry in the case-book.

July 17th: Attacked with diarrhoea during the night; urethra very irritable, and bleeds freely when an instrument is introduced; No. 6 silver catheter was passed with difficulty, but there was no urine in the bladder; complains of pain in the lower part of the abdomen when manipulated, especially over the left iliac fossa; his penis is very painful when touched. Prescribed an astringent mixture, one ounce, to be repeated every hour if necessary, with hot fomentations to the abdomen and the perineum. Ordered four ounces of brandy with low diet, and one pint of beef-tea.—18th: Very restless during the night; passes water very frequently, an ounce at a time; diarrhoea checked; to repeat fomentations, and have rice-water to drink, as he complains of thirst; tongue dry and furred.—19th: Slept better; bowels again troublesome during the night; he has less irritation of the bladder, but is feverish; his face is flushed, and he seems very restless and uneasy. Ordered astringent to be repeated, and poultices to be applied over the abdomen.—20th: Patient remains much the same; he passes his water by dribbles; he rests better at night, and his bowels are quiet; to continue treatment.—21st: Has passed no water since yesterday evening; on examination there was a large accumulation of urine in his bladder, extending as far as the umbilicus; attempted to pass a No. 6 silver catheter, but was stopped by prostate, which was found on examination to engage nearly the whole space of the outlet of the pelvis. 2 p.m.: Dr. Robertson kindly saw the case with me; after considerable difficulty we passed a prostatic catheter, but failed to draw off the urine; tried by injecting warm water to clear the catheter of clots, and also by fixing the nozzle of the aspirator to the catheter, but beyond the smell of decomposed urine nothing was sucked up; the catheter appeared as if wedged tightly in the bladder. 3.30 p.m.: All attempts to relieve the bladder per urethram having failed, we aspirated above the pubes, and only about one drachm of highly decomposed urine was drawn off.—22nd: Patient is in a very critical state; no urine has passed naturally for thirty-six hours, he has been partially delirious and very restless; towards morning his stomach became irritable; no change in the size of the abdominal tumour; has now got congestion of the base of both lungs. Dr. Robinson again saw the case with me.—23rd: The patient died at 5 p.m.

Mr. Henry Thompson, by order of the coroner, conducted the post-mortem examination, and has kindly placed his notes at my disposal.

Autopsy, twenty-three hours after death.—Body well nourished. Rigor mortis complete; blueness on depending portions. Head and chest not examined. Abdomen: One inch and a half above the pubes was noticed a punctured wound, the edges of which had made no attempts at union. Abdomen much enlarged, hypogastric and both inguinal regions appeared to be occupied by a doughy irregular mass, more prominent on the left than on the right side. Abdominal walls and omentum contained a considerable amount of fat. General peritonitis of intestines, especially on the left side, both gluing the intestines to each other and also to the bladder and pelvic walls. Liver natural. Kidneys large and pale, and studded with cysts. Between the bladder and the pelvis, behind the peritoneum, extending into the substance of the abdominal walls, and dipping down into the pelvis, was a mass of gangrenous cellular tissue infiltrated with urine, distended with gas, and containing some small calculi. On dissecting out the bladder a mass of calculi (105 in number,

and weighing 3 oz. 69 grains) was found sacculated in a distinct cavity to the left of the bladder, but communicating, through an opening large enough to admit two fingers, with the bladder itself. The summit of this sacculi had ulcerated or sloughed through, and the urine and some of the calculi had escaped out of it into the gangrenous mass previously described, and of which they were the cause. No calculi were found in the bladder itself. The walls of the bladder were hypertrophied, and the mucous membrane rugous, and in a sloughy state. The urethra was natural, but the prostate gland was much enlarged.

The case is interesting from the number of calculi sacculated and undetected, and from the puzzling and grave symptoms which developed themselves on the 21st July—viz., the suppression of urine, the size of the tumour simulating a distended bladder, and the unsuccessful attempts to evacuate the bladder. It is pretty clear that peritoneal inflammation had commenced on the 17th, probably occasioned or intensified by the diarrhoea which he had on the night of the 16th, and that perforation and extravasation took place on the night of the 20th. The tumour felt must have been the thickened wall of the bladder, with the inflamed visceral matters, and glued to it.

ON THE INTERNAL ADMINISTRATION OF CHRYSOPHANIC ACID IN PSORIASIS.

By H. E. CAUTY, M.R.C.S., etc.,

Senior Surgeon to St. George's Hospital for Skin Diseases, Liverpool.

SOME months since there appeared a rather long article in *THE LANCET*, in which the internal administration of chrysophanic acid in psoriasis was sufficiently favorably mentioned as probably to induce many gentlemen to give this medicine a trial. The list of remedies having any special cutaneous action is so limited, that any new one would, I think, be gladly welcomed by the profession generally, and it was the attributed possession of this specific power by the acid that merited attention in the paper above named, for it was stated that the idea of the internal use of chrysophanic acid was first suggested by observing that in a case where both legs were affected with psoriasis, both got equally well, though the acid as an ointment was only rubbed into one of them, the inference drawn being that the absorption of the acid and its subsequent constitutional action cured one leg as well as the other; the other deduction, that the acid had nothing to do with the disappearance of the disease, was not considered. There were a good many cases mentioned in *THE LANCET*, but on examination all were either fragmentary, incomplete, or unsatisfactory, but one, which was that of a boy seven years old, with psoriasis of two years' duration, who, after six weeks in hospital, was cured of the disease by gradually increasing doses of chrysophanic acid, taken not without sundry inconveniences, until at last two grains three times a day were supported. In this case, as in all the others, no mention is made of the state of the pulse, which in psoriasis is so important, for no case of this disease occurs in which the pulse is not either slower, smaller, or weaker than it ought to be, and any medicine which either ameliorates or cures this disease improves the pulse in either rapidity, volume, or strength. The favorable case was also young. In youth psoriasis is very common and comparatively less persistent than in after life, disappearing and returning eccentrically, from causes often slight and untraceable. However, it having been stated that chrysophanic acid had

some good qualities, it was tried in many cases, of which the three following are examples:—

CASE 1.—M. T—, aged seventeen, engaged in the boot trade. Tongue rather white and irritable, countenance flushed and thick; pulse 72; psoriasis guttata on arms, with some patches of twelve months' duration; very thin; regular.—July 19th: Half a grain of chrysophanic acid in sugar of milk three times a day after food.—23rd: Patches fainter; complexion clearer; tongue cleaner; was griped after taking the first powder.—20th: Took two powders; more griping and sickness four hours after the second powder. Bowels opened three times.—21st: Took two powders, was very sick, and had pyresis. Treatment changed to solution of bismuth, aloes as a purge, and then arsenic. This case was not encouraging, but as there were symptoms of irritable stomach at starting it might have been exceptional.

CASE 2.—E. B—, aged nineteen, machine worker, made her first appearance at the hospital on May 12th. This was a well-marked case of psoriasis nummularis; the tongue was rather white and bowels confined; conjunctivæ slightly yellow. She had in addition to the eruption four hard subcutaneous lumps in the calves of the legs, feeling like knotted veins, around which there had been some exudation, and which knots were extremely painful (thrombosis); pulse 72, weak. She was ordered potash and ammonia with podophyllin, which she took until June 2nd, when the swellings in the legs had nearly gone and the tongue was clean, the eyes being still somewhat tinged; bowels open.—June 2nd: On that date she began to take a quarter of a grain of chrysophanic acid three times a day.—5th: Conjunctivæ clearer.—9th: Dose increased to one-third of a grain.—11th: Scales falling off, swellings gone, tongue clean; pulse 84, full and soft; not at all the pulse of psoriasis. I now began to have hopes that there was some real benefit to be obtained from the acid, as there were no fresh spots, and the symptoms (though this stage has often been reached by many medicines) were generally better. The dose was increased to five-twelfths of a grain.—16th: These hopes were arrested, as though the bowels were open twice a day and the tongue clean, there were some fresh spots, slight papules, with some flatulence. Dose increased to half a grain.—19th: Dose three-quarters of a grain; tongue clean, bowels open, rash somewhat paler; pulse 84, weak; flatulent colic.—23rd: Dose one grain.—26th: No fresh spots, rash paler; hepatic pain under right shoulder.—30th: The legs have no more spots, but there is increased formation of scale; there are also fresh patches formed on the elbows, arms, and hands; pulse 72, fair; tongue clean; bowels open twice a day; these are now so sensitive that directly she takes her tea in the morning she has to hurry to relieve them. Notwithstanding that it appeared as if the chrysophanic acid had reached the utmost stage of toleration, I was desirous of seeing if a larger dose would have some effect on the eruption, and consequently having told her to discontinue the powders if the symptoms required it, the dose was increased to one grain and a half three times a day.—July 3rd: The powders excited great vomiting, and the scaly formation very much increased; pulse 72, full and soft; discontinued powders on July 1st. She was then ordered a carminative mixture, and afterwards arsenic, and is now nearly well. Notwithstanding that these cases showed no special cutaneous action of chrysophanic acid, yet thinking that there was some evidence of increased biliary secretion apart from simple purgative action on July 29th, I tried it in the next case.

CASE 3.—C. M—, a widow, aged fifty-seven, a large flabby fat woman with two large bright-red

patches of psoriasis, exfoliating large scales, covering one elbow and one knee, each patch being three inches square. Tongue foul and coated; pulse 72, weak; bowels confined. She began with half a grain doses of acid on July 28th, increased to three-quarters on July 31st.—August 1st: There is no improvement in either the rash or the tongue; the bowels are purged twice a day, and the powders have each time produced vomiting; the conjunctivæ are still mahogany color.

Observations.—The results obtained in these cases were not such as to encourage further trials, nor to confirm the supposition that there was any specific cutaneous action; on the contrary, it leads to the deduction that in the successful case published in *THE LANCET* the good result must have been due to continuous purging, and if this deduction is correct, then there are other medicines whose action is equally efficacious, and at the same time free from those irritating properties which characterize chrysophanic acid. In three other cases in which this was tried it acted so immediately as an emetic that it would be absurd to consider them in connection with a constitutional action. In the second case where the drug was tolerated better than in the others at the time when, if any, a specific benefit ought to have been manifested, the disease increased in virulence. It is possible that in future therapeutical works the acid will be quoted as a remedy for psoriasis, and in consequence it may be tried by many gentlemen whom the persistence of the disease has sorely puzzled; it is with a view of pointing out what results may possibly be expected that the foregoing cases have been recorded and sent for publication.

Note.—The name chrysophanic acid is retained in the above observations, but I am informed that the proper name is chrysarobin. This is the active principle or one of the active principles of rhubarb; and I notice in the *Pharmaceutical Journal* the active principle of senna, supposed to be cathartine, has been resolved into three substances, one of which is chrysarobin. The action of the so-called chrysophanic acid resembles very much that produced by senna and all its preparations on some individuals.

TREATMENT OF CHRONIC DYSENTERY BY LARGE INJECTIONS OF NITRATE OF SILVER SOLUTION.

By GEORGE E. POST, M.D.,

Professor of Surgery in the Syrian Protestant College; Surgeon to the Johanniter Hospital, Beyrout.

THE patient is a European lady who has lived for about eight years in Syria, aged about thirty years, of healthy constitution, the mother of three healthy children. Partly as the result of nervous prostration, and partly from lactation, she was attacked in the latter part of last autumn with pains in the back of the head and some confusion of the mental faculties. These symptoms, with persistent sleeplessness, continued until the beginning of the spring of the present year, when she was attacked with diarrhoea, which gradually assumed a dysenteric character. At the time when I first saw her, July 28th, her state was as follows:—Great general debility and nervous prostration, nausea, which was in part due to a mixture of catechu and other astringents which had been administered with a view of checking the diarrhoea; characteristic dysenteric evacuations, accompanied with severe colicky pains and abdominal rumbling and uneasiness. She was not at that time taking any precautions in diet, nor confining herself to bed.

There was no elevation of temperature, but the expression of countenance was haggard and worn. She was also much discouraged about her state, and harassed by sleeplessness, and in despair of recovery. The tongue was somewhat roughened by the astringents which she had taken.

I commenced the treatment by fifteen-drop doses of castor-oil, a strict milk diet, rest in bed, and ten-drop injections of laudanum in starch to quiet the tenesmus. This treatment was continued for forty-eight hours, with the effect of bringing away a few scybala, and relieving to a certain extent the tenesmus and nausea and slightly improving the character of the discharges. On the afternoon of August 1st an injection of three pints of water containing forty-five grains of nitrate of silver was prepared. The syringe was not, however, in good order, and not more than a pint entered the bowel. This was retained four or five minutes. It brought away with it mucus, greenish faecal matter, a few scybala, and a little blood. A good deal of pain followed, and lasted for about an hour before it quite passed away. Shortly after the first motion she had another free from scybala. An hour and a half later another more copious, with considerable pain; half an hour later a small one with little but mucus; a little later some bloody mucus. As pain continued a laudanum and starch injection was administered. Twenty minutes later she had a small brownish stool, with a little mucus. After this she slept for three-quarters of an hour, and awoke to have a small mucus passage, after which she vomited. An hour later a small motion. Still an hour later a brownish stool with some greenish admixture and little mucus. Five other motions occurred during the next seven hours, the last looking like ordinary liquid faeces. In the morning she was sick and vomited, but soon after, despite a few small motions, felt stronger. She took her milk and limewater better, and occasionally a teaspoonful of brandy. The headache had nearly passed away, and she slept fairly between the motions. No fever or quickening of the pulse. Abdominal pain much lessened. The history of the second day is briefly as follows:—Motions: 9 A.M.; 10, small but natural; 12.30 P.M., small but natural, with a little greenish slime; 1 to 3, four small motions, the last with specks of mucus; 3.30 to 6, two motions, the last small but natural; 7.30, small quantity of mucus. As there was some tenesmus without any passage an injection of starch and laudanum was administered, and half an hour later she fell asleep, and slept five hours, and awoke hungry. During the day the sickness of the stomach was much lessened, and she took and retained sufficient nourishment. In general she felt much better all through the day and night. During the remainder of the night of the second day she slept with little interruption. On the morning of the third day, at 6.30, she had a natural motion, but with it a little mucus and blood, and slight abdominal pain before passing. At 7 A.M. a copious natural motion; 1.45 P.M., small but natural, with a little mucus; 2.15 to 6, two motions like the former of this day; 6.15, a few scybala; 8.15, an injection of laudanum and starch (ten drops) was administered, after which she slept till 2 A.M., and again from 3 to 6 A.M., when she had a motion, not fluid and natural in color, with the addition of a small patch of bloody mucus. The fourth day, at 7.15 A.M., a small natural motion; 9, a little mucus; 3 P.M., a small natural motion, after which two pints of the above-mentioned solution of nitrate of silver were injected. She would not allow the whole three pints to be thrown in on account of the pain which they caused. The injection was retained less than a minute. It brought away with it less than the first, but some scybala, less than

before. She continued to have evacuations for three-quarters of an hour, the last being mucus without blood. The pain did not wholly cease for an hour and three-quarters, and then only after a laudanum injection. She continued weak and nauseated until 7 P.M., when she began to feel quite easy, and continued so until 9.15 P.M., when she fell asleep. After an hour of restless sleep she fell into a natural slumber, in which she continued uninterrupted until morning. No motions since 4.15 P.M. The fifth day was a good one. She was able to knit a good part of the day. She had one motion between noon and 1 P.M., with a little mucus, and another at 2 P.M. quite natural, semi-solid. She slept soundly during the night. She seemed to have caught a little cold towards morning, from insufficient covering, and complained of soreness in the bones, etc. It passed off, however, early in the morning of the sixth day. At 2 P.M. of the sixth day she had a small motion, quite solid. Began to long for food and experienced a hungry feeling, which the milk only took away for a short time. She took large quantities of the milk, but was not satisfied. She had neither pain nor ache, and the tongue was much cleaner. On the eighth day she began to take a little breast of chicken and soft-boiled eggs, and day by day her diet was improved. On the fifteenth day she had had no return of diarrhoea, had been up for three afternoons, walking a little about the room, and feeling stronger each day. Ten days having since elapsed without any further tidings, it may be inferred that she is now quite well.

As the treatment had to be conducted, after the first visit, by correspondence, at a distance of fifteen hours by messenger, some delay unavoidably occurred in advising the successive steps of the management of the case. Had the patient been within reach, I should have given the first injection a day sooner, and the second two days sooner. The return to a more nourishing diet might also have been slightly accelerated. On the whole, however, the case leaves little to regret, and nothing to desire. The very small quantity of laudanum required after the inauguration of the nitrate of silver treatment is most instructive. The easy and continuous sleep after such prolonged insomnia is also a feature worth noting. Any treatment which can cure so aggravated a form of dysentery as this one in so short a time, and with no drawback but the temporary pain of the injection, is an invaluable resource to the practitioner.

Beirut.

A VACCINATING INSTRUMENT.

By CHAS. EDWARDS, A.B., M.D., F.R.C.S.

THE instrument resembles a miniature subcutaneous syringe with needle, but differs altogether in application and partly in construction. It is supplied by Messrs. Weiss & Son, who have constructed it beautifully and most satisfactorily.

The following instructions must be understood and carefully attended to:—

1st. Prior to operating apply the stoma or apical aperture of the needle to the lymph well exuded from the vesicle of the vaccifer, then draw back a little the patent vulcanite piston. The instrument is thus charged somewhat beyond the basal aperture of the needle. The terms "basal" and "apical" I borrow from the extremities of the fang of the *neidr*. The instrument is now ready, by barely remoistening its point for as many instantaneous operations as are required.

2nd. How to operate: Do not gradually and

slowly introduce the needle-point, as with the lancet, but quickly and with the *neidr* stroke just beneath the cuticle. By this method you infallibly introduce the lymph, no blood, as from the lancet puncture possibly intermingling, and the small quantity of air between the basal aperture of the needle and the perfect piston when compressed by the "stroke," causing a reflex wave or rebound of the lymph into the puncture, thus sufficiently resembling, at least, in effect, the action of the anguine compressing muscles. A start of the patient, or any possible unsteadiness of the operator, is provided against by a beautiful little guard on the needle, by which too deep a stroke is rendered impossible. There is to be no injecting or even meddling with the piston during the operation, simply remoistening the needle-point.

The following are the advantages of this instrument: Rapidity, perfect introduction of the lymph, the absence of unsightly scars or scarifications so revolting to parents, however much they may be thought meritorious by others.

One word as to vaccination from arm to arm. If we must use the now conventional term ferment, and if the vaccine lymph be or contain this ferment, though it is not my wish to christen it or make a raid on the Greek prepositions to denote its successive results, still as all ferments act within a certain range of temperature there can be no temperature so sure for vaccine lymph as that secured by its coming from one living arm to another.

Cheltenham.

DISLOCATION OF THE UPPER AND LOWER ENDS OF THE LEFT HUMERUS BY THE SAME ACCIDENT.

By WILLIAM W. MOXHAY, M.R.C.S.,

Surgeon to the Royal Berks Hospital.

C. S., aged fifty-six, was admitted into the Royal Berkshire Hospital seven weeks previous to Sept. 4th, 1852, with a dislocation of the left elbow, the condyles of the humerus being thrown forwards over the radius and ulna. He had been struck at the back of the upper arm by the handle of a winch which was rapidly revolving. I was then house-surgeon to the hospital, but a medical friend acting for me reduced the dislocation, and all went on so well that the man was made an outpatient in a few days. On the above date he appeared and complained of some stiffness of the shoulder-joint on the same side; this, be it remembered, being seven weeks after the injury. I found the head of the humerus under the coracoid process, and I gave him one-grain and half-grain doses of tartarized antimony every ten minutes while extension of the limb was made downwards and upwards by means of pulleys. This went on for about half an hour, when he became deadly faint and could scarcely be kept in the chair. Extension was then suddenly left off and his elbow brought down over my knee as a fulcrum, when a sort of pop was heard and felt, and the bone returned to its natural position, only, however, to recede again to its acquired place. This was repeated once or twice on again replacing it, and at last we succeeded in fixing it in its proper position by a pad and bandages. He very slowly recovered, and on Sept. 25th was regaining some of the upward movements of the limb, and at his own request was discharged.

As far as my knowledge goes this is a unique case, and I think it may prove of interest, especially to some of the younger members of the

profession, who perhaps have never seen such use made of the powerful nauseant tartar emetic. Although it certainly enabled us to reduce a dislocation of the shoulder of seven weeks' standing, I would not now advise a return to such a barbarous practice, though it had the sanction then of the revered name of Sir Astley Cooper. With chloroform (at the time I have mentioned only just peeping out as a future friend in such cases), *nous avons changé tout cela*.

TONIC TREATMENT IN MITRAL DISEASE.

By J. BROWN, L.K.Q.C.P., L.R.C.S.I.,

Honorary Medical Officer to the Bolingbroke Pay Hospital.

THE following case is interesting as demonstrating the benefit derived from a tonic treatment in a case of dropsy, with regurgitant mitral disease, enormously enlarged liver, and albuminous urine.

Mrs. B—, aged forty-nine years, a widow, came first under my care as a private patient in August, 1881. She was then suffering from rheumatic arthritis and bronchitis. She had a distinct mitral murmur of old standing; her liver was very much enlarged, coming down half way to the umbilicus; there was no ascites, but considerable oedema of the ankles. She was a free liver, her usual stimulant being Irish whisky. She improved under treatment, which was continued for about three weeks. I did not see her again until she came under my care at Bolingbroke Pay Hospital on April 4th last. She then presented the following symptoms:—The valvular murmur was very distinct; she could not lie down on account of difficulty of breathing; her liver was very hard, and extended half way between the umbilicus and the pubis; there was considerable ascites, and her legs were oedematous to half way up the thighs; her urine was scanty and very albuminous; her skin was slightly jaundiced; temperature normal. All stimulants were stopped, and she was treated from April 5th to the 15th with a mixture containing digitalis, squills, carbonate of ammonia, and gentian; as the bowels were confined, compound jalap powder, forty grains, was given when required. No improvement being apparent, and as she seemed weaker, on the 15th a mixture of tincture of perchloride of iron and tincture of digitalis, of each ten minims, with glycerine, was given three times a day after meals, and was continued for nearly three months, most of which time she was kept in bed. In August all dropsical symptoms had disappeared; the liver was much reduced in size about two inches below the ribs, and no trace of albumen in the urine. All treatment was then stopped, but she remained in hospital until Oct. 8th. For the last six weeks she was able to walk several miles a day, which she had not been able to do for some years, and when she left the liver was still smaller, no trace of albumen, and she was gaining flesh, and slept well in natural position. I think this case bears out some of the ideas put forward by Dr. Leech in his introductory lecture to a discussion in Medicine at the last meeting of the British Medical Association.

New Wandsworth.

— Dr. A. J. Fuller, of Bath, U. S., reports a case of ascites which was tapped no less than forty-three times within a period of one year and three-quarters. The total quantity of fluid removed at the several operations was 1,420 pints. The patient, a married lady, aged sixty-five, died a fortnight after the last operation.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Prooemium.

ST. THOMAS'S HOSPITAL.

MALIGNANT DISEASE OF THE PYLORUS; REMOVAL;
DEATH.

(Under the care of Dr. BRISTOWE and Mr. SYDNEY JONES.)

J. B—, aged fifty-seven, a stationer's assistant, was admitted into the hospital under the care of Dr. Bristowe on Sept. 22nd, 1882, with the following history:—He had always been healthy, never having had any serious illness, until the beginning of last May, when he complained of tightness over the upper part of the abdomen, with loss of appetite and inability to take fatty food without a feeling of nausea and regurgitation. From that time the feeling of tightness, with increasing soreness, of the region mentioned, had continued, and he had had occasional vomiting. He had also lost sixteen pounds in weight during the time. When admitted under Dr. Bristowe's care his condition was as follows:—Patient much emaciated, and complaining of pain in the abdomen on movement, followed by a feeling of sickness and of loss of appetite. On examination of the abdomen a hard, rounded, but somewhat irregular lump, from one and a half to two inches in diameter, is to be felt a little below the ribs on the right side, it is readily movable within narrow limits, and chiefly in the vertical direction; its centre is about an inch above and two inches to the right of the umbilicus. Its dullness is apparently continuous above with that of the liver, its lower edge extends from half an inch to an inch below the umbilicus. Its left border is about a finger's breadth, and its right border about four fingers' breadth, from the same part. It pulsates, but the pulsation is evidently communicated from the aorta. Liver dullness begins at the sixth rib, and is continuous with that of the growth; edge cannot be felt. Spleen normal. Tongue is a little coated. Appetite variable; no vomiting. Bowels open. Nothing abnormal in chest. Urine 1020; no albumen, lithates.—Sept. 6th: Was sick this morning for the first time since admission. Bowels regular. Sleeps fairly well at night.—27th: No further vomiting; felt a good deal of pain in the night, which he describes as a burning heat in the stomach.—29th: Patient feels easier this morning, has had no return of the sickness. Abdomen is not nearly so tender as it was.

Oct. 3rd.—Tongue coated, white, and dry; appetite good, bowels open. Complaints of shooting pains across the umbilical region, and distension after eating.—6th: The patient is expectorating a good deal, but there are no abnormal signs to be detected in the lungs. Resonance extends round the tumour, excepting perhaps for a short distance where it adjoins the liver. From this date until the 15th there was no marked change beyond the gradual emaciation of the patient and perhaps slight increase in size of tumour; he only vomited very occasionally, complaining chiefly of distension after food and slight pain in the tumour, which

was apparently lower down and more fixed, not moving with respiration. There had been no elevation of temperature whilst he was under observation.

The question as to the nature of the tumour was carefully considered and discussed from the time of the patient's admission up to the time of the operation. The possibility of its being an enlarged and diseased gall-bladder, a movable kidney, an aneurism, or a growth originating apart from the stomach in the peritoneum, had due weight given to it, and was fully argued out. The only one of the alternatives that seemed to deserve any serious consideration was that of its being a tumour originating in the great omentum or some other part of the peritoneum, and this would scarcely have deserved entertaining were it not for the fact that some of the most common and distinctive signs of pyloric disease were absent in this case. The patient while in the hospital enjoyed a fair appetite, he was very rarely sick, he never vomited blood, and the stomach was not greatly distended. Further, it was thought by some that the situation of the tumour was lower than could be well explained by its being a tumour of the pylorus. Dr. Bristowe, however, whilst admitting the possibility of its being a peritoneal growth, adhered to the opinion he had at first formed, that the case was one of carcinoma of the pylorus. The patient from the first expressed a strong wish to have the growth, whatever it was, removed. And considering that, notwithstanding his fair appetite, he was steadily growing weaker and thinner, at length it was determined to consult Mr. Sydney Jones with respect to the feasibility of an operation, and to put the matter plainly before the patient. The operation was not urged upon the patient, and the risk attending it was put before him clearly. He decided to have it performed. No doubt the patient would have lived some little time longer had his case been left to nature. But it was felt that any hope of benefit would be much greater now than if the operation were put off until the patient was sinking. In a former case, too, which had been under Dr. Bristowe's care, and the question of removal of diseased pylorus had been considered and determined upon, the patient only gave his consent when he was moribund, and too ill to have any operation performed.

Mr. Sydney Jones having agreed to operate, on the 15th of October the stomach was washed out with water, and from that date until the 17th he was only allowed skimmed milk, taking about two pints daily. The stomach was again washed out about an hour before the operation, which commenced at 2.15 p.m. of the 17th, and was carried out under the spray (1 of carbolic acid to 80 of warm water), and afterwards dressed with antiseptic precautions in the usual manner. Ether having been administered, Mr. Sydney Jones made an oblique incision extending from left to right, commencing an inch to the left of the middle line and four inches below the ensiform cartilage, four and a half inches in length, inclined downwards, carefully dividing the various layers until the peritoneum was reached, when, having arrested all hæmorrhage, the peritoneum was divided on a director to the extent of the previous incision. In the upper part of the wound, which gaped widely, the border of the liver was seen rising and falling under the costal arch with respiration, which was then jerky and irregular, whilst the growth was exposed about the centre of the wound. The gall-bladder was not seen. Slightly to the right of the middle line was a vertical band passing upwards to the liver and covered with a reflection of the peritoneum; this, which was the round ligament, was

divided between a pair of clamp forceps and both ends of a small vessel ligatured. Other peritoneal adhesions existed in this neighborhood. The tumour, which was larger than a duck's egg, was connected by numerous adhesions to the surrounding parts, and below it, close to the head of the pancreas, were a good many infiltrated glands about the size of small nuts. The great omentum was divided in pieces between double ligatures. The tumour being now more free, the stomach was lifted up towards its pyloric end, and flannels wrung out of warm water were placed under it to prevent bleeding into the peritoneal cavity. The lesser omentum connected with the pyloric end of the stomach was gradually cleared from the tumour by cutting between pairs of artery clamps and ligaturing both ends of the section. There was a good deal of hæmorrhage close by the head of the pancreas, for the most part venous. When the pyloric region was thus made more free, an opening was carefully made over the finger introduced from below in the lesser omentum to the left of the growth. The pyloric artery was then ligatured and divided. Then a Rydygier's clamp was put round the stomach by introducing one limb through the opening in the lesser omentum, and passing the other across the anterior surface; it was then closed, and the stomach divided to the right of it. The clamp was then removed, and hæmorrhage from the cut surface arrested; this was not considerable, only a few minute points requiring ligature; the stomach was found to be empty, and the mucous membrane appeared to be quite healthy. The cardiac end of the stomach was carefully sponged out. A little brownish fluid was seen at the pyloric orifice; a small sponge was placed in each orifice. The clamp was next placed on the duodenum just beyond the tumour, and the growth with some infiltrated and adherent glands removed. The duodenum was firmly held up when divided to prevent retraction. The growth was seen to extend a little further down the duodenum on its posterior border, so a small piece, including this, was removed by scissors. There was very little hæmorrhage on removal of the clamp, and a few fine ligatures proved sufficient. The upper part of the duodenum was mopped out, and a clean piece of sponge introduced. As the section of the stomach was larger than that of the duodenum, the upper part of the former was stitched together, for about two inches, by means of nine sutures of fine carbolized silk, through its mucous membrane, and a corresponding number of the same material, including muscular and peritoneal coats. The cut ends of the stomach and duodenum were now brought into apposition, and corresponded well in size. The posterior part of each was then sewn together with fine carbolized silk, the mucous membrane being carefully adjusted last, the first sutures applied being passed between the mucous and muscular coats, perforating the latter and the peritoneum, and then passing through the peritoneal and muscular coats of the apposed edge; as the opening became smaller it was not found possible to pursue the same plan towards the front, and here Lambert's stitches only were used. There were about fifty-two silk sutures put into the stomach and duodenum. The parts around were carefully cleansed, the flannels having been removed, and the stomach placed in position again. The external wound was closed by means of seven or eight deep silk, and four superficial catgut, sutures. During the course of the operation, which lasted almost three hours and a half, the patient became much collapsed, and it was found necessary to bandage his limbs and administer a brandy enema. After he was put to bed, in addition to the above

means, hot blankets and hot-water bottles were applied, and another brandy enema given. He became conscious about 8.30 p.m., complained of pain and asked for morphia, but gradually sank, dying at 11.15 p.m.

A post-mortem examination was made on the following day by Dr. Sharkey. The body was much emaciated. Rigor mortis well marked in both extremities. Pleurae adherent by old adhesions, at left apex and right base. Lungs a little collapsed, otherwise normal. Pericardium and heart natural. Liver small and pale, at the upper border of its right lobe was a nodule of new growth about as large as a walnut. Kidneys normal. On opening the abdominal cavity, by enlarging the incision of operation, the peritoneum looked almost normal. All that was remarkable was some dotted hemorrhages about the pyloric end of the stomach, and an exceedingly small quantity of red fluid on the surface of the coils in the neighborhood. One could scarcely see without close examination that any operation had been done, as the stomach, colon, etc., occupied their normal positions, and the stomach had its normal shape.

The carcinomatous growth removed measured one inch and a quarter along its upper border, and three inches and a half along the lower, its base was of a firm fibrous character, completely surrounding the pylorus and adjacent portions of the stomach and duodenum, and the inner aspect presented a fungating ulcerative surface, the lumen of digestive tract at this point only just permitting the passage of a small finger.

POPLITEAL ANEURISM CURED BY THE USE OF ESMARCH'S BANDAGE, FOLLOWED BY DIGITAL PRESSURE.

(Under the care of Mr. SYDNEY JONES.)

W. H. E—, aged thirty, a clerk (formerly a farmer), was admitted under the care of Mr. Sydney Jones on June 19th and discharged cured on July 19th, 1882. Three years ago he was under Mr. Sydney Jones' care for disease of the right elbow joint which was excised. Ten weeks before admission, after straining himself whilst running, he noticed stiffness in the left leg, increased by walking. Two or three weeks later he began to notice considerable throbbing pain behind the left knee, shooting down into the calf of the leg; this was very violent at times. About a week later he noticed a throbbing swelling behind the same knee. He went to a medical man and was treated for a fortnight by flexion of the knee joint and rest in bed, but for the last fortnight has only been resting without special treatment; there has been no improvement in the swelling. The patient, a tall, strong man, with reddish hair and beard, complained only of the swelling behind his left knee and the pain caused by it. On examination this swelling presented the characteristics of aneurism of the popliteal artery, and was about the size of a large hen's egg, and similar in shape. There was marked expansile pulsation, arrested by pressure on the artery, above, and a loud bruit. Its long axis corresponded with that of the artery, and it occupied chiefly the lower part of the space. The circulation was irritable, the pulse being full, quick, and rather hard. No evidence of arterial degeneration in other parts of the body. Examination of urine showed absence of albumen. The right elbow was ankylosed, but in a good position, and patient was able to feed himself comfortably, easily reaching his mouth with the hand. The morning after admission he was given three minims of tincture of aconite in an ounce of water, and this was repeated three times daily until the 23rd, when his pulse was quieter and more compressible. At a quarter before 3 p.m. on the

24th Esmarch's elastic bandage was applied, the patient standing up to allow the sac to fill. The bandage was applied gradually from the toes upwards; the aneurism, however, not being included. The bandage was fastened round the upper part of the thigh. The elastic ligature was not used. This was kept on for one hour and a quarter, and during the last half of the time it was necessary to keep patient partially under chloroform. When the bandage was removed pulsation recommenced, so digital pressure was at once started, and kept up for eleven hours, when all pulsation had ceased; at the end of nine hours the pulsation had much diminished, but did not stop until two hours later. During the last three hours patient vomited considerably.

June 27th: No return of pulsation. The aneurism much smaller. Several branches of collateral circulation detected. The general condition of patient good.

July 4th: Left foot still a little colder than the right. Pulsation of the posterior tibial artery indistinct. Is still kept in bed with his left leg semi-flexed and placed on its outer side. An elastic stocking was ordered, reaching from the toe to above the middle of the thigh. A few days later the patient was allowed to get up, and left with the aneurism cured on July 19th. As regards internal treatment, tincture of aconite, given on the 19th, was stopped on the 23rd, and from that date until July 1st he took ten grains of iodide of potassium three times a day. On July 1st the aconite was repeated, and the patient took a similar dose for a few days.

INJURY TO THE HEAD, IN WHICH RECOVERY OF CONSCIOUSNESS WAS FOLLOWED BY RELAPSE AND DEATH TWELVE DAYS LATER, AND IN WHICH NO CEREBRAL LESION COULD BE FOUND POST MORTEM.

F. S—, aged seven, was admitted, under the care of Mr. Sydney Jones, on Jan. 6th, 1882, with the following history:—At 4.30 p.m., on the 5th he fell over the balustrade at home, striking the nape of his neck on the stair. Before the fall he had been in his usual health. Immediately afterwards he lost consciousness, and remained unconscious for about three hours. He is then stated to have recovered, and recognized his parents. He complained of pain at the back of his head, and vomited two or three times. Later in the evening he again became unconscious, and was stated to have had fits, which continued at intervals during the night. During these attacks he struggled violently, screamed out, and ground his teeth; he also vomited frequently.

When brought to the hospital next morning he was in one of these attacks, and was restrained with difficulty, screaming out loudly and grinding his teeth. There was a slight bruise at the back of the neck, and on pressing over or near this the convulsive movements were set up. There was no sign of fracture of the skull. The pupils were very large, equal, not acting to light, but varying in size at times. Temperature 101°.

Jan. 7th: During the night he had occasionally tossed himself about in bed, and screamed out. He had only taken a few teaspoonfuls of milk and a purge. In the morning he was still unconscious, with a dry tongue and mouth. He was rather irritable, lying on his side, with his limbs flexed, and resisting any attempt to examine him. Pulse 100, weak. The temperature, which last night was 100°, was now 101.6°.—8th: The patient still lies in an unconscious condition, making only slight movements occasionally, and these principally on the left side. The left hand appeared the colder, but when tested by the surface thermometer showed

little difference: right, 97° 6'; left, 97° 4'. His breath was foul. There were sordes on the teeth. The pulse was 108, almost imperceptible, and intermittent: temperature of body 102° 8'.—10th: He slept quietly during a good part of the night, and in the afternoon showed some signs of returning consciousness, making an attempt to put out his tongue when told to do so. He slept a good deal during the day, but was very restless, tossing about from side to side when awake; the mouth was cleaner, he drank milk in fair quantities, but his pulse was extremely feeble and his hands cold: the temperature, morning and evening, was 97° 8'. 11th: No further improvement. He had taken beef-tea, jelly, milk, and a little brandy. In the afternoon the pulse was 148, almost imperceptible, and he was very restless, whilst the pupils were still equal, and there was no evidence of optic neuritis. Later in the day he became more restless and violent, throwing himself about, and knocking his head against the head of the bed; morning temperature 97°. Two nutrient enemata were given.—12th: Passed a fairly quiet night, and this morning appeared to recognize his parents, but did not speak. Morning temperature, 96° 8'; evening, 96° 8'.—13th: Appeared to understand, and protruded tongue when told to do so. Morning temperature, 97° 2'; evening, 98° 4'. Took more fluid nourishment and a little custard pudding. A blister was applied to the nape of the neck; and dressed with mercurial ointment.—14th: Temperature still subnormal.—15th, 11 p.m.: Extremities cold. Pulse running, at times almost imperceptible. The respiration, which had been slow and sighing, was then rapid and difficult. Had taken food well. Morning temperature, 97° 2'; evening, 98° 4'. During the 17th he appeared somewhat better and more conscious, taking a fair amount of food. About 12 o'clock at night he became worse, and his extremities very cold. A nutrient enema which was given was not retained, but he took some brandy, milk, and egg by the mouth; after this there was an action of the bowels, but no general improvement; and he died quietly at 4.45 a.m. on the 18th.

The post-mortem examination did not throw any light upon the case. The brain appeared in every respect natural, excepting that the organ contained rather more blood than usual, the puncta vasculosa being well marked. No hæmorrhage; no meningitis; no tubercle; no sign of softening. Skull and vertebrae without sign of injury; and cervical portion of cord apparently healthy. In the anterior border of left lung there were a few patches of broncho-pneumonia; lungs and internal organs otherwise normal. It is regretted that no microscopic examination was made of the nerve structures.

MIDDLESBY HOSPITAL.

SPONTANEOUS RUPTURE OF HEART; SURVIVAL FOR FORTY HOURS; AUTOPSY; REMARKS.

(Under the care of Dr. S. COUPLAND.)

For the following notes we are indebted to Mr. Alan E. Tate, resident physician's assistant.

W. T—, a gilder, aged sixty-five, was admitted into the hospital, Oct. 13th, 1882, with the following history. He had that morning gone to his work apparently in his usual health. About 11 a.m., while he was walking along the street, a heavy lamp fell close to and almost upon him. Though he was not struck he was startled very much. Three-quarters of an hour later, and after he had walked fully a mile further, he was seized with "a sudden pain all over the chest," and im-

mediately after fell down in a fainting fit. He was found in this condition by a policeman, who at once took him to the hospital.

On admission into the Founder ward, at noon, he presented all the symptoms of the most extreme collapse. The whole body was cold and bathed in a profuse cold sweat. There was extreme pallor of face and lips; the radial pulse was only just perceptible, and the heart-sounds were quite inaudible. No increase in the cardiac dulness could be detected, but both lungs were evidently emphysematous. His mind was quite clear, as he answered questions readily, and gave a coherent statement of the morning's events. There was no paralysis. Within the next half hour he vomited several times, and there was constant tenesmus; once his bowels were opened well.

The patient was seen soon after admission by Dr. Coupland, and some internal hæmorrhage seemed probable. Cardiac rupture was surmised, though in the absence of any positive proof, such as an increase in cardiac dulness, and looking to his desperate state, a stimulant treatment seemed the only course indicated. A mustard poultice was accordingly applied to the præcordia, hot bottles were put to the feet, two ounces of warm brandy-and-water were at once administered, and the following mixture was ordered to be taken every hour: Spirits of ether and aromatic spirits of ammonia, of each half a drachm, and one drachm of syrup of tolu in water. Half an ounce of brandy was also given every three hours. Under this treatment the patient slowly, but steadily, rallied. At 5 p.m. the pulse was distinctly perceptible at wrist, and the heart-sounds were faintly heard at apex, free from bruit; surface of body comparatively warm. Temperature 96° 6'; pulse 76; respiration 25. About this time he complained of pain in the right ankle, and a fracture of the lower third of the fibula was detected and at once set. The fracture was believed to have occurred in the syncopal attack. At 11 p.m. the same night the pulse was full and strong, 96; heart sounds moderately loud; lips and face a fair color; body and extremities warm. The stimulants were diminished in quantity and frequency, but still continued.

The next morning (Oct. 14th) the following note was made:—"Temperature 98° 6'; pulse 84. Slept at intervals during the night; has completely rallied from collapse. Skin warm; pulse of good volume and steady, but hard; heart sounds fairly well pronounced. There is some bulging of the left front of the chest in the præcordial region." Strict rest and stimulant treatment were continued, and all went well till 6 a.m. the following morning (15th), when, after a good night's rest, the patient became suddenly collapsed and died.

At the autopsy, which was made by Dr. Fowler, the following conditions were found: The cartilages of the third, fourth, and fifth ribs on the left side were prominent and arched. Those on the right side were flattened. All were calcified. On opening the pericardium about one ounce and a half of fluid blood escaped, and the heart was seen to be invested with blackish-red blood-clot, having a smooth outer surface. The clot was not adherent to the parietal pericardium. This clot was separable into two distinct layers, the outer of a rather paler tint and firmer. Each layer was removed separately, and found to weigh about seven ounces, some soft black clot at the back of the sac being weighed with the inner and probably most recently extravasated portion. The anterior surface of the heart showed a considerable excess of sub-pericardial fat. On turning the heart over, a rent half an inch long was seen in the posterior wall of the left ventricle, two inches and three-quarters

above the apex and one inch to the right of the posterior coronary artery, having an oblique direction. A probe passed through the rent emerged into the left ventricle, just behind the apex of the posterior papillary muscle. The posterior coronary artery could be felt as a rigid cord, and the pericardium having been dissected off, it was seen to be extremely atheromatous and calcified. A branch of the vessel (not found) had apparently ruptured, as there was some blood extravasated beneath the pericardium and deeper in the fat and muscular tissue around the vessel for a distance of three and a half inches. The anterior coronary artery was also atheromatous. The right cavities contained some post-mortem clots, and the left ventricle also contained a small post-mortem clot. The mitral and tricuspid valves were somewhat thickened and fibrous; the aortic were atheromatous. All were probably competent. The muscular tissue of the heart was soft, brown, and greasy; that of the right ventricle encroached upon by the subpericardial fat. The aorta was atheromatous. Both lungs were emphysematous, and very oedematous.

Remarks by Dr. COUPLAND.—Perhaps the fullest information concerning Rupture of the Heart in literature is that given by Dr. Quain in his Lumleian lectures (*THE LANCET*, 1872,) where he states that in 77 out of 100 cases there was fatty degeneration of the heart wall, and that 63 of the patients were above sixty years of age. He also points out what all writers, from Morgagni downwards, have noticed, that the exciting cause of the rupture is some sudden mental excitement or physical effort. In each of these particulars the case above recorded conforms to the general rule, but it may be added that until the day of the attack (which was distinctly referable to a violent mental shock) he had suffered no symptoms pointing to the existence of cardiac disease. Yet the coronary arteries were advanced in calcareous degeneration and there was considerable adiposity of the heart wall as well as true fatty degeneration. The case also resembles the majority in the lesion being in the left ventricle, but it is somewhat exceptional in the position of the rent, which in most cases has been found in the anterior wall, either in the region of the apex or close to the septum. In this case the rupture, which formed an oblique slit, occurred in the posterior wall at some distance from the septum, and about midway between the apex and base. This localization of the lesion was, no doubt, determined by the disease of the coronary artery and its branches impairing the nutrition of that part of the wall. The case is further of interest in the prolongation of life after the occurrence of rupture. According to Dr. Quain, "in 71 out of 100 cases.... death was sudden, occurring within one or two minutes. One patient, however, lived eight days, 1 six days, 1 three days, 5 lived over forty-eight hours, 3 lived under twenty-four hours, and 19 under twelve hours." In the present case, so complete was the rally under stimulant treatment that the idea of cardiac rupture, at first entertained, was thought to be beyond the mark, and that the case was, after all, one of temporary cardiac inhibition, from the influence of mental agitation. The sudden death, forty hours later, proved the correctness of the original surmise; whilst the discovery at the post-mortem examination of two distinctly separable layers of clot around the heart demonstrated the fact, that the rent had been temporarily closed after the first occurrence of hemorrhage. A very important question is here raised; admitting the impossibility of recovery after cardiac rupture, would life have been more prolonged had sedative treatment (as insisted on by writers on the subject) been pursued? This may well be doubted, for although,

on *a priori* grounds, it may seem wrong to stimulate to further action the heart so injured, it may equally well be contended that the ventricular contractions would aid in the temporary closure of the rent; whilst on the other hand continuance of the hemorrhage might be favored by measures tending to prolong the state of diastolic relaxation. In following the indications for prompt stimulation, as the only measure likely to rescue the patient from imminent death, this line of treatment was deliberately adopted in face of the possibility of such a lesion as actually existed. Had stimulants been withheld the man must have died in the first seizure, and in such a case a respite of a few hours may often be of great moment. The inference is that in similar cases—where diagnosis may be even more certain—the natural indication to administer stimulants may not be so harmful as is generally assumed.

RADCLIFFE INFIRMARY, OXFORD.

CASE OF UNUNITED FRACTURE OF THE HUMERUS IN AN OLD MAN SUCCESSFULLY TREATED BY RESECTING THE ENDS OF THE BONES AND FASTENING THEM TOGETHER WITH A PROBE.

(Under the care of Mr. HORATIO P. SYMONDS.)

WILLIAM S—, aged sixty-one, admitted on July 5th, 1882, with an ununited fracture of the left humerus. On March 15th he had been run over by a cart, the wheel of which, passing over his arm caused a simple fracture of the humerus. It was at once put up by a surgeon in the country with a rectangular and slide splints, and left without being touched for seven weeks. At the end of this time no union having taken place, the splints were readjusted at intervals till his admission.

When admitted there was an oblique fracture about the middle of the shaft of the humerus below the insertion of the deltoid. The fragments were perfectly movable, no callus having been thrown out. The man was in feeble health, appearing prematurely old. The circulation in the extremities was very weak, the hands being always cold and blue. There was no marked rigidity of the arteries, and the urine was free from albumen. The arm was fixed in a plaster-of-Paris apparatus for six weeks. When this was removed the condition was precisely the same as before. The patient complained greatly of the discomfort of the arm, and was willing even to have it removed. Under these circumstances, and notwithstanding the debilitated condition of the patient's health, it was thought advisable to try some operative procedure.

On Aug. 22nd, the following operation was done, with all antiseptic precautions. An incision three inches long was made on the outer side of the arm over the seat of the injury. The ends of the bones were cleared from the surrounding tissues and made to project through the wound. The periosteum was stripped from the ends for about an inch. A small slice of bone was then sawn obliquely off the ends of each, and a hole was drilled through from one to the other. Through this hole a silver-plated steel probe was passed (acting like a hare lip pin), and the ends being drawn together, was fixed by a stout silver wire twisted round the probe in figures of 8. The ends of the wires and the probe were left projecting from one end of the wound, the edges of which were closed by a few silk sutures, and dressed in the usual way. The arm was then fixed by a leather splint, having a steel bar from the elbow to the shoulder

in the outer side and an angular splint on the inner side.

The patient went on very well, the temperature only once, four days after the operation, rising above 100°. The arm was dressed at first on alternate days, afterwards at longer intervals. The antiseptics were left off on Sept. 20th and on Oct. 14th (two months after the operation) the probe was withdrawn without difficulty. It was found that considerable, though not perfect, union had taken place. On admission the arm was quite useless. Now he was able to raise it to a level with the shoulder; he is quite free from pain and has improved in his general health. A small fragment of necrosed bone came away with the probe.

LIVERPOOL ROYAL INFIRMARY:

TWO CASES WHERE BOTH BREASTS WERE REMOVED FOR CARCINOMA; REMARKS.

(Under the care of Mr. REGINALD HARRISON.)

CASE 1.—Mrs. McC—, aged fifty-one, was admitted on Oct. 27th, 1881, with the following history:—About twelve months previously patient noticed a slight hardness in the left breast, which was followed in six weeks by retraction of the nipple. Shortly afterwards a similar hardness commenced in the right breast. The patient was a healthy looking woman, married, with one child. In each breast there was a well-marked scirrhus carcinoma, with retraction of the nipples, but no extension into the axilla. On Nov. 2nd Mr. Harrison removed the right breast, and on Dec. 7th, when the patient had completely recovered from the first operation, the second breast was removed. On Jan. 5th, 1882, she was able to leave the infirmary, the wounds having completely healed. In the October following the patient reported herself as being quite well, and without any sign of a return of the disease.

CASE 2.—Mrs. R—, aged fifty-two, was admitted in November, 1881, suffering from a scirrhus carcinoma of the right breast with retraction of the nipple. The hardness had been noticed for eight months previously. She had a very healthy appearance. There were no enlarged axillary glands. On the 25th the breast was removed, and in nine weeks the patient was able to leave the infirmary. She seemed very intolerant to the carbolic applications. In June, 1882, she noticed some hardness in the other breast, but nothing was done, as she thought it was inflammatory and would disappear. In September she returned to the infirmary, when the left breast was found extensively infiltrated with cancer. The axilla was free. On September 13th, 1882, the breast was removed by Mr. Harrison. She made a good recovery, and was able to leave the infirmary on October 27th.

Mr. Harrison remarked that these were the only two instances in his practice where he had removed both breasts for scirrhus. In both cases the patients presented a singularly healthy and robust appearance, in fact, to look at them before making an examination of the breasts he should have selected them as typical examples of what healthy-looking middle-aged women should be. Still, there could be no doubt, either on clinical or histological grounds, that they were seriously infected with cancer. So far as the operations were concerned, no patients could have done better. Antiseptics were employed, and no untoward symptoms were met with. The second patient on each occasion showed an intolerance to carbolic acid, which rendered its abandonment necessary before repair had sufficiently advanced; still, she made an ex-

cellent recovery. Cases of this kind were interesting, not only as illustrating what operative surgery is capable of doing in the case of rapidly growing tumours, but as bearing upon the whole subject of infection by malignant growths.

PUBLIC HOSPITAL AND DISPENSARY, SHEFFIELD.

SEVERE WOUND OF THE ANKLE JOINT; RECOVERY WITH MOVABLE JOINT.

(Under the care of Dr. KEELING.)

For the following notes we are indebted to Mr. G. F. Gubbin, house-surgeon:—

W. H—, a boy, eight years of age, was admitted on Aug. 8th, 1882, with an extensive wound of his left ankle-joint posteriorly, caused by the cutting portion of a mowing machine. On examination it was found that the wound extended across the back of the joint, from below the internal to the external malleolus, the lower portion of which was separated from the rest of the bone and broken into fragments; the tendo Achillis was completely divided, as well as the peroneus longus and peroneus brevis muscles on the outer side. The joint was laid open and the cartilaginous surfaces of the bones entering into its formation exposed; some of the cartilage had been chipped off. There had not been much bleeding. Under the carbolic spray the wound was freed from fragments of bone and cartilage, and carefully cleaned; the two ends of the tendo Achillis were brought into as close apposition as possible, and fixed with carbolized catgut sutures. The wound was then sewn up with silver wire and catgut sutures, and enveloped in the ordinary antiseptic gauze dressing, the limb laid on its outer surface, and the ankle-joint fixed in the extended position. The wound was dressed twice during the first eight days, afterwards once a week until Aug. 30th (or twenty-two days after the receipt of the injury), when it was found to be quite healed. The boy was kept in bed and passive movement practiced.

On Sept. 11th he was able to flex and extend the joint freely, and to invert the foot, but the power of eversion was rather weak; he was not able to bear much weight on the limb. He was now allowed to get up. The boy continued to improve, and on September 20th it was noted that he could get about with ease, although not able to bear the whole weight of his body upon the injured limb. When he was lying on the bed it was found that he could move the wounded joint just as freely as the sound one.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Congenital Malformation of Heart.—*Paraplegia.*—*Disseminated Sarcoma.*—*Xanthoma Tuberosum.*—*Pigmentation of Uterus.*—*Empyema from Foreign Body.*—*Malformation of a Lamb.*

THE ordinary meeting of this Society was held on Nov. 7th, Dr. S. Wilks, in the chair. The report of the committee appointed at the last meeting to examine Dr. Norman Moore's specimen of deformity of the heart was read to the Society. The specimens shown by Dr. Kesteven and Dr. Hadden were referred to the Morbid Growths Committee. Dr. Malcolm Morris read a very complete account of a remarkable case of skin disease, his

designation of which—*xanthoma tuberosum*—was not accepted by the other dermatologists present, who, however, did not suggest any other name for it. The case was referred to the committee which last year reported upon *xanthelasma*.

Dr. Pye-Smith read the report of the committee appointed to examine Dr. Norman Moore's specimen of narrowing of the left ventricle below the aortic valves. The committee could not decide whether it was congenital or acquired, but were of opinion that the fibrous ring was of later date than the formation of the aortic opening and septum ventriculorum, and of earlier origin than the aortic aneurism, and therefore they referred it to the later period of intra-uterine life.

Dr. Kesteven related a case of Paraplegia, caused by Traumatic Hæmatoma, in the Dorsal Region. In this case there had been some pre-existent disease, which had caused the spontaneous removal of the body of the seventh dorsal vertebra. About three months before death occurred the patient had received a blow on the back, which had caused some displacement at the diseased part and rupture of some bloodvessels, thus giving rise to an effusion of blood into the spinal canal, and consequent pressure on the cord. Some of the blood had also escaped anteriorly, forming a hard tumour in the posterior mediastinum, which had pushed forward the sympathetic ganglia and caused destruction of the rami communicantes of the seventh ganglion on each side. The heads of the seventh and eighth ribs on each side were also diseased. The narrator of the case gave an account of the symptoms produced, and pointed out the effects produced by the pressure on the cord, and by the damage caused to the sympathetic nervous system. Mr. Roger Williams said the case was interesting as an example of cure of spinal caries without supuration. It showed, too, that paralysis was produced by the tumour pressing upon the spinal cord. He thought it might be also an example of what Sir James Paget had called "residual abscess."—Dr. Horrocks observed that this was the first case on record in which ankle clonus had not been associated with degeneration of the lateral columns of the cord; although clonus had been present for a few seconds after a fit from temporary exhaustion of the lateral columns.—Mr. Butlin asked if the blood-clot had been examined microscopically, as it looked like a blood-cyst or hæmorrhagic sarcoma. There was no trace of suppuration, and the history pointed rather to a tumour than to hæmorrhage.—Dr. Kesteven replied that it had not been examined microscopically.—Dr. Wilks supposed Dr. Horrocks did not mean that the excess of spinal reflexes was directly produced by lateral sclerosis. He thought it was due to excitation of the grey nervous matter within the degenerated cord.

Dr. Hadden described a case of Disseminated Sarcoma. The patient was a gentleman, aged thirty-eight, in St. Thomas's Home. Shortly before admission he had been operated on for fistula in ano. On admission, he was dull and drowsy; this increased; then cedema of the legs came on; the pulse became very small and frequent. Temperature reached only 101.2°. No optic neuritis, nor evidence of organic disease during life. He died comatose. Post-mortem: The pericardium on each surface was studded with small new growths; similar growths were seen in the muscular substance of the heart, parietal layer of pleura, both surfaces of diaphragm, omentum, mesentery, liver, and spleen. The right kidney was remarkable, the capsule was studded with numerous white masses of calcareous matter. Several small bodies like tubercles were seen on the arachnoid, which were found to be only thickenings of the membrane; no

glands enlarged. The tumours were round-celled sarcomata. In the heart the cells were round; matrix amorphous, in some places alveolar. In the liver the growth was interlobular. Beneath the capsule of the right kidney was an extensive infiltration of round cells, which sank down between the tubules. The case during life was thought likely to be acute tuberculosis, and was also very interesting, as the symptoms were acute, lasting only a fortnight.—Dr. Norman Moore asked if the new growth on the kidney was the same in character as that in the heart; and whether Dr. Hadden was sure the growths were sarcomatous. The indurations on the kidney were like those common on the liver. He thought that in the heart sarcomata were nearly invariably pigmented.—Mr. Butlin had examined these specimens carefully, and was not prepared to affirm that the growths were sarcoma growths if this would be in opposition to the general characters of the disease. It was extremely difficult to distinguish such round-celled sarcomata from tubercular deposits or other round-celled formations.—Dr. Bedford Fenwick remarked on the paroxysmal character of the pain associated with new growths in the heart.—Dr. Hadden replied that the growth in the right kidney in the main resembled that elsewhere. He had never seen any growth quite like it, and he thought it unique. He did not know whether there was paroxysmal pain in the region of the heart.

Mr. Malcolm Morris showed a living specimen of a very rare skin disease which he called *Xanthoma Tuberosum*. The patient was a married man, aged forty-eight, who was suffering from saccharine diabetes. There was no history of syphilis or rheumatism; no jaundice or evidence of disease of the liver. He complained of sleeping badly, and of dimness of sight with occasional mists before his eyes. There was distinct anæsthesia of the soles. Heart weak; reflexes normal. The eruption appeared suddenly, first on the outer side of the thigh, then spreading to the trunk, to between the fingers, and on the mucous membrane of the mouth. It consisted of small rounded firm pink tubercles, with depressed centres which had more of a fawn-color in the centre. Many of the papules had disappeared since the case first came under his care. With the patient's consent he removed one of the growths and examined it microscopically. This showed small nodules in the corium, with a delicate fibrous intercellular matrix; towards the centre the fibrous tissue became more compact and firm. The superficial epithelial cells were normal. There was no connection with any glandular structures, and the older papules contained no blood-vessels. In one place he found a collection of round cells about a vessel, and he suggested whether this might not be the real origin of the growths—the tissue ultimately contracting and so causing degeneration of the cells. This case differed from those of *xanthelasma* in many respects, chiefly in its association with diabetes and not with jaundice; the sudden onset of the rash, and its rather rapid disappearance, and in the fact that the eyelids were not implicated. But on the other hand it closely resembled two cases, one of which had been recorded by Drs. Gull and Addison, the other by Dr. Britton. The three cases were all in men; they all had diabetes, they all affected the same locality and avoided the same parts; in all the rash appeared suddenly, and gradually, but rather rapidly, disappeared. To these exceedingly rare cases the name of *xanthoma tuberosum* had been applied.—Mr. Morratt Baker said the case was of great rarity, but it differed so much from *xanthelasma* that he doubted whether it should have that name at all. Dr. Duckworth said that the case did not re-

semble xanthelasma and ought not to be called by that name. Its actual appearance did not justify the use of the term applied to it. Dr. Radcliffe Crocker said in xanthoma the nodules were always soft and yellow, but these were firm and not yellow. The rapid appearance and disappearance of the rash quite separated it from true xanthoma. In xanthoma there were, also, stellate fat cells and oil globules.—Dr. Morris said the rash was chamois-leather colored in the centre and pink in the centre. There was an absence of the oil globules in ordinary xanthelasma; microscopically it was more like keloid or fibroma, but it was exactly like the cases described early by Drs. Addison and Gull as xanthoma tuberosum. The case was referred to the Committee appointed last year to investigate xanthelasma.—Dr. Morrison compared this rash with the eruption common in gout, and said it was also similar to molluscum. He thought in all such cases the parts affected first were the hair-follicles and sebaceous glands.

Dr. Robert Barnes showed a specimen of Pigmentation of the Cervix Uteri. It consisted of the vaginal portion of a uterus affected with hypertrophy, and which projected from the vulva. It was pigmented on the surface. The patient was a Hindoo. The parts not exposed were of the normal rose color. Dr. Ewart had examined the part microscopically, and found the pigmented surface to have the leading characteristics of healthy skin; the horny layer was thin; rete Malpighii well furnished with closely-packed cells, like those of the skin; the deep vertical cells were deeply pigmented; papillæ projected forwards into the epithelium, and contained vessels of new formation. In the unpigmented part corium was absent, the rete abutting upon the firm muscular tissue of the uterus. The pigment consisted of fine granules, and was present in the nuclei of the cells. There was thus evidence of a further change than one of dying of the exposed surface of mucous membranes. It was new to him, but probably familiar to practitioners in India.—Dr. Wilks said that pigmentation was a very difficult subject, for in some cases it was due to local causes, and in others to deep constitutional changes, as in Addison's disease. Professor Laycock thought that pigmentation of the face was always associated with disease of the genital organs.

Dr. Norman Moore read a paper on Lung with Impacted Foreign body. The right lung of a child, aged twelve, who died of typhoid fever. The lung is partly collapsed, and in its lowest lobe are several reddened patches. In one of these, near the pleural surface, was fixed a spicule of bone three-quarters of an inch long. The spicule, which looks like the neural spine of a fish vertebra, had one end in a minute bronchus, the wall of which it had penetrated. Four years ago the child was suddenly seized with pleurisy. It was tapped in St. Bartholomew's Hospital, pus was let out, and as the wound continued to discharge a drainage-tube was put in. The child attended with this as an out-patient, and at length the wound was closed. The scar was distinct. The lung was firmly adherent to the chest-wall. The spicule of bone passing deep into the lung probably set up pneumonia, which was followed by the empyema four years ago. The empyema was emptied, and the bone remained, a very exceptional circumstance. The typhoid fever, of which the girl died, was remarkable in the large extent of intestine affected, and in the fact that the middle part of the vermiform appendix was externally tumid and internally ulcerated all round. Perforation of the vermiform appendix had occasionally been a cause of death in typhoid fever, and had been thought a condition, preceding the fever. In this case, and

in another post-mortem which he had lately made, the ulceration of the vermiform appendix was clearly one of the results of the typhoid fever. A further point of interest was that in the middle of the epiglottis there was a small ulcer.—Dr. Goodhart said that foreign bodies more commonly caused lung disease than was generally suspected; he had made two autopsies quite close together of cases of obscure lung disease, in each of which he discovered the cause of the mischief in a foreign body.—Dr. MacLagan said that in cases of foreign body in the lung there was fetid expectoration of a peculiar odor. Dr. Begbie had particularly pointed this out, and had been able to diagnose the source of a troublesome cough and expectoration by this means; he also found that turpentine given internally removed the fetor, and rendered the patient more comfortable.—Dr. Sharkey said that it was not necessary to suppose that the foreign body had actually passed through the lung, and so caused the pleurisy, for in cases of obstruction of a bronchus by an aneurism, lobular pneumonia and pleurisy were often met with. He had under his care a patient with a tooth in a bronchus, causing partial obstruction, and he got an attack of pleurisy, although the tooth was still in the bronchus.

Mr. Eve showed a specimen of Malformation of a Lamb. All the parts developed from the first visceral arch were absent on one side; the superior and inferior maxillary bones and palate bones were absent; the temporal bone was dwarfed, and there was no trace of the ossicles of the ear. The brain and cranial nerves were normal, except that the fifth and ninth nerves were smaller on the right (the deformed) side. He had not been able to examine the arteries. He could not find any similar case, although absence of the lower jaw was tolerably common in lambs. Possibly, the cause of the deformity was some vascular lesion, as thrombosis of the internal maxillary artery.

The following card-specimens were shown:—Congenital Malformation of Skull, by Mr. F. Treves; Double Hydrosalpinx, by Dr. Norman Moore.

The ordinary meeting of this Society was held on November 21st, Dr. George Buchanan in the chair. He presented the new volume of the Transactions to the Society, and also announced that in April next there would be a discussion on the pathological condition of the various organs in diabetes.

Dr. Horrocks showed a living case of Bromide of Potassium Rash in a girl aged ten years, who had been taking twenty-five grain doses of bromide of potassium twice daily for four months; one month ago red swellings like erythema nodosum appeared over the tibiae, and a week later pustular points were present on the swellings, and coalesced; shortly afterward it came upon the extensor aspect of the arms and forearms; there was no rash elsewhere. The rash was now undergoing involution and was not so characteristic as it had been. Dr. Horrocks alluded to the absence of the rash in the usual acne situations and thought it was rare to find it on the extensor aspects of the limbs only.

Dr. Thin considered that these cases presented sufficiently characteristic features for them to be diagnosed independently of the history and alluded to a case in which he had done so. His microscopical investigations in a case of iodine rash led him to consider that the condition was not due to inflammation of the sebaceous glands and therefore not a true acne, but that it was due to the drug affecting directly the walls of the vessels, producing stasis and its consequences.—Dr. Radcliffe Crocker said that the presence of the rash upon the extensor surfaces was not so rare as Dr.

Horrocks seemed to think; several cases had been shown by Dr. Barlow, himself, and others, with the rash in these positions, and he described a case now under his care at the East London Children's Hospital of a girl aged nine, who, after taking ten-grain doses of bromide for a week, showed the characteristic pustules upon the anterior surfaces of the legs and on the arms and chest; the drug was not stopped, on account of the fits from which she suffered, but some arsenic was given; the following week superficial abscesses two inches in diameter were present on the site of many of the pustules. The patient had been half starved.

Dr. Hoggan showed and described microscopical specimens of Multiple Lymphatic Nævi of the Skin. He considered that the condition was a common one, though hitherto unrecognized, and that it was probably the early stage, or predisposing cause of many other diseases connected with the lymphatic system, such as elephantiasis, lymphangioma, etc. It differed from the case of lymphangiectodes presented to the Society by Drs. Tilbury and Calcott Fox, as that had no navoid development of lymphatics, and also from Hebra's case of lymphangioma tuberosum multiplex, which, both from the drawings and description, he thought was not a lymphatic disease at all. His patient was a boy, aged nine years; the nævi were of the size of a split pea, flattened, and of a transparent pale-lilac tint, and were situated upon the right leg and ankle, which had been repeatedly attacked by an erysipelatous inflammation, causing great pain and slight thickening of the ankle; in short, the symptoms of the early stage of elephantiasis Arabum. The epidermis was infiltrated with the branched cells of Langerhaus. The abnormal lymphatics traversed the whole thickness of the dermis below, but above did not extend higher than the normal lymphatics, nor nearer than usual to the hair-follicles or sweat glands. There was nothing abnormal in the structure of the lymphatics individually, and the fact that none of the nitrate of silver injection had been extravasated showed that they were actually walled tubes. He thought the disease was an early and curable stage of elephantiasis cruris.—Dr. Pye Smith asked if the affection was congenital.—Dr. Thin endorsed Dr. Hoggan's opinions as to the structure of the tumours, but doubted their relationship to elephantiasis Arabum, as there was none of the imperfect fibrous tissue seen in that disease. He thought the case corresponded with one described and figured by a Russian observer in the *Archiv für Dermatologie* a few years ago.—Dr. Hoggan replied that it was in a stage before the development of fibrous tissue; and with regard to its being congenital, thought that it was, but the history was defective on that point.

Dr. Samuel West showed and described a specimen of Sarcoma of the Bladder and Prostate. The patient was a man aged twenty-one, and showed no symptoms of disease until a month before death, when he had retention of urine; no trace of a tumour could be felt by the rectum. A few days later hæmaturia, followed by retention, occurred, and the catheter had to be used; the hæmorrhage continued to be profuse, and he died of exhaustion. Post-mortem in the position of the prostate was a tumour nearly as large as the bladder, and in the bladder were several polypoid tumours, the largest rather larger than a Tangerine orange; one was in the trigone, and another projected into and blocked up the dilated urethra; signs of hæmorrhage were present in it, and doubtless it was the source of the bleeding and cause of the retention. The tumours were split up but not villous; section of the prostate tumour showed it to be a soft, round, and spindle-celled sarcoma. There

were no secondary growths, the kidneys were studded with small abscesses, and the ureters and pelvis dilated, the bladder being hypertrophied, which was good evidence that though there were no symptoms until a month before his death, the tumours were present for a longer period. The delay in the development of symptoms reminded him of the case of mediastinal tumour that he had showed, in which there were no symptoms until two months before death.—Mr. Roger Williams said that growths like this were much more common in elderly people. The practical point was, Were these growths infective? Evidently these were not, and he compared them to those medullary growths of the bladder and rectum which were often non-infective. He then showed his museum specimen, which had no history attached to it, of a small tongue-like growth at the neck of the bladder, which had belonged to a boy; the bladder was hypertrophied.—Mr. Barker mentioned several cases of tumours of the bladder, in all of which he had noticed this feature in common—namely, that the growths were more or less polypoid, whether they were cancers or sarcomas.

Dr. Henderson showed a Heart with Syphilitic Gummata in the Wall of the Left Ventricle, and microscopical specimens in illustration of it. A man, aged thirty, was brought in a moribund condition to St. Mary's Hospital, and died in a few minutes. It was stated that he had seemed well until a fortnight before his death, when he began to complain of faintness and pain in the præcordial region. On his way to his work he suddenly staggered and fell, groaned, put his hand to his heart, and was unconscious from that moment to his death. At the post-mortem examination the only organ affected was the spleen, which weighed twelve ounces; it was congested, firm, and adhered to the parietes. The liver weighed sixty-two ounces, and had a depressed fibroid scar in the right lobe, but was otherwise normal. The heart weighed thirteen and a half ounces. The pericardium over the left ventricle was studded with pale yellowish-white, slightly projecting elevations, and one or two were over the right ventricle. The endocardium of the anterior wall of the left ventricle was studded with similar nodules. On cutting into the septum a mass of fibroid tissue, a quarter of an inch thick and one and a half inches long, and two inches broad, was seen extending into the muscular substance, with which it gradually blended. Microscopically the muscular substance was permeated by tissue, with gummatus characters, but there was no sign of caseous spots, or of fatty degeneration in the muscle fibres. The lumen of the smaller vessels was narrowed by thickening of the intima. He thought that the appearances of this case made it a connecting link between the cases of fibroid degeneration of the heart described by Dr. Hilton Fagge in vol. xxv. of the *Transactions*, and those of Dr. Burney Yeo in vol. xxvi. There was no history of anginal attacks, and the larger coronary vessels were not blocked in any way; the question arose whether the blocking of the lumen of many small vessels would have a similar effect to the occlusion of the larger vessels, and so cause sudden cessation of the heart's action.

Mr. Roger Williams then showed a wax model of a case of Testis in Perineo and Congenital Hernia. Before admission into the hospital there were great pain and tenderness over the tumour on the right side of the scrotum; an ounce of straw-colored fluid was drawn off by the aspirator, and on taxis the hernia was reduced. The testicle was swollen and tender, and could be felt in the perineum. This position of the testicle occurred seven-

teen times out of twenty-two cases on the right side, and congenital hernia was rarely associated.

Mr. J. B. Sutton showed the Skeleton of a Baboon affected with Rickets; it was admitted into the Zoological Gardens when two months old, fed on fruits and nuts instead of milk, and died in four months. The viscera were not preserved, but the skeleton showed decided signs of rickets. The epiphysal cartilages were enlarged; that of the femur was ten millimetres instead of one. There were three layers: 1. Normal cartilage. 2. Longitudinal rows of cells. 3. Imperfect ossification enclosing cartilage cells. The tibiae were bowed and very soft. The periosteum thick and succulent. The skull was six millimetres thick, soft and spongy. In another specimen that he found in the museum the skull was twelve millimetres thick. In answer to Dr. Buchanan, he said that dentition was not affected.

Dr. Hadden showed Microscopical Sections of the Cord in Canine Chorea, in which disease there are rapid contractions of the muscles, as if under the influence of the interrupted current, the disease resembled spasmodic torticollis more than human chorea; it generally followed distemper, and was fatal. Like the cases described by Drs. Gowers and Sankey, there were masses of leucocytes scattered irregularly through the cord, but while in their cases these cells were in the white matter, in his they were among the grey matter, distended capillaries could easily be seen. The appearances were suggestive of an early stage of disseminated sclerosis, and, as they were not constant, were probably secondary, perhaps due to over-action.

Dr. Pye Smith showed the fresh organs in a case of Colloid Cancer in a man aged sixty years. His first symptoms were cough and pain in the leg, but there was no tumour felt; but later on a small tumour was detected in the region of the liver, and he had pain in the course of the sciatic nerve, and the diagnosis of retro-peritoneal cancer was made. There was no vomiting or hæmatemesis. Post mortem there was no cancer of the liver, but it was simulated by a part of the retro-peritoneal tumour. A very large cancer affected the posterior wall of the stomach, projecting into it, but united to the cancer behind; another tumour projected into the duodenum. There were a few secondary nodules in the liver, while the lung was studded with pea-sized nodules. The microscopical characters were those of colloid cancer, the paucity of vessels accounting for the absence of hæmorrhage during life.

Dr. Frederick Taylor showed the Heart in a case of Ulcerative Endocarditis. A man, aged twenty-six, had had rheumatic fever, at the age of fifteen, with some cardiac complication. Five months ago he had shortness of breath and wasted. For the last six weeks he had had œdema of the feet. When admitted he had general anasarca, and looked as if suffering from renal disease. There was marked pyrexia and a double aortic murmur, tenderness over the spleen, and the urine was abundant and highly albuminous. Ulcerative endocarditis was diagnosed. Post mortem both aortic and mitral valves were affected with old and recent disease—viz., induration and ulceration. The left ventricle was dilated and hypertrophied. The spleen had several embolic infarcts. The kidneys showed cloudy swelling, and the capsule was slightly adherent in one part. The question was whether the kidney affection was primary or dependent upon the endocarditis? Dr. Taylor thought it was due to the endocarditis, as similar conditions had been observed in other cases.

The card specimens were Thrombus in the Left Common Iliac, by Dr. Kingston Fowler, and

Congenital Malformation of the Heart, by Dr. Turner.

Acute Dilatation of Stomach.—Osteitis Deformans.—Malformed Heart.—Rachitic Osteomalacia.—Stricture of the Intestine.—Malformation of Auricle.—Symmetrical Gangrene.—Cancer of Œsophagus.—Noisy Respiration.

The ordinary meeting of this Society was held on December 5th, the President, Dr. Wilks, in the chair. Several specimens, and a case of special interest were shown—namely, a case of extreme rachitic osteomalacia by Mr. Barwell, which at the suggestion of Mr. R. W. Parker, was referred to the Rickets Committee. The body of a child who had died with symmetrical gangrene of the extremities was exhibited by Dr. Southey, and the larynx of a child with folding of the epiglottis producing a peculiar form of dyspnoea by Dr. Lees.

Mr. Henry Morris showed the Stomach of a man which was in a condition of acute dilatation, and gave the following account of the case:—The patient, aged thirty-seven, was admitted into the Middlesex Hospital for suppurative of the ankle-joint. An operation having been determined on, on November 11th ether was given for about half a dozen respirations, and afterwards chloroform for about a quarter of an hour. For the following two days he vomited excessively a thin greenish fluid; the longest interval between the acts of vomiting was never more than one hour. He had taken a mixture of chloroform and ether on a former occasion without ill results. He had been prepared for the anæsthetic by being given a dose of house mixture, and an enema; a light breakfast was taken early. After the anæsthetic, orthopnoea became marked, the temperature fell below normal, the quantity of urine decreased, until towards the end none was passed; the pulse was weak and rapid, and the skin was cold. Death was due to exhaustion. At the necropsy, the stomach measured $7 \times 12 \times 4$ inches, and reached almost to the symphysis pubis; it contained twenty-eight ounces of fluid. The coats of the stomach were thin, and contracted when cut; the kidneys were contracted and scarred on the surface, and one contained a cyst. In the upper lobe of each lung was a cavity, and the lungs contained miliary tubercle. The vomiting was unlike that seen after chloroform, and there was no intestinal obstruction. Mr. Morris referred to a few other cases of a similar kind on record, where excessive vomiting occurred in patients with a similar condition of the kidneys; but all the other cases were much more chronic in their course, with the exception of three reported by Dr. Hilton Fagge. Mr. Morris was inclined to attribute the dilatation of the stomach to the large quantity of gastric fluid secreted, this over-secretion being brought about by nervous influence. He, therefore, thought that the term acute dilatation of the stomach was not a good one to describe the condition, and suggested the word gastrorrhœa. Cohnheim had suggested that in cholera there might be such an influx into the intestines from some nervous influences.—Dr. Goodhart gave a few notes of the post-mortems of five cases of acute dilatation of the stomach, which had occurred at Guy's Hospital since 1875, and which to some extent corroborated Mr. Morris's theory of the nerve origin. Of these cases, four out of the five involved the peritoneum, and the remaining one the sympathetic. Case 1 was a man, aged twenty-two, with strangulated inguinal hernia and suppurative peritonitis. Case 2. A female, aged forty-eight, with a growth in the neck pressing upon the veins, left vagus, and sympathetic. Case 3. A female,

aged forty-nine, with ulcerating colon, acute enteritis, and thrombus of the superior mesenteric artery. Case 4. A female, aged twenty-four; amputation at hip-joint, suppuration in other joints, and caseous glands in the lumbar region. Case 5. A female, aged thirty-four; death nine days after ovariectomy; stomach symptoms began two days after operation. There was great flatulent distension on the fourth day; constant vomiting ensued on the sixth day. Post mortem there was very little peritonitis and thrombus in the iliac veins.—Dr. Pye-Smith said that Dr. Lauder Brunton had preceded Cohnheim in the enunciation of the theory of the relation of nerve paralysis to the profuse evacuations in cholera; and Dr. Pye-Smith had read a paper on the subject, in conjunction with Dr. Brunton, at one of the meetings of the British Medical Association; he would be glad to know from Mr. Morris whether there had been any analysis of the vomited fluid.—Dr. Mahomed wished to know the condition of the kidneys, as he had met with two cases of lardaceous disease of the kidneys, in which there was a large amount of fluid ejected from the stomach.—Dr. Payne alluded to two specimens in St. Thomas's Hospital Museum, where during life a diagnosis of intestinal obstruction had been made; but post mortem there was great distension of the intestine, but no obstruction; they seemed analogous to these cases of dilatation of the stomach. With regard to the influence of chloroform, while he thought that it might account for the symptoms by inducing paralysis of the muscular walls, it appeared to him very doubtful whether the distension could be produced by the quantity of fluid in the viscus.—Dr. Wilks remarked that while they had only a few fatal cases on record it was not improbable that there were less severe cases which recovered due to similar causes, and that the severe gastric symptoms which sometimes occurred in gouty people were possibly of this nature. Mr. Morris, in reply to Dr. Mahomed, said that the kidneys were indurated and scarred, and one had a cyst, but that there was no lardaceous disease. He regretted that there had been no analysis of the fluid, but the true nature of the case had not been diagnosed. Alluding to the remarks of Dr. Payne, he did not suppose that the dilatation occurred until the stomach was worn out with the incessant vomiting, and so allowed of accumulation of the fluid.

Mr. Morris then showed photographs of a case of Osteitis Deformans. The disease had been present for about twelve years, and had begun in the left leg. The legs and thighs, the patella, the ribs, the vertebrae, the clavicles, and, to a slight extent, the cranial bones were affected. The lower extremities of the tibiae, the fibulae, the feet, and the lower jaw were not affected in this case. His general health was good, but he had a mitral murmur, and the urine contained less than the normal quantity of urea.—Mr. Treves said that the case was a further illustration of two facts:—1. That the bones of the arms were usually free. 2. That all cases where the bones of the upper extremity, except the clavicle, were involved, occurred in women. The loss of stature might be accounted for partly by the curves of the spine, and partly by its subsidence in a vertical direction. Finally, Sir James Paget has ascribed the condition to an inflammatory affection of the bone, and, comparing it with other inflammations of bone, Mr. Treves said that in the case of a girl aged fifteen years, under his care with chronic periostitis from congenital syphilis, the deformity in the leg presented precisely similar characters.—Mr. Noble Smith asked if any treatment had been attempted; in all Sir James Paget's cases iodide of potassium had been given with either no effect, or a bad one;

he had, therefore, in a case now under his care, attributed the disease to some defect of nutrition, and treatment in accordance with that view had benefited the patient. The deformities were exactly like Sir James Paget's description, and were largely due, he thought, to the weight of the body. There was a family history of gout, cancer, and phthisis; but the general health of the patient was good.—Dr. Wilks said that one of the first cases ever shown was a man under his own care, who had previously been under a great number of medical men, and had a pile of prescriptions from them, and the main ingredient was the same in all—namely, iodide of potassium. He thought it was a common error to suppose that iodide of potassium had any influence on fully-formed bone.

Dr. Turner then showed a Congenitally Malformed Heart. The organ consisted of an auricle with two appendices, the left being small, and a ventricle with an auriculo-ventricular valve of tricuspid form. The auricle received the inferior vena cava, and a right and a left superior vena cava. The pulmonary veins communicated with the left superior vena cava. The opening of the coronary sinus was close to that of the inferior vena cava. There was a well-marked Eustachian valve, and a narrow crescentic membranous fold over the entrance to the left auricular appendix, the rudiment of an inter-auricular septum. The aorta arose from the front of the ventricle, and gave off the coronary arteries and the three vessels from the arch in the usual order, and supplied the pulmonary circulation through an open ductus arteriosus. The arch of the aorta was directed to the right over the root of the right lung. Behind the aorta was a fibrous cord passing to the pulmonary arterial vessels representing the closed pulmonary artery. There was what appeared to be a rudimentary left ventricle without any trace of a left auriculo-ventricular opening. The specimen was obtained from a male infant, aged fifteen months, who was brought to the out-patient department at the North Eastern Hospital for Children for bronchitis. Only a slight degree of cyanosis was observed until shortly before it died. The child had been born at full time, and was well nourished, and seemed healthy then, but had not thriven. The cyanosis had not been observed by the friends. The mother had no illness during the pregnancy, and gave no history of rheumatism beyond slight rheumatic pains occasionally.

Mr. Barwell then read an account of his case of so-called Rachitic Osteomalacia, with extreme Deformity. The patient was a female, aged seventeen years, who had been under Mr. Barwell's care for the last three years, and the deformity had improved very slightly. The patient comes from the potteries in Staffordshire, is of healthy parentage, and the brother is a tall, well-built man. Mentally she is juvenile rather than weak-minded, and is as yet non-pubic. Nearly every bone presents extreme deformity, but the humeri, right tibia, and left ulna are bent to most acute angles; in the ulna the olecranon is elongated and bent at a right angle to the shaft. She is quite unable to stand. The bones are remarkably brittle, though rather less so than they were, consequently she has fractured the bones of both upper and lower extremities several times. There is no beading of the ribs nor enlargement of the epiphyses. Mr. Barwell's experience led him to consider the bones to be of normal thickness, but soft from deficiency of lime salts, and he questioned whether these extreme deformities were ever produced by true rickets. Some years ago in attempting to improve the deformity of the femur of a boy in a similar condition to this patient the chisel went through the bone with very slight resistance, and about five

ounces of pure oil flowed out. Both these cases suffered from pains at the convex parts of the bones. Mr. Barwell thought that these extreme distortions arose from increase of the medulla, at the expense of the bone substance, the so-called eccentric atrophy, while there was very little bone-earth deposited in the thin shell of bone round the medulla.

Dr. Norman Moore described his specimen of Stricture of the Intestine at the Ileo-cæcal Valve, from a man in whom colotomy had been performed in the right lumbar region. The wound showed no unhealthy suppuration. The intestines above and below contained a considerable quantity of soft fluid fæces, but were not greatly distended. The stomach was normal. The small intestine was dilated, oedematous, and reddened; three and a half inches above the valve it showed extensive irregular ulceration, which extended all round; some of the ulcers seemed healing, and there were puckering as of healed ulcers. The ridge of the ileo-cæcal valve was very low, and the orifice was so contracted as but just to admit a large probe. Below the valve, for three inches, there was a less degree of ulceration. The colotomy wound was two inches below the valve in the large intestine. No tubercle was discoverable. Mesenteric glands normal. Externally the intestine was not abnormal, except that the lowest part of the ileum was slightly adherent to the abdominal wall. The intestinal wall was thickened above and below the stricture. No enlarged glands were found; the rectum and all the muscles and bones were normal. Microscopic examination showed that the stricture is associated with a new growth, consisting of abundant round cells penetrating all the structures of the intestinal wall. The patient was a man, aged forty-seven years, who died under the care of Dr. Andrew, in St. Bartholomew's Hospital. An attack, the first, of obstruction of the bowels, began on Oct. 18th. The bowels not having acted up to November 1st, on that day colotomy was done by Mr. Marsh. At the time there was no relief; but the next day a large quantity of fæces came through the wound. The patient died on November 4th. A microscopic section of the tissue of the stricture was exhibited.—Dr. Norman Moore also showed a specimen of Malformation of the Right Auricle. It was the heart of a woman aged thirty-three years. All the cavities are somewhat hypertrophied and dilated. The aortic valves are incompetent and thickened. The cords and edge of the mitral valve are thickened, and the flaps adherent to one another. The edge of the tricuspid and some of its cords are slightly thickened. There was considerable narrowing of the mitral orifice and a slight degree of tricuspid stenosis. The left auricle is very capacious, and its endocardium is much thickened and puckered in several parts. The septum of the auricles is complete, and the fossa ovalis less distinct than usual. The part of the right auricle near the septum is divided into two by an oblique transverse partition. This partition is of the same structure as the walls of the auricle. Its anterior half is twice as thick as its posterior. It stretches one inch into the auricle; it begins just below the fossa ovalis and stretches from the septum of the auricles near the orifice of the inferior vena cava ending on the posterior wall of the auricle. The valve of the coronary sinus is of the usual form, and may be seen beneath, and quite free from, this projection. In the middle of the free edge of the projection is a thickening one-quarter of an inch long, and the free edge is rounded and slightly thicker than the main part. The origin from the auricular wall is thicker still. He had seen one other example of this variety. It is probably developed in

connection with the Eustachian valve. Another specimen shown by him, with microscopic sections, was Tubercle of the Liver, belonging to a man, aged forty-nine, who died in St. Bartholomew's, under the care of Dr. Andrew, of tubercular pulmonary phthisis with ulceration of the larynx. The liver is studded throughout its substance with numerous whitish growths, most of them of the size of a large pin-head. Microscopic sections show that these are tubercles. Giant cells may be found in most of them. In some the cellular elements are not at all degenerate; in others caseation has taken place; all show a considerable amount of connective tissue. Virchow, Cornil and Ranvier, and Rindfleisch describe tubercle as often found in the liver in the general tuberculosis of children; and Virchow states that it more often occurs in the liver than is generally thought; but cases in which the whole liver is infiltrated at so late an age as forty-nine in phthisis, with cavities in the lungs, are certainly rare in London.—A fourth specimen was the Elbow Joint from a case of Scarlet Fever. The joint shows thickening of the synovial membrane, with roughness in two places and one narrow adhesion. When opened it was full of pus. The terminal joint of the right index-finger and the right elbow were similarly affected. No abscesses were found in the body or head. There was some pericarditis and general peritonitis. There were some minute growths on the mitral valve, and in the lower lobe of the left lung there was a small pneumonic patch. In each kidney was an infarction, broken down so as to form a small abscess. The patient was a girl, aged six years, who died in St. Bartholomew's Hospital, under the care of Dr. Gee. Another child of the family had died of scarlet fever. This one was taken ill on Sept. 28th. On Oct. 10th she had rheumatic symptoms, which rapidly grew worse. On admission, on Oct. 19th, both elbow-joints were found to be much swollen. The temperature was 100° on admission, and twice rose to 104°·9°. The child grew weaker, and died on Oct. 23rd. The case is of interest in its bearing on the question of the pyæmic or non-pyæmic nature of scarlatinal rheumatism. This case, in its anatomical features, was clearly pyæmic.

Dr. Mahomed protested against a case like this of pyæmic inflammation of a joint, after scarlet fever, being regarded as in any way of the same nature, or throwing any light upon scarlatinal rheumatism. These pyæmic cases were very rare, while scarlatinal rheumatism was very common. In their clinical aspects they resembled acute rheumatism and yielded to salicylates; but, as a rule, they were of a milder type than ordinary acute rheumatism. There were some septicæmic cases, but they also were rare, and had no joint troubles; he thought that it was very misleading to represent scarlatinal rheumatism as not amenable to treatment.—Dr. Wilks asked if the pyæmia could be traced to any local cause, such as an abrasion of the throat.—Dr. Moore had examined carefully, but found no local abrasion, he had shown the case from a morbid anatomy point of view, and he had experienced some difficulty in drawing a line at the point where rheumatic affections end and pyæmic symptoms begin.—Dr. Barwell said he had always assumed that absorption of morbid products, analogous to what occurs in gonorrhœal rheumatism, was the cause of the joint inflammation, and had always entertained the idea that scarlatinal rheumatism was not true rheumatism.

Dr. Southey brought the body of a child two and a half years old who had died with Symmetrical Gangrene. She was of healthy parentage, and had been previously quite healthy, except that two or three months ago she had a febrile

attack with some purpuric spots. On Friday, December 1st, she had a pain in the head; on the following morning she seemed quite well again, but in the afternoon complained that she had hurt her leg, but when her father rubbed it she said that it pained her, and he then noticed some lividity over the calf. Soon after she was sick, febrile, and complained of headache; at six p.m. she was worse, and the lividity of the calves had extended both upwards and downwards; in the night the backs of the arms were observed to be affected, and at about six a.m. patches formed upon the buttocks. She was admitted into St. Bartholomew's Hospital at noon of December 3rd, looking moribund; the pulse was rapid and feeble. The tibial arteries could not be felt; the lungs and heart were normal; at six p.m. she had taken some nourishment; she was ordered a warm bath and some nitro-glycerine; the cheeks were beginning to show a slightly livid redness. At seven p.m. convulsions came on and continued until she died at midnight, thirty-two hours after the first symptoms. Renaud had described similar cases, and Dr. Southey had met with two or three others; Dr. Moore had cut up the left femoral and tibial arteries, but no embolus or other obstruction could be found. The theory advanced has been that there is spasm of the arteries, and then migration of blood elements into the skin, for the gangrene was quite superficial.—Dr. Norman Moore said that he had examined the blood microscopically, and that it was whitish comparatively, containing many fat globules, something like the so-called "raspberry-juice blood" found in some cases of diabetes.—Dr. Wilks mentioned a case of this kind in which hæmatinuria was present.—Dr. Southey had also observed intermittent hæmatinuria in a case with symmetrical gangrene of the fingers. In his present case only an ounce of urine could be obtained, and it contained some albumen.

Mr. Eve brought a recent specimen of Cancer of the Oesophagus; leading from it were two fistulous passages into a cavity of the right lung, which, had no definite wall. The patient had suffered from dysphagia for six months, and was in the hospital for only two days before death. Bougies were passed, and gave relief, but no attempt was made to administer food by the mouth. In the same patient an abnormal condition of the colon was found; from the cæcum the ascending colon passed down almost to the pubes, and then curved upwards towards the right kidney. He also showed the calvaria of a man who had died an hour and a half after a blow on the head; the skull was fractured, the fissure extending across the course of the middle meningeal artery, which lay in a very deep groove in the bone; the dura mater beneath this was separated from the bone by a large blood-clot.

Dr. Lees exhibited the Larynx of an infant, aged twelve months, which had, during its whole life, manifested a peculiar noisy respiration. The condition found threw light upon a set of cases of rare occurrence, but of considerable interest. An infant, almost invariably of the female sex, suffers from the moment of its birth from a noisy inspiration, expiration being much less affected or entirely free, and the cry-sound being quite clear. The noise made during inspiration is often loud and harsh; it is of lower pitch than the crow of laryngismus. It continues, though it is not so loud, during sleep and after the administration of chloroform. There is usually some recession above the sternum, and slightly at the base of the thorax; but not much, and generally sufficient air enters the lungs. In some cases exacerbations have been brought on by exposure of the surface to cold (when the chest was stripped), by flatulence, and

other causes; but as a rule the condition is fairly constant. Perfect recovery ordinarily occurs after the lapse of a year or more. In this case the child died of insidious diphtheria. About a month ago a laryngoscopic examination was made, and it was then seen that the epiglottis was folded on itself like a leaf on its mid-rib, the ary-epiglottic folds being thus brought close together, and the superior orifice of the larynx converted into a linear median slit of very small diameter. This condition was found post-mortem to be actually present, the ary-epiglottic folds being almost in contact. Above them, below the centre of the folded epiglottis, was an opening of the size of a pinhole, and between the arytenoids a second opening a little larger. The trachea was lined with diphtheritic membrane. The peculiar breathing thus appears to be due to a congenital abnormality in the epiglottis. This was the fourth case which Dr. Lees had seen. Similar cases have been observed by Dr. Gee and by Dr. Barlow, but they have not yet been published, and Dr. Lees believed that this was the first post-mortem examination which had been obtained, and also the first time that the cause of the obstruction had been ascertained during life.

Dr. Finlay and Mr. Barker were then appointed auditors for the year, and the meeting adjourned.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

The Endemic Hæmaturia of the South-east Coast of Africa.—The Life History of the Liver Fluke.

THE ordinary meeting of this Society was held Nov. 14th, J. Marshall, Esq., F.R.S., President, in the chair. There was an unusually large attendance of Fellows and visitors. The evening was devoted to the interesting subject of parasitic diseases, especially the Bilharzia and Fasciola hepatica. A paper on the former subject, written by the late Dr. Lyle, of Durban, was communicated by Dr. J. Harley; and Drs. Cobbold and Crocker exhibited specimens of the parasite and allied forms. Mr. Thomas related his admirable research into the life history of the liver fluke. He deserves the credit of having conclusively determined the species of mollusc that acts as intermediary host of this parasite, so destructive to our flocks. He exhibited numerous specimens, and his relation of the developmental changes of the fluke was illustrated by diagrams. Other specimens of parasites were exhibited by Professor Ray Lankester, Dr. Bastian, and Dr. S. Mackenzie.

The following is an abstract of the paper on the Endemic Hæmaturia of the South-east Coast of Africa, by the late Dr. Vasy Lyle, of Durban. (Communicated by Dr. John Harley.) The author, in the first place, discusses the physical characters of the infested country, and the extent of the country infested. He states, as an almost completely proven fact, that the Bilharzia infests the whole eastern littoral of Africa, from Egypt to the Cape, and that the entozoon found amongst the people of the Nile valley is identical with that found in South Africa. It appears to inhabit the sluggish parts of rivers and low marshy lands, and to be absent from high lands; the interior plateau of South Africa being free from the disease. The present immunity of Port Elizabeth is attributed to the substitution of rain water stored in tanks for that of wells and pits. Opportunities were obtained of examining the bladder in a case of the disease, and both the male and female parasite. The bladder in one case was healthy near the neck, but crossed thence diagonally to the fundus by

fungous-looking growths, and the mucous membrane over these was granular and ulcerated, and contained embedded ova. One female Bilharzia was dissected out. The author agrees generally with the description given of the parasite, but differs in some minor points. In reference to the symptoms and progress of the disease, the author remarks that no symptoms of the affection have been observed antecedent to the appearance of the hæmaturia, the general course of the disease being that described by Dr. Harley in his communications to the Royal Medical and Chirurgical Society. Illustrative cases are given, and one of them contains the evidence of a Kaffir on the prevalence of the disease amongst the natives.—Dr. Cobbold had brought to the Society specimens of urine from five out of seven cases that had been lately under his care. One of these, which a year ago was loaded with blood, was now quite clear, but still contained ova, and the ciliated embryos hatched from them were shown under the microscope. He also exhibited specimens of the adult Bilharzia sent him by Professor Leuckart and Sir J. Fayrer, as well as specimens of the parasite from oxen and sheep, differing from the human varieties in the spindle shape of the ova. After referring to the discovery of the parasite by Bilharz in 1851, and his own discovery of it in a monkey in 1857, the speaker said that its clinical bearings and geographical distribution were dealt with by Dr. J. Harley in his paper read before the Society in 1864. The parasite had since been found in India as well as in Natal. Although from analogy it was thought to have its intermediate host in molluscs, the variety of mollusc had not been found—probably not a British form. He described the three modes of dealing with the disease as the “heroic,” the “do-nothing,” and the “rational” plans of treatment. Of the first Dr. Allen had lately given an example, advocating injection into the bladder of saturated alcoholic solution of santonin. This produced severe cystitis, and the fact quoted in support of its efficacy, that the patients did not return for further treatment, was capable of an opposite inference to that given by Dr. Allen. The second plan was based on the idea that patients will outgrow the affection. But Dr. Cobbold had under his care in 1870 a girl who was passing an enormous quantity of the ova, and is now strong and well. The treatment then adopted was tonic and nutritious, which succeeded, he believed, in saving her life. He therefore recommended treatment to support the system—quinine and iron, ample food, etc. Buchu was useful, and in bad cases it might be well to try such parasitocides as perchloride of mercury, given internally.—Dr. Crocker referred briefly to the case from which the embryos and ova of Bilharzia that he exhibited were taken. In that case the hæmaturia, which had been profuse, was now almost absent; but ova were still being found. The nature of the disease was detected by examining the clot microscopically.

Dr. J. Harley believed that the parasite gained ingress into the bladder through the urethra while bathing. It is not common in females, but almost every lad in infested districts suffers from it, and it was a practice with the natives to tie a tape round the penis to prevent its entrance. Although in Cairo the disease seemed to be taken by drinking water, in Natal, the view he held seemed more likely, especially as the parasite was located in the pelvic organs. He had early advocated treatment by injections into the bladder, and had used iodide of potassium and oil of male fern for this purpose. Dr. Harley referred to a case so treated with success. As to the apparent disappearance of the disease, mentioned by Dr. Vasy Lyle, Dr. Harley cited an instance of two young men from Port

Elizabeth, who were said to have had the disease in boyhood, and were supposed to be free from it when seen by him (Dr. Harley). But he found ova in the urine of each, and had later to attend them for attacks of renal colic and oxalic calculi. Dr. Harley concluded by referring to the author of the paper, who was a type of the honest scientific worker, and who seems to have been the only medical man in South Africa who had devoted such labor and patience to the investigation of this disease.

At the invitation of the President, Mr. A. P. Thomas, M.A. (of Oxford), then described his researches into the Life History of the Liver Fluke, researches which had been undertaken at the request of the late Professor Rolleston on behalf of the Royal Agricultural Society. After mentioning the ravages made by the liver fluke (as many as 3,000,000 sheep being lost by it in this country in the year 1879–80) and referring to the fact that hitherto the search after the particular mollusc supposed to harbor its larval form had been futile, Mr. Thomas described his plan of work. He thoroughly searched meadows for every species of mollusc likely to be an intermediary host, dissecting them without success, until at length he succeeded in finding in the small *Limnæus trunculatus*, a cylindrical worm or *Reedia* containing cercariae. The cercaria is of tadpole shape, and has the peculiar habit of encysting itself directly it is brought into contact with any solid object, the material for encystation being exuded from some lateral masses in the body of the larva. For some time the inquiry was arrested because of his inability to find any more specimens of the *Limnæus trunculatus*, even where they had abounded in the previous year. In last July, after floods, however, he found an ample supply in the flooded meadows. The snail in question is more truly amphibious than a water snail, is very small—about a quarter of an inch long—and wandering along the damp roots of grass, its presence may readily be overlooked. He now proceeded with infection experiments, and succeeded in proving that this mollusc was the sole intermediary host of the common fluke. At the same time he was enabled to study fully the metamorphosis of the latter. The liver fluke is very prolific, but so long as the ova remain in the liver they undergo no further change. In artificially hatching them, the embryo is seen to leave the egg by the sudden giving way of the operculum; and once in water the cilia with which the body of the embryo is covered came into action. The free swimming embryo has a spindle shape and is provided with a double eye spot (two masses of pigment), and is very sensitive to light. If the embryo comes in contact with a *Limnæus trunculatus* it begins to bore into its shell, the head papilla becomes elongated and sharp, and by a sudden movement the boring is effected, and the body of the embryo passes into the snail. As soon as it gets into the snail the body contracts, its outer layer is cast off, and it degenerates into a sporocyst. By proliferation of cells lining the body cavity and of cells in the body walls, masses of germinal cells are formed from which the cercaria is developed. The sporocyst usually develops in the pulmonary cavities of the snail and the parasite gets into the liver, feeding on the liver cells. The cercaria is formed by the rounded germ-masses becoming elongated, one end being pinched off to form a tail. When the cercaria has escaped and become encysted, it remains quiescent until swallowed by the sheep; when the cyst being dissolved the embryo fluke finds its way into the liver ducts of the sheep. Mr. Thomas concluded his statement by pointing out that the real preventive of the disease is salt, a small

quantity of which will not only kill the larvæ of the fluke, but the *Limnæus* also. The salt should be scattered over all land where the snail is believed to be present. It had also been found useful to feed sheep on salt, and this had been long a practice among farmers who had found it valuable in preventing sheep rot, but who had not thoroughly carried it out. Many other animals, including man, were liable to be infested by flukes, and in the case of man the parasite might be introduced through watercress.—Dr. Cobbold said that he exhibited specimens of flukes from the elephant, giraffe, etc., and that even whales, porpoises, and dolphins were liable to such parasites. He thanked Mr. Thomas for having conclusively proved the *Limnæus trunculatus* to be the intermediary host of the common fluke; and remarked that, curiously, a year ago he had believed that Leuckart had made the same discovery. But he had since heard that Leuckart thought it was another species of *Limnæus*, so that Mr. Thomas had succeeded in a search which the great German helminthologist had been so long pursuing.—Dr. J. Harley mentioned the case of a laborer who died from this disease, twenty-six flukes being found in the hepatic ducts, and the symptoms being most obscure. It was ascertained that his diet had consisted chiefly of bread and cheese, often accompanied by watercress.—Dr. MacLagan mentioned that a gentleman in Dorsetshire had told him that in 1879-80 he had lost none of his sheep from this disease, whilst all round there was great mortality. His immunity was attributable to his flocks being fed with salt.—The President thanked Mr. Thomas for his lucid exposition, and pointed out the great importance of the study of diseases of animals as throwing light on those of man, and of the importance of prevention in such diseases. It was a reproach that our troops should be exposed to such disorders, when the means of prevention were not far to seek.

Spontaneous Postures of the Hand considered as Indications of the Condition of the Brain.—Seventeen Cases of Epilepsy treated with Sodium Nitrite.

The ordinary meeting of this Society was held on Nov. 28th, J. Marshall, Esq., F.R.S., President, in the chair. In addition to the two papers read and discussed, several specimens illustrative of diseased conditions of the skull, the brain, and its membranes, collected from various hospital museums, were exhibited, as well as an excellent series of photographs from Professor Ziemssen's collection, showing the effect of isolated stimulation of the various facial muscles.

The first paper, entitled "Spontaneous Postures of the Hand considered as Indications of the Condition of the Brain" was communicated by Dr. Francis Warner. A posture is the relative position of the several members of the body with regard to one another, and the relative position of the individual parts of a member. Every posture is due to a balance of the muscles produced by some portion of the central nerve-mechanism. A weak child spontaneously holds out his hands in the "nervous posture." The limb is now free or disengaged; its posture is the spontaneous outcome of the action of the nerve centres. The wrist is slightly flexed, the metacarpophalangeal joints are extended backwards, the internodes being either flexed or straight. This posture is often seen in nervous children; it is usually bilateral. Explanation may be sought after Darwin's method—i.e., observe what advantage attends the posture. The following method appears preferable:—Analysis and analogy show a wrist drooped as in weakness, and the knuckle-joints extended as in conditions

of excitability. This posture is sometimes found in spastic contraction. The "energetic hand" may also be a permanent posture resulting from brain disease. The wrist is extended; the small joints are all flexed. This posture is the antithesis of the "nervous hand." The following axiom is assumed:—"If we see some spontaneous nerve-muscular action often repeated in the same and in different subjects, it may be assumed that there is some nerve mechanism corresponding which can act independently." In any particular case the existence of a special centre is strengthened if we can see its action when excited, and again when it is weak. In analyzing postures the following "principles" appear useful:—1. The contrast of small parts with large parts. 2. Inter-differentiation—i.e., the relative condition of the large and small joints. 3. Collateral differentiation—i.e., the relative condition of collateral joints. 4. Symmetry or asymmetry in a posture. 5. Excitation of weak centres. 6. General excitement or general weakness; in this case the stronger muscles produce the posture. 7. Antithesis—i.e., the principle that opposite postures may indicate antithetical states of the corresponding nerve-mechanism. 8. Anatomical analysis and description. 9. Analogy between postures. The following suggestions are offered as to determining whether a posture is the outcome of the spontaneous action of the nerve centres: The part must be free or disengaged. Look for analogous postures in brain disease. Look for analogous postures in infants, also in ancient art. Apply the "principles" above given to the case in question. Errors may be made by attributing all postures to the central nerve mechanism. Postures may be due to joint disease, local changes, and organic conditions—e.g., cardiac orthopnea, the effects of gravity, muscular rigidity, and local injury to nerve. Appendix: A table applying the principles of analysis to eight postures—viz., the nervous hand, the energetic hand, the hand in rest, the straight extended hand, the straight extended hand with thumb drooped, the convulsive hand, the hand in fright, the feeble hand. The paper was illustrated by a large collection of drawings and casts.—The President pointed out the difficulties that beset so apparently simple a subject, for so many factors were operative in these postures. The author deserved great credit for his painstaking inquiry and analysis of this complex matter.—Dr. Hughlings Jackson also spoke highly of the author's work, which he characterized as opening up a new subject in practical medicine. Dr. Warner had dealt with one of the most specialized parts, the hand, and it is the rule in all cerebral affections that the more specialized parts suffer in a greater degree than those whose functions are more general. As an instance of the latter, he mentioned the respiratory apparatus, where the same movements are being repeated continuously throughout life. But in the hand we have not only a part which can exhibit a vast variety of movements, but one which has a large number of small muscles carrying little weight; and the more intellectual the actions the slighter are the movements—e.g., the actions of the hand in writing, painting, and drawing, actions which might be contrasted with those of such a muscle as the deltoid, moving the whole limb to bear heavy weights. In a general sense in nervous disease the parts first affected are those of small muscles and small movement. In most cases of epilepsy the fit begins in such parts, so in chorea; so also in the commonest form of progressive muscular atrophy these muscles are the first to suffer. The tremor of paralysis agitans begins in the small muscles. Dr. Warner's work could be more generalized, to include attitudes in

disease, as that of paralysis agitans, which is the reverse of the attitude in cerebellar disease; or it may be applied to the face as in the loss of expression seen in double facial paralysis, which gives a sullen look to the patient; in paralysis agitans, where the face is fixed there is a puritanical or aged look. The paper was an inspiring one, and Dr. Jackson regretted that, having no special knowledge on the precise subject, he was unable to discuss it.—Dr. Warner explained that his object was rather to open up the subject of postures than to give many details, and he had therefore limited the remarks in his paper to two only of the natural postures of the hand. In the Appendix he had applied the same principles to the analysis of eight other postures without exhausting the list. For this study to be clinically useful it was necessary to take special types, from which many variations might arise; and he had taken as types such postures of the hand as had been recorded in works of art for centuries, and which were probably referable to particular conditions of the brain. Tronseau describes the hand in tetany, the fingers flexed over the thumb, and the arching of the metacarpus from its adduction. This arching of the metacarpus is an abnormal condition; another is the drooping of the thumb, which Dr. Warner believed to be the first departure from the normal in the weak hand. The face was even more specialized than the hand as regards its muscularity and movements, and the same principles of analysis might be applied to their study.

A paper was then read on Seventeen Cases of Epilepsy treated with Sodium Nitrite, by Dr. Charles Henry Ralfe. The author, in the first place, claims the credit of first introducing this drug for the treatment of epilepsy to Dr. Law, of Hastings, who was the first to administer it, and who has fully described the theoretical reasons which led him to employ it, together with an account of its physiological action in the *Practitioner* for June, 1882. Sodium nitrite in its action resembles nitrite of amyl and nitro-glycerine. It has one advantage over these remedies for the treatment of epilepsy; its effects are produced more slowly and are more permanent in character. The dose, the author's, should just fall short of producing full physiological effect. He advises that care should be taken to ascertain the purity of the drug, as many samples contain an admixture of sodium nitrate. The details of seventeen cases treated by the author in the out-patient department of the London Hospital is then given. Of these seventeen cases, three received no benefit, four improved slightly, one was a doubtful case, whilst nine benefited decidedly. Of all the cases, eight previous to treatment with sodium nitrite had been treated with bromide of potassium. Of these, three (Cases 1, 2, 3) had improved under its use, and went back when the medicine was changed to sodium nitrite. Of the other five, the bromide treatment was inefficacious from the first in three cases; and in two, though it had done good for some time, was losing its effect, and the patients were suffering from bromism. In four of these cases (9, 13, 14, 15) decided improvement followed the change to sodium nitrite, and the other (Case 7) improved to a lesser degree under its use. Nine of the patients commenced treatment directly with sodium nitrite. Of these, the disease in four was of long standing, and probably the patients had already been subjected to a course of bromide at other hospitals. Of these, two improved under sodium nitrite, and two received decided benefit. The remaining five cases were all tolerably recent ones. Of these, three received decided benefit, one slightly improved, and one was a doubtful case. Among the cases that received decided ben-

efit, the longest exemption from any kind of epileptiform seizure was in Case 17, who went eleven weeks without an attack, four weeks whilst under treatment, and seven weeks after leaving off the medicine. Case 14 went eight weeks without an attack, and had no relapse at the time he was last seen; he is still an out-patient and taking the medicine. Previous to commencing treatment he had on an average three fits a fortnight, and they were increasing. Case 16 remained free for a period of four weeks, and had had no recurrence when he gave up his out-patient letter. Case 9, who had a fit on an average every week, after taking the medicine was free for five weeks. The same result obtained with Case 15, who was free for one month. The author draws the following conclusions from these results:—1. That those cases in which bromide of potassium is of marked service are not generally suitable for a trial of sodium nitrite. 2. That those cases in which bromide of potassium does not agree well from the first will probably be found to improve under sodium nitrite. 3. That to patients who have taken bromide some time, and on whom the drug is apparently losing its effect, or who are suffering from bromism, sodium nitrite is useful as a change medicine. 4. That there is a class of cases, consisting chiefly of minor seizures or convulsive attacks, such as often occur in young persons, usually at night, in which sodium nitrite is especially beneficial.—The President, in inviting discussion, said that in epilepsy so many factors were at work, and the nature of epilepsy was so obscure, that it was difficult to explain the mode of action of drugs upon the disease; but the introduction of drugs was often based upon physiological grounds. Of course many cases of organic disease producing epilepsy were outside the category of remediable cases. He directed attention to a series of preparations collected from the museums of Guy's, University College, and St. George's Hospitals, illustrative of diseases of the cranium and brain producing epilepsy, and expressed the indebtedness of the Society to those gentlemen who had furnished the specimens for exhibition.—Dr. Law had but little to add to what he had written in the *Practitioner*. He had employed nitrite of sodium in a case upon the theoretical ground that cerebral anæmia was one of the factors in producing the fits; and had used the salt in preference to such compounds as nitrite of amyl and nitro-glycerine because of its great stability. Dr. Richardson in 1865 pointed out the similarity of physiological action of the nitrites of amyl, ethyl, etc., and was inclined to attribute their action to the nitrogen they contained.—Dr. Gowers, after reading Dr. Law's paper, had given nitrite of sodium to many patients—about twelve in all, and in only one did it appear to do any good. Some of them were patients who had taken bromide for some time without effect; others were cases treated by other drugs. In every case the fits continued, in one or two with temporary cessation which in one case lasted for six weeks, and then the fits returned in spite of an increase of the dose. And very often the fits cease for a time under any drug that has a considerable action on the system. Even if the theory of the action of the nitrite were correct, and its efficacy proved, he did not think that would establish the fact of cerebral anæmia in epilepsy, for flooding the brain with arterial blood would conceivably act beneficially on the nerve tissue without assuming a prior anæmia. Nitrite of amyl will check the spasm of tetanus. H. C. Wood, of Philadelphia, holds it to be more rapid in its action than chloroform in this disease, but no one has ventured to suggest the occurrence of anæmia of the spinal cord as the grounds for its use; the condition in

tetanus is rather one of hyperæmia. Dr. Gowers had also given nitro-glycerine in epilepsy both before and since Dr. Hammond's advocacy of it, but had not found it to have the slightest influence. The dose of nitrite of sodium he had given was ten grains increased to twenty; in one or two cases it had been continued for a period of five months.

Dr. Ramskill mentioned the case of a girl five years old who was treated with the nitrite, which was discontinued owing to the great increase in the number of the fits; bromide was then given with good effect. He had also had several similar cases; but he wished particularly to state his belief that the drug was not without dangerous effect, and referred to three cases in which alarming symptoms were produced by it. Dr. Ralfe's cases were probably chronic ones—e. g., cases of commencing sclerosis, where such treatment might do good; but he did not think it of value in idiopathic epilepsy. He agreed with Dr. Gowers as to any remedy having the effect of temporarily postponing fits, and also that rest alone or change in surroundings will do the same.—Dr. Coxwell gave brief details of three cases in which the nitrite of sodium treatment was compared with valerianate of zinc and bromide of potassium, and in each case fits recurred more frequently under the nitrite.—Dr. Hughlings Jackson considered Dr. Ralfe's facts too few, and the period of observation too brief, to draw favorable conclusions as to the efficacy of the remedy. He trusted he would pursue his investigations, as any new remedy which can be shown to be a little better than those at present used in epilepsy would be a gain. He would have liked more details as to the age of the patients, and the nature and duration of the attacks. For his own part, he laid great stress upon diet, and was especially careful in restricting nitrogenous food, a fact long ago insisted on by Heberden, and by other physicians, as Tronseau, James Jackson of the United States, Ireland, and West. So far as things go, bromide of potassium was the best; and although Dr. Ringer had demonstrated that potash salts were more depressant than soda salts, yet this was itself an advantage in epilepsy, where it was, above all things, desirable to bring the patient to a "low level." Tonics, as iron, and full diet, were bad. Adverting to the subject of "arresting" a fit, Dr. Jackson expressed his opinion that in the case of epileptiform seizures it was not a good practice to stop the fit—(e. g., by ligature) altogether at its outset, although it might be well to limit it to the limb. The effect of this is to leave the limb more paralyzed, but it prevents the fit becoming general, with the resulting loss of consciousness and general powerlessness.—Dr. D. Drewitt drew attention to the method, adopted with good results at the Children's Hospital, of the application of a silk seton in the nape of the neck.—Dr. Broadbent thought the cases too few and inconclusive to base any precise view of the action of the drug. He was not previously aware that the nitrite of sodium had analogous physiological action to nitro-glycerine; and would rather have thought that the nitrite would take up oxygen and be converted into a nitrate in the economy. He had met with two opposite conditions of the circulation in epilepsy—one of extremely low arterial tension and one of high tension—such vascular condition being probably a consequence and not the cause of the change in the nerve centres. Possibly the nitrite was of advantage in those cases where the arterial tension is low.—Dr. Wilks had not tried the remedy, but agreed with Drs. Gowers and Jackson that any number of remedies will arrest epilepsy, at least for a time. Very slight influences will produce a fit, and very slight influences will arrest it, so that

the results are not always to be attributed to the drug that may be given. He instanced a case where a toothache or gum boil arrested the fits, another where no fits occurred during an attack of erysipelas, and had several cases where epileptics had no fits whilst suffering from fevers. In one case of a young lady, who had most severe fits, an attack of small-pox cured her epilepsy without return. He was, therefore, very sceptical as to new remedies in epilepsy, and confirmed Dr. Ramskill's remark upon the influence of rest in hospital in temporarily averting fits. He had often employed setons, and he mentioned one case of a gentleman who had to give up a Government appointment on account of epilepsy, but who had since been free from attacks for eighteen months by wearing a seton.—Dr. Buzzard asked for information as to the dose, etc., of the bromide in those cases mentioned by the author where that drug had not been efficacious. The susceptibility to bromide varied with the individual; some cases of great severity were controlled by small doses; in other cases the drug had to be pushed to bromism before any effects were produced.—Dr. Ralfe, in reply, said that the paper was based on some rough clinical experiments which he had made on hearing from Dr. Law about his case. They were not all chronic cases, most of them being in children. He thought his results had been estimated too highly; for it must be remembered that in only nine out of the seventeen cases did the drug succeed in controlling the fits. To those who had been long taking bromide without benefit the bromide had been given in various doses. He thought a good deal depended upon the purity of the nitrite and the strength of the dose. He had found large doses to have no effect, and it was only after gradually trying smaller doses that he at length arrived at a dose of about twelve grains as the most suitable. Since the paper was written he had on one day prescribed the nitrite to three patients, two being cases of epilepsy, and one of asthma. All of these patients returned to the hospital suffering from the toxic effects with cyanotic symptoms. The sample of nitrite given to these patients was different from that previously described, and it had been set aside for analysis. It showed, however, that samples of the salt vary, and also that it was important to ascertain the physiological dose of each individual. He had also found marked differences as to their efficacy in epilepsy in two other samples, and suggested that possibly the negative results obtained by Drs. Gowers and Ramskill might depend on such differences.

The President directed attention to a series of photographs lent by Dr. Ziemssen, of Munich, showing the effect of stimulating the facial muscles separately, and interesting as an analysis of facial expression.

Resection of Portions of Intestine.

The ordinary meeting of this Society was held Dec. 12th, Professor Marshall, F.R.S., President, in the chair. The paper of the evening, by Mr. Treves, of the London Hospital, was a careful and clear exposition of the subject of resection of the intestine, and its reading was followed by a debate that was prolonged beyond the usual hour of adjournment. Several pathological preparations in illustration of the subject were exhibited from St. Thomas's Hospital and University College, and a large collection of the instruments employed in abdominal operations were also shown by Mr. Lund and Mr. Meredith.

The following is an abstract of the paper on *Resection of Portions of Intestine*, by Mr. Frederick Treves, F.R.C.S. Portions of gut have been

excised for various diseased conditions from all parts of the tube, from the pylorus to the rectum. Among the illustrative cases given of the various operations is Koberlé's, who excised two metres of the small intestine for multiple stricture with perfect success. In properly selected cases, resection would appear to be indicated in some forms of intussusception when all other means have failed, and when on opening the abdomen, the invagination is found to be irreducible; in gangrene of gut after strangulated herniæ, in gangrene after some forms of internal strangulation, in non-malignant strictures of the small and large intestine, and in malignant strictures that are yet local. Other things being equal, the mortality after resection would appear to depend more upon faults in the details of the operation than upon any other single cause. There are two procedures: in one an artificial anus is established after resection; in the other, the two ends of the divided gut are united by sutures, and the mass returned into the abdomen. The former method has been the more successful. There are many objections, however, to an artificial anus, especially of the small intestine, and there appears to be no reason why the latter method should not prove the less fatal if the technical defects of the procedure be remedied. The operation of uniting the bowel after resection presents these difficulties. It is not easy to maintain the two ends of the gut in accurate apposition while the sutures are being introduced. The sutures are apt to be irregular. The gut above the obstruction is usually much dilated, while that below is shrunken, and it has been found almost impossible to unite well these unequal parts. One of the most common causes of death, therefore, after the operation is due to escape of intestinal contents at the suture line. There is no reason, however, why the escape should not be as surely prevented as it is in cases of pyloric resection. "To meet some of the difficulties of the operation I have ventured to introduce the following appliance:—The gut above the part to be resected is secured by a special clamp lined with indiarubber, to avoid undue compression of the bowel. The gut below is secured in like manner, and the obstructed or gangrenous part is excised. The corresponding ends of the two clamps are then united by transverse bars, so that they form with the clamps a rigid square frame. By means of this frame the two divided ends can be very accurately approximated, and can be firmly retained in position while the sutures are being applied. As it is difficult to apply sutures to collapsed gut a sausage-shaped india-rubber bag about three inches long is used, that can be distended to four or five times its natural size through a small tube inserted in the centre of its long axis. This bag is sufficiently distended to make it firm, and one end is introduced into upper segment of the divided gut, while the other is introduced into the lower segment. The tube through which the bag is dilated thus occupies the suture line. After being introduced the bag is dilated to a good size. By this means a firm plug is introduced into the gut so as to form a substantial basis over which to apply the sutures. Moreover, by increasing the degree of distension of the bag, all inequalities in calibre between the two segments of the bowel can be overcome. Before the last sutures are applied the bag is emptied of air and is withdrawn, it being capable in its shrunken state of being drawn through a hole of the dimensions of a No. 12 catheter. If the sutures are properly applied—i.e., if the mucus membrane be not included in the stitch—there should be no danger of wounding the bag. At least fifteen or twenty sutures should be used. By means of this appli-

ance it is possible to excise portions of the colon through an incision in the middle line." In cases of stricture of the colon it is often impossible to diagnose the exact seat of the obstruction, and under such circumstances the abdomen has been several times opened in the middle line, and, the obstruction having been found, a second operation has been performed in one or other loin. Resection of the gut from the loin presents many difficulties, and can scarcely be performed without establishing an artificial anus. If colectomy were always performed through the middle line, it would, in cases of doubtful diagnosis at least, render one operation only necessary. The greatest fatality has been found in those cases of resection of the colon where the abdomen was first opened in the middle line, and the gut subsequently removed from the loin through another incision. The author lately resected some two inches of gut from the middle of the descending colon for epitheliomatous stricture through an incision in the middle line. The divided ends of the bowel were united by means of the appliance described, and the gut returned into the abdomen. The man had had symptoms of obstruction for some months, and was in *extremis* when the operation was performed. He died in twelve hours. At the post-mortem the gut at the suture line was found fully distended with fluid fecal matter, yet not the least trace of that matter had escaped from the intestine. The case serves to demonstrate that portions of the colon can be resected through the middle line, and that the gut may be so united as to prevent all escape of contents.

The President, in inviting discussion upon the paper, drew attention to a series of preparations on the table of various morbid conditions of the intestines from the museums of St. Thomas's Hospital and University College; and also to a large selection of instruments used in abdominal operations, exhibited by Mr. W. A. Meredith, of London, and Mr. Lund, of Manchester.—Mr. Bryant, in congratulating Mr. Treves upon his case and contribution to the subject, proposed, in the first place, to offer a little friendly criticism upon it. He regretted that Mr. Treves in dealing with the case had not performed lumbar colectomy, for the case was one of chronic obstruction, and clinically the probabilities were in favor of the disease being in the descending colon, so that if the lumbar incision had been made he would have come upon it and readily removed it. Of the two procedures, abdominal and lumbar, the latter was to be preferred as an exploratory operation, and even for colectomy, for at least six inches of the colon can be readily dealt with through the lumbar incision—i.e., if the bowel be not over-distended, as it was not in Mr. Treves' case. He praised the instrument invented by Mr. Treves as an admirable device; but it must not be forgotten that in cases of intussusception or internal hernia great lengths of bowel have to be dealt with, whilst the distended and inflamed condition of the bowel above the obstruction would be very difficult to unite with the distal collapsed segment. In cases of stricture, unless the diagnosis can be made very early—i.e., before there is obstruction—the same difficulty in uniting the two segments would be met with. In Mr. Treves case the cæcum (as is usually the case) was more distended than the colon immediately above the stricture, and this being so the clamp could be applied more readily. He also urged that in most cases of internal strangulation the inflamed condition of the gut would render it far more liable for stricture to ultimately follow upon its successful suture from contraction of the wound, just as stricture ensues in those cases of intussusception where the invaginated segment separates

by sloughing. It was for this reason that in his own case of colectomy he (Mr. Bryant) preferred making an artificial anus to attempting to suture the severed ends, of the bowel; although he admitted that Billroth's experience of pylorus resection showed that in cases of limited annular stricture such suture might be safe. Again, how would the mesentery be dealt with when a large piece of small intestine had to be excised? Although not prepared at present to adopt the measure, he trusted that his objections might be overcome and his opinion changed. Mr. Bryant added, that in the three cases (including Mr. Marshall's) where abdominal section had been first done and then lumbar colectomy, he had felt that a better result might have followed had the lumbar operation been chosen for exploration in the first instance.—Mr. Barker pointed out that wounds under aseptic conditions showed no tendency to contract, union taking place by first intention. That was true of wounds in the skin and serous membranes, and was quite as applicable to the intestine. Nor did he think many cases of intussusception when separation took place with recovery were followed by stricture; and he referred to one case where Dr. Peacock said that no symptom of obstruction followed, although the patient survived the intussusception many years. Nor does stricture occur after attacks of typhilitis and ileus. He did not think then Mr. Bryant's inference justified.—Mr. Howard Marsh alluded to the continued advances in abdominal surgery, and pointed out that in Mr. Treves' case interference came, as in so many cases, too late. The patient was so exhausted that colotomy even might have been fatal. He looked forward to the time when an early recognition of these cases would lead to very different results. But no surgeon hesitates to operate on strangulated hernia because it is too late to afford relief; and such a contingency must often occur. The case of cancerous stricture of the colon in which he (Mr. Marsh) had performed abdominal section, was that of a woman, aged forty, who was suddenly taken with intestinal obstruction when at work. An accurate diagnosis was impossible, and looking to the age of the patient alone colotomy might have been preferred. The case proved to be annular stricture of the sigmoid, and he made an artificial anus in the gut above it. Mr. Marsh then narrated cases which had recently come before him, to show how little reliance could be placed on the numerical method for diagnosing the site of a stricture in a subject beyond middle age. (1) A man, aged fifty, suddenly seized with symptoms of obstruction whilst walking in the street. Colotomy performed without relief. Post-mortem: abscess in connection with appendix vermiformis, which had burst into the peritoneal cavity. (2) Obstruction in an elderly lunatic, presumed to be in sigmoid; no operation. Post-mortem: two gall-stones impacted at ileo-cæcal valve. (3) Case with history of increasing constipation; from age of patient stricture thought to be in colon, but as its precise seat was uncertain right colotomy was done. There proved to be ulceration of the lower six inches of the ileum. Such cases showed that the numerical method might be carried too far in diagnosing the seat of a stricture in the large bowel; and, further, they demonstrated the advantage of the median incision over a colotomy which is done without certain knowledge of the position of disease. The difficulties raised by Mr. Bryant might not prove to be well grounded, and he thought that eventually the abdominal operation would come to be preferred.—Mr. Harrison Cripps said that although Mr. Treves had demonstrated its possibility, he would have to show a fair pro-

bability of success in the operation before it could be generally adopted; and in the case he related death occurred before the separation of the sutures, or inflammatory softening might have led to faecal extravasation. He himself had practiced excision of the rectum in cases of cylindrical epithelioma, in which disease it is right not only to relieve the obstruction but to remove the diseased mass, which can be done without fear of recurrence. He would prefer making an artificial anus after resection of the bowel to the attempt at suturing the divided ends on account of the risk of the latter, with the possibility of subsequent stricture. Stricture follows removal of the lower end of the bowel, and can only be obviated by the continued use of bougies—a measure, of course, inapplicable to the intestine within the abdomen. In Mr. Marsh's case an artificial anus was made, but it would have been better still had the diseased part been excised.—Mr. Macnamara observed that abdominal surgery was undergoing a great change, and now that we know abdominal section can be done without much risk, operations on the intestines will be more frequent. Sutures of wounded intestine did well; he had three cases in which recovery took place, and no stricture followed; this being so, he thought Mr. Treves was right in saying that success mainly depended on the manner in which the details of the operation were done; faecal extravasation need not be feared if care be taken. Nor did he agree with Mr. Bryant as to the frequency of secondary strictures; for if so, how could the immunity from stricture after dysentery, where large sloughs separate, be explained? Apart from this, be believed with Mr. Barker that the operation of suture could be done with very little risk of subsequent inflammation. After hearing the paper and seeing Mr. Treves' instrument, he should be inclined to adopt his suggestion.

The President said that as regards this operation of resection of the bowel, they were on the verge of improvements, and that Mr. Treves' contribution was valuable as an effort to advance the subject. He thought with Mr. Bryant that there would be considerable difficulty sometimes in getting the dilated bowel into apposition with the collapsed portion, a difficulty which he feared would not be wholly met by Mr. Treves' instrument, for he could not see how the dilated gut could be made to contract. It was just possible in future that electricity might be called in to cause such contraction of the upper segment and dilatation of the lower, so as to approximate the calibre of the two portions. In his own cases he was perfectly sure that no instrument could have made them equal. Mr. Treves' clamp was a great improvement on Martigny's, which did not bring the divided ends together. He agreed with Mr. Treves as to the use of a large number of stitches, and suggested that the puckering following the union of the two unequal-sized ends of bowel might be met by putting the sutures in each end at unequal distances apart. Although the formation of an artificial anus was simpler and safer, they must not be content with that, but seek a better method, nor be deterred by some failures; and there was sufficient to encourage these endeavors. He agreed with Mr. Barker as to the slight fear of stricture following on suture, especially as contraction is due to granulations. He was still of opinion that in a case of chronic obstruction (and Mr. Marsh's cases were acute ones) the lumbar operation was preferable; but this was only his view, and he might come to prefer the median incision. In his own cases he failed to withdraw the diseased bowel through the median incision; it was at the lower part of the colon, and he did not think of dividing the peritoneum.—Mr. Treves, in reply, said that

the case he had related was an obscure one, there being no symptoms pointing to obstruction of the descending colon; and it was under the impression that the disease was in the ileum that he opened the abdomen. Had he felt sure of its actual seat he would have done the lumbar operation. In reply to Mr. Bryant's objections, he referred to Koeberlé's case, where two metres of intestine were successfully removed, the mesentery requiring only twenty-four ligatures. The dilating bag, which he had used in his own case, considerably aided in distending the collapsed bowel to the size of the distended part. Again, the most successful cases of resection had been cases of gangrene after strangulated hernia, for which Kocher had six successes out of eight operations. Subsequent stricture was very rare in intussusception. Leichtenstein, who collected upwards of 900 cases, says that fatal stricture followed in only 3 to 4 per cent. of the cases of spontaneous separation of the invaginated bowels. He agreed with Mr. Marsh's remarks about too great reliance being placed on statistics; and it must be remembered that in many cases of chronic obstruction the onset of symptoms is often acute. The risk of extravasation could not be so great in the case of the intestine as in that of the pylorus, when it had been quite prevented. In cases of great disparity in calibre between the two portions it would be well to make an oblique section of the lesser segment, as in the pylorus operations. Lastly, in strictures of the small intestine no treatment was available except that afforded by resection.

CLINICAL SOCIETY OF LONDON.

Hysterectomy.—Spina Bifida.—Diastasis of Clavicle.— Local Treatment of Diphtheria.

THE ordinary meeting of this Society was held on Friday, Nov. 10th, Mr. J. Lister, President, in the chair. For the first time, in accordance with the new regulations, card specimens were shown. The President announced that he had heard from Prof. Pantaleone, of Rome, expressing his gratification at the honorary membership of the Society recently conferred upon him. Mr. Clutton's cases of spina bifida excited a good deal of discussion, at the close of which the President nominated Messrs. Clutton, Pearce Gould, Howard Marsh, and Parker as a committee to inquire into and report to the Society upon the results of Dr. Morton's treatment of this deformity.

Mr. Golding Bird narrated a case of Removal of a Fibroid Tumour, with Extirpation of the Uterus, that had ended fatally. The patient was thirty-seven years of age, and had had the tumour for three years. Its increasing size, the pain and weight accompanying it, and the repeated and prolonged attacks of nausea occasioned by it, compelled her to seek surgical relief. The tumour—the size of the uterus at six months—grew from the anterior wall of the cervix, and lay between this and the bladder, with the latter of which it was intimately connected. The uterus itself was all but drawn out of the pelvis, and the two ovaries, both cystic, could be felt through the abdominal parietes, and prior to the operation were thought to be bosses on the tumour. The operation was fully described, and special mention was made of the use of an apron of green carbolized protective well tucked in over the intestines when the abdomen was opened, whereby they were easily kept out of the way and sheltered from the spray. The tumour had its peritoneal investment circumferentially divided where it was reflected

on to the pelvic walls or viscera, and it was then shelled out from its bed, the broad ligaments being previously divided. The union with the uterus was intimate, and had to be severed, while the connection of the fibres of the tumour with those of the bladder rendered the operation very difficult. All bleeding was stopped with carbolized silk ligatures, and the peritoneum, where divided between the rectum and bladder, was united with a continuous suture at the completion of the operation. The uterus and ovaries were removed after the tumour, a pedicle being formed out of the cervix uteri; it was tied in four parts, as in Erichsen's method of tying *nævi*. Before the closure of the peritoneum a rent in the bladder had to be carefully sewn up; a catheter was tied in. The general conduct of the case was like that of ovariectomy. For forty eight hours all went well, and then severe vomiting set in, which eventually exhausted the patient, and caused her death on the fourth day. The post-mortem showed repair to have been perfect as far as it had gone; there was no evidence of the urine having passed beyond the limits of the bladder. There was no suppuration, and only slight pelvic peritonitis. There did not seem to be enough to account for the vomiting, and the author explained this symptom as depending upon some idiosyncrasy of the patient, inasmuch as when she had typhoid fever ten years before, vomiting severe enough to threaten life was then the most prominent symptom. The specimens removed at the operation and the parts reserved at the post-mortem were exhibited.—Mr. Knowsley Thornton would like to ask Mr. Golding Bird as to two points in the case which his record seemed to omit: What was the pulse rate? He did not attach much importance to temperature alone in these cases, but had frequently seen patients die of incessant vomiting without any marked high temperature, but with a constantly ascending pulse. He believed such deaths were from septic absorption. In this case everything was specially favorable for such a result, in spite of the use of Listerian details, because the uterine stump, which always contains causes of putrefaction, was ligatured and then enclosed with a mass of other wounded and ligatured tissues in a space between the closed peritoneal flaps and the tissues forming the floor of the pelvis, with no possible outlet for effused materials except through the cervical canal, which was closed by the constricting ligatures. Supposing the fluids in this space putrefied, as was most likely to be the case, their only outlet was through the sutured flaps into the peritoneum, and, doubtless, this was the origin of the eight ounces of red serum found there after death. The wounded bladder, with catheter tied in, would also be a very likely centre for sepsis spreading into the peritoneum. The absence of anything to account for death, when the post-mortem is made, is a special feature in these cases of septicæmia. The very peritoneal absorption which causes death itself removes the evidences. The second point he would ask for information upon was, What was the sufficient reason for such a serious operation? Mr. Bird had stated that the patient was in fair health, and that menstruation was not excessive. The fibroid was evidently quite a small one. What was the justification for this fearful operation? The authorities had long laid it down as a rule that hysterectomy for fibroids was only justifiable when life was in danger, either from hæmorrhage, excessive growth of the tumour, or some other cause. The mere wish of the patient ought not to be considered in these cases. He had himself on some previous occasions expressed sanguine views as to the future of hysterectomy, but recent observations and

experience had led him to modify these views somewhat, especially as it was becoming the fashion to remove the uterus for fibroid disease in cases in which there were no urgent symptoms. The results of the operation recently in this country by the wire *serre-nœud*, and in Germany by the elastic ligature, were very encouraging, but the operation was still a very dangerous and formidable one, and ought only to be undertaken in grave cases. From what Mr. Bird had said as to the condition and position of the ovaries in this case, it seemed to have been a specially suitable one for removal of the uterine appendages, and this has been proved to be a much safer and a more successful process. Mr. Lawson Tait had pointed out a fact which he himself could corroborate—viz., that the ovaries are very commonly cystic along with fibroids of the uterus. Mr. Tait thought that the cystic ovaries cause the fibroids, but they are too often absent for this to be true. Mr. Thornton was long very sceptical as to the cure of fibroids by the removal of the uterine appendages, but he had now convinced himself that Mr. Tait was right in this matter. He had tried the operation in a small number of carefully selected cases, and had met with uniform success; all the patients had recovered; and all in the course of from five months to a year had lost their fibroids by gradual absorption. He did not attribute the result to the mere removal of the ovaries, but chiefly to the great alteration in the blood-supply, when all the enlarged vessels about the ovaries and tubes were tied. He had tested the operation in cases of subperitoneal fibroids, mural fibroids, and fibro-cystic disease, and in all the result had been equally good. With the statistics of this operation as to mortality, he did not think hysterectomy was justifiable without a previous trial of the safer operation of removal of the uterine appendages. At the same time it must be remembered that this operation was often a very difficult and dangerous one, and might end in the necessity for the performance of the still more dangerous hysterectomy from uncontrollable hæmorrhage. This accident happened to himself in two of his early cases. In reply to a question from the President, Mr. Thornton said that his cases of removal of the uterine appendages had not only all recovered, but had in course of time their uteri restored to their normal condition.—Mr. Golding Bird replied that Mr. Bryant had advised him to proceed at once to removal of the entire organ rather than attempt incision of the uterine appendages at first. He had relied more upon the temperature than the pulse, especially as the patient was liable to great rapidity of the pulse from emotional causes.

Mr. Clutton related a case of Spina Bifida cured by Injection of Iodine. When three weeks old a child was brought to St. Thomas's Hospital, and was found to be a well-nourished, healthy child, with the exception of the above imperfection. The spina bifida was situated in the lumbar region, small, and with exceedingly thin walls. The impulse when the child cried was very marked, and the aperture in the lower canal large. There was no paralysis of the lower limbs, and the cyst, examined by transmitted light, did not appear to contain the *canda equina*. The skin had been so stretched that the walls were quite translucent, and would evidently have soon given way and allowed the fluid to escape. A week after it was first seen, and when the child was four weeks old, the cyst was injected with a drachm and a half of Morton's fluid, as little as possible of the contents of the sac being allowed to escape; a pad with collodion and bandage completed the treatment. The mother was instructed to keep the baby on

its back, and prevent, as far as possible, the gravitation of the fluid into the vertebral canal. The constitutional disturbance was very slight, and on the third day the child was in its usual health. The cyst began immediately to shrink, and by the end of a week the skin was in loose folds. At the end of the third week there was nothing to be felt of the spina bifida, except a small puckered lump of cutaneous tissue. Mr. Clutton also mentioned a case of Occipital Meningocele, which he had treated by injection of iodo-glycerine without any effects, good or bad. And also another case of Lumbar Spina Bifida, with a very thin sac, in which the injection of about a drachm of the iodo-glycerine solution was immediately followed by the sudden death of the child.—Mr. Morratt Baker asked whether in the last case any fluid was withdrawn previous to the injection, and also what position the child was placed in. The record of such cases was very valuable as a guide to practice.—Mr. Pearce Gould asked Mr. Clutton whether in his first case the sac was covered with skin, and whether the fluid withdrawn contained sugar. The most favorable cases for injection were those in which the deformity consisted only of a hernia of the dura mater, the fluid being arachnoid fluid. As an instance of the fact that spontaneous cure occasionally occurred in the worst cases, he described a case of a very emaciated infant who was recently under his care with a large lumbar spina bifida which had burst, and a great part of the sac had sloughed; yet the tumour underwent a spontaneous cure, although the child died of marasmus.—Mr. A. E. Barker had operated upon a case very much like the last one referred to by Mr. Clutton. The child was kept upon his back for some time after the injection. The operation had not the slightest effect upon the tumour, and he heard later on that the tumour burst and the child had died.—Mr. Howard Marsh mentioned the case of a child four months old. The tumour was not large, covered by fairly healthy skin, but was increasing. He injected the tumour with about one drachm of the iodine solution; the child became completely collapsed and died immediately after the operation. At the Children's Hospital the results on the whole have not been successful.—Mr. C. Heath said that the injection of iodine into the cavities of the brain and spinal cord was not necessarily fatal. He had had under his care a case of anterior meningocele in a child six years old which had been previously injected with iodine by Sir James Paget without injurious effects. He thought that talipes calcaneus was very common in these cases.—Mr. R. Parker had injected about twelve cases without meeting with any fatal result like Mr. Clutton, or other visible effect of the injection, but he had had only one successful case. The result depended upon the size of the spinal aperture, and whether the spinal cord were involved or not. In his successful case the sac was covered with healthy skin, and he injected less than half a drachm of the fluid every week for some weeks. He thought talipes calcaneus was not always present, in some cases it was unilateral or equino-varus.—Mr. Godlee added a case to the list of successful cases. The tumour was small, with a thin wall, and was cured by a single injection.—Mr. Bennett had had only one case of this kind, and there the injection was unsuccessful. The sudden death after the injection of the tumour might be a mere coincidence in some cases, as was shown by a recent experience of his own. Not long ago he planned to inject a spina bifida on a certain day, but owing to the child being then unwell he postponed it, and the child died from convulsions while going home in the omnibus.—Mr. Morratt Baker mentioned a case in which the

tumour was cured, but hydrocephalus increased, and gradual loss of power in the lower limbs came on.—Mr. Clutton said that in all his cases the child was kept lying on the back, and he injected slowly; he only withdrew a small quantity of fluid, and that gave a distinct reaction of sugar. In both cases there were patches where there was no skin at all, and the sac was like tissue paper. In the first case there was no raw surface, in the latter the sac was partly ulcerated. The aperture of the sac into the theca vertebralis does not correspond with the size of the aperture in the bones.

Mr. Christopher Heath related a case of Separation of the Epiphysis of the Clavicle by Muscular Action. A boy aged fourteen, whilst raising his arm violently to bowl at cricket felt something give way at his collar-bone. The inner end of the clavicle was found to be unduly prominent, and presented a sharp edge beneath the skin, quite unlike the smooth end of a bone, covered with articular cartilage. The supra-sternal notch was quite distinct and equally defined on both sides, and a thin lamella could be felt on the right side, intervening between it and the gap caused by the starting forward of the inner end of the clavicle. The treatment consisted in laying the patient down, when the bone at once slipped into its place, and it was retained by a plaster-of-Paris bandage. Mr. Heath referred to the great rarity of the accident, and the diagnosis of it from dislocation of the clavicle, and insisted upon the great utility of the plaster-of-Paris bandage in fractures of the clavicle and humerus.—Mr. Lister said this case was exceedingly interesting and rare, if not unique. The diagnosis was no doubt correct, both from the sharpness of the projecting fragment and the presence of the lamella in the site of the injury.

Dr. Goodhart read a paper on six cases of Diphtheria treated by the local application of Borax or Boracic Acid. In four a saturated solution of boracic acid in glycerine was used, the application being made in part by a hand spray, in part by the laryngeal brush, and as often as every two hours in some cases. In the other two a diluted solution of the glycerine and boracic acid was used. The first case was a very severe one, and it died from renal complications on the seventh day; but the boracic acid and glycerine seemed to be so successful in relieving the throat symptoms, and in preventing the re-formation of the membrane, that it was determined to try it again. Of the other five three had croup as well as membrane on the fauces; one had nasal diphtheria; all had albuminuria. All recovered. Tracheotomy was necessary in one case, and the glycerine and boracic acid were freely applied to the interior of the trachea and larynx from the wound, and to the surface of the wound itself, and it seemed to be very beneficial in loosening, dissolving, and preventing the re-formation of membrane. In another case it is believed that tracheotomy would have been necessary had not the vigorous application led to the expulsion of membrane by the mouth. In all cases it seemed to give such relief that very little difficulty was experienced in carrying out the treatment. Both borax and boracic acid have been occasionally in use as a topical application in diphtheria, doubtless, for a long time past, but not, so far as is known, with any decided success; nor can it be supposed that any remedy will not often show a good proportion of failures in combating a disease such as this. It is enough to say that these agents are known to be good antiseptics, that their action is harmless when not beneficial, and that they are certainly useful in some cases.—Dr. Phillips had carried out the treatment in the first of Dr. Goodhart's cases. He

referred to two other cases similarly treated, in each of which tracheotomy was performed in a few hours, and every attempt to remove the membrane was made, but the children died, and in each case the membrane was found extending down into the smaller tubes. The strength of the solution is one part of glycerine to three of borax diluted with an equal part of water when used as a spray.—Dr. O'Connor had notes of nearly forty cases of diphtheria, but he had not met with much success in the use of a watery solution of boracic acid. He thought the best application on adults is a solution of chlorate of potash. He had often found that the membrane reappeared on its original site, thinner but evidently of the same nature as at first.—Dr. Longhurst thought the treatment was good because it was non-irritating; much good was not to be looked for from local treatment of a disease which is essentially constitutional.—Mr. Lister remarked that each physician extolled his own application for diphtheria. He had received striking reports of series of cases without any fatal issue treated locally by tincture of iodine. But its infective character clearly showed it was a local disease. Boracic acid is a wonderfully efficacious antiseptic, as is seen when it is applied to putrid onychia, for example. It may very well act in this way on the membrane in diphtheria. Boracic acid, by the aid of heat, may be mixed in any proportions with glycerine.—Dr. Goodhart said that the constitutional nature of the disease was no argument against local treatment, as the disease is so often fatal from its local effects.

The following card specimens were shown:—1. A Case of Transpatellar Excision of the Knee, by Mr. Golding Bird. 2. A man from whom the Tongue and part of the Lower Jaw were removed in 1876 for Epithelioma, no recurrence, by Mr. C. Heath. 3. A Case of Spontaneous Partial Dislocation of the Clavicle, in association with Lateral Curvature of the Spine from an unreduced Dislocation of the Hip, by Dr. Clippingdale. 4. A successful Case of MacEwen's Operation for Genu Valgum, by Mr. Keetley.

Symmetrical Congestive Mottling of the Skin.—Lumbar Nephrectomy for Carcinoma.—Subcutaneous Rheumatismal Nodes.

The ordinary meeting of this Society was held on Nov. 24th, J. Lister, Esq., F.R.S., President, in the chair. The proceedings were interesting, especial attention being given to the subject of renal surgery, arising out of a case communicated by Mr. J. Adams; subcutaneous rheumatic nodes were well shown in two cases contributed by Dr. Duckworth, who read a paper on them; whilst Dr. Cavafy detailed the particulars of a peculiar cutaneous mottling, of which he showed two examples. Mr. Howard Marsh exhibited a child with very extreme deformity of the skeleton from rickets.

Dr. Cavafy read a paper on Symmetrical Congestive Mottling of the Skin. In this paper two cases of a curious affection of the bloodvessels of the skin are described. The first was a young woman, aged twenty-two, shown to the Society, who was first seen in March, 1882, when the condition had existed for three years. It began as a reddish mottling of the left shoulder, which gradually spread down the arm, and soon afterwards appeared on the right arm, the cheeks, and both thighs, gradually increasing in intensity. At the date of her first visit the skin of both cheeks was mottled with blotches and irregular rings and streaks of a bluish-red color, most marked on the right side, not prominent, and covered by normal epidermis. Singular, dull, bluish red maculæ and

irregularly confluent blotches and streaks forming reticulated annular and gyrate figures occupied the exterior surfaces of both arms and forearms and the backs of the hands, being especially distinct over the left wrist. The front and outer surface of both thighs near the knees was similarly mottled, but in a much less degree. The blotches and streaks were not sharply circumscribed, and disappeared completely on pressure, leaving in some spots a delicate fawn-colored pigmentation. The marking also disappeared from the arms when they were held up, and returned when they were allowed to hang down. The neighboring skin was normal in all respects and the general health perfectly good. The girl had rheumatic fever a year before the mottling commenced, but the heart was unaffected. The only departure from perfect health was a liability to "dead fingers" and occasional dyspepsia. She continued to attend for a month, with no change in the state of the skin. The markings were always intensified by cold; they never completely disappeared, and were throughout unaccompanied by pain, numbness, tingling, or any abnormal sensation. She is still in the same condition. The second patient, also shown to the Society, is a healthy young woman, aged twenty-one, who has been under observation since August, and in whom the affection has existed eighteen months. It began over the ankles, and gradually spread to the legs and thighs. Twelve months later the arms became affected, and quite recently blotching has begun on the waist; the face has remained free. The mottling is an almost exact counterpart of that in the first case; but more extensive and of a deeper bluish-red color over both legs and the front of the thighs, especially near the knees. It is situated on the exterior surfaces chiefly, but also extends slightly over the flexor sides. The condition above described was only due to venous stasis or passive congestion of the skin, and appears to be an exaggeration of the marbling often seen on the skins of children and young persons after exposure to cold; but in the above cases, although cold intensifies the marbling, the congestion remains more or less evident at all times. It is probably due to a vaso-motor neurosis, but the share taken in its production by arteries and veins is not easy to apportion. The affection appears to be quite harmless, and has not led to any changes except pigmentation, and that only slightly; but the disfigurement, especially when the face is attacked, is considerable. The treatment employed has not influenced the condition in any way.—Dr. S. Mackenzie said the cases were interesting and rare, such a condition seldom being so marked and permanent; and Dr. Cavafy's explanation of it was probably correct. The cases had a superficial resemblance to similar conditions due to direct exposure to heat, as from much standing before a fire. A condition of vaso-motor neurosis of the extremities has been described by Weir Mitchell, of which Dr. Mackenzie has seen one case; but this differs materially from these present cases.—Dr. Glover asked if the effect of a bandage had been tried. He was much struck by the good effect of such a measure in a case of long-standing purpura of the legs, where the application of an elastic stocking resulted in a cure. The President alluded to the symmetrical character of the mottling proving to be due to a neurotic origin.—Dr. Cavafy, in reply, said that the pigmentation, due to exposure to a fire, was excluded by the fact that the color could be pressed out of the part, and that neither patient had been so exposed; further, the mottling in the present cases is diminished by heat. The vaso-motor neurosis of Weir Mitchell, of which a case was brought before this Society by

Dr. A. Sturge, is different. The closest alliance was, perhaps, to local asphyxia, which may lead to symmetrical gangrene (Reynaud). The present cases might be a minor degree of that condition. Dr. Glover's suggestion was only applicable to the extremities.

Mr. Jas. B. Adams read notes of a case of Lumbar Nephrectomy for Carcinoma. The patient, a male, aged thirty-nine, had intermittent hæmaturia for two years; pain in right loin; latterly profuse hæmorrhage from the kidney, leading to marked anæmia; blood, pus, triple phosphates, and epithelium in urine. The disease was clearly located in the right kidney, but its exact nature was not certain. The operation was undertaken in order to explore, and, if necessary, to remove the right kidney. By an incision parallel with the lower border of the last rib, the kidney was easily explored and found to be the seat of a new growth, which had increased its size to about double the normal. In order to extract the organ it was necessary to enlarge the incision upwards; the organ was adherent to the peritoneum, and in separating it the serous cavity was opened. Owing to the size of the tumour, the ureter and vessels could not be tied separately, but were encircled *en masse* by a whipcord ligature. The peritoneal wound was closed with a catgut suture; the skin wound was freely drained. The hæmaturia ceased at once. The wound healed in a few weeks; but the patient gained no strength, suffered much throughout from cough, and was transferred back to the care of the physician, and died forty-four days after the operation, with effusion into both pleuræ, plugging of the left renal vein, and numerous secondary deposits in the lumbar glands and on the ribs.—Mr. Clement Lucas congratulated Mr. Adams on the success of the nephrectomy; though unfortunately the disease was too advanced for complete eradication. He had twice explored the kidney this year. In one case there were typical symptoms of stone; although the man had a severe rigor before passing the blood, which was attributed to his being moved. Mr. Lucas cut down on the kidney and punctured it in as many as five or six places for the depth of an inch and a half; no bleeding occurred, but the kidney appeared to be puckered. It was probably a strumous kidney. He mentioned these cases in order to encourage physicians to explore the kidney more readily in doubtful cases. No disturbance arose from the exploration, and the wounds healed rapidly and painlessly. The operation, then, might be regarded as perfectly safe, with no more danger than an incision of similar length in the calf of the leg.—Mr. Golding Bird asked Mr. Adams whether the opening was enlarged in a vertical or horizontal direction.—Dr. Fowler had lately had a case under his care with symptoms of renal calculus in which Mr. Morris explored the kidney, punctured it in several places, without finding a stone, and the wound healed perfectly.—Dr. Douglas Powell asked for the results of cases where the operation is completed and the stone removed, but his impression was that many cases were disastrous in their results. He thought that we should not consider too much the fact that the kidney had been explored without finding a stone without ill results. These cases of stone in the kidney often go on for many years, and eventually the stone is discharged from the bladder. Therefore he did not think nephrotomy an operation of necessity or always justifiable. It would be a matter of importance as a guide to its performance if a diagnosis could be made as to the size of a stone. A small stone will give rise to as severe symptoms as a large one; and he cited a case where a small stone was eventually passed, but the patient returning later with renal

symptoms, an exploratory incision was made, and no stone was to be found.—Mr. Barker said that for the very reason urged by Dr. Powell the kidney ought to be explored. A stronger reason still for calling in the aid of the surgeon is that these operations can be done without any risk. He alluded to a case in which all the symptoms of stone occurred in a child; he explored and punctured the kidney without finding a stone. The wound healed rapidly. If all the cases of exploration were recorded it would encourage the routine resort to the procedure. The point between nephrotomy and nephrectomy turns upon the extent of disorganization of the renal tissue. A small stone may be removed from the kidney without any risk whatever; but the case is altered when much disorganization of the kidney is present.—Dr. Wilberforce Smith alluded to one point in the diagnosis of stone in the kidney—viz., that of treatment by copious water-drinking, so as to produce diuresis. It was his habit to tell the patient to keep his urine down to a low specific gravity. There is prompt and considerable relief; the hæmaturia ceases and the pain is modified.—Mr. Haward, recurring to Mr. Adam's paper, asked as to the diagnosis between stone and malignant disease. There was considerable enlargement of the kidney; but was the examination made under an anæsthetic? In that way a stone may be felt in the kidney. Mr. Haward had succeeded in palpating an enlarged kidney by this manner in a case related last year. He also asked whether Mr. Adams had noticed great frequency of micturition, for a stone in the kidney is often accompanied by an irritable bladder, as Sir B. Brodie long ago pointed out.—Mr. H. Marsh, in reference to the question of making out a large kidney under an anæsthetic, said that in a case he related last year, no one succeeded in palpating the organ; but when he came to operate it was found to be very large indeed.—Mr. Adams, in reply, said that he enlarged the opening in a vertical direction, almost at right angles to the first incision. If he were sure that the kidney was very large and occupied by a large growth, the abdominal section would be preferred. He did not think that Dr. Powell's application of the term "disastrous" to exploration of the kidney was justifiable; and the operation is not performed except the patient is in much suffering and unable to perform his duties. He was in favor even of leaving a stone in the bladder if there was no suffering. The decision to remove a kidney would be based on the condition of the organ. This patient was examined thoroughly under an anæsthetic; but the difficulty or ease of the diagnosis will depend greatly on the amount of subcutaneous fat in the individual.

Dr. Dyce Duckworth read notes of two cases of Subcutaneous Rheumatismal Nodes. Case 1. S. C—, aged twenty-four, domestic servant, came to St. Bartholomew's Hospital on account of painful swelling on the right hand and knee. She had had no serious illness, no rheumatic fever or chorea. Suffered for eight years past with pains in the joints and limbs. Crackling in the larger joints was noticed. The nodules began eight months previously on the right hand, elbow, and knee, and are found to be quite subcutaneous, painful on pressure, and attached for the most part to sheaths of the tendons or deep fasciæ. The fingers were knotty at the joints and the right little finger was turned outwards at the last phalanx (not as the result of injury). The first sound of the heart was found roughened and somewhat reduplicated. The urine was alleged to be occasionally thick. The patient was exhibited, and casts of the right hand and knee were also shown.

In three months time it was found that some of the nodules had grown larger and that new ones had appeared. Signs of slight hypertrophy of the left ventricle of the heart were noted, and the first sound was rough and reduplicated at the apex. Treatment by cod liver oil and iodide of iron and potassium had not proved of material service, and there were still articular pains. The nodules ached more in damp weather. Case 2. E. L—, aged nine years, a school girl, had suffered from pains in the feet, knees, and arms for two months, and at that time nodules were first seen on the ankles, elbows, and knees. The legs and hands were also swollen "as if dropsical." There was no history of chorea. Nodules of various sizes were found on the sheath of an extensive tendon on the metacarpus, on the olecranon, on the spine of a dorsal vertebra, on both patellæ, and on an external malleolus. The nose and finger-ends were clubbed. The cardiac physical signs indicated mitral regurgitation. In three weeks the nodules on the patellæ appeared larger. The child ceased attendance, and its parents could not be traced subsequently. A cast of one knee was taken at the first visit. Both cases were well-marked examples of rheumatismal subcutaneous nodules. Both occurred in females, as is found to be the case in most instances. The nodules have persisted longer in the first case than has hitherto been previously noticed—fourteen months against five—and the age of this patient is more advanced than in most cases recorded. The heart was affected in both patients. All the points noted supported the previous observations of Drs. Barlow and Warner, as communicated last year to the International Medical Congress.—The President said it was remarkable that a disease like this should only be recently recognized. He was struck with the fact that the heart should be affected in these essentially chronic cases; was it a general observation that endocarditis accompanied these manifestations?—Dr. Green had seen one case in a boy, sixteen years of age, with acute rheumatism; the nodules were very marked. They were not complained of, but discovered accidentally. The heart disease seemed to develop during the development of the nodule.—Dr. Barlow did not think there was always heart disease in association with these nodules, for some were cases allied to rheumatoid arthritis. But when one finds these nodules one should be on the *qui vive* for heart disease. About a year ago a young man came to the hospital with nodules about the patellæ and elbows. He had been in hospital four months before with subacute rheumatism, but no heart disease. Dr. Barlow sent him home, and, although the temperature did not rise above normal, prescribed salicylate of soda. A mitral murmur developed, so he could say these nodules make one look out for a form of rheumatism apt to attack the heart. The view put forward by himself and Dr. Warner was that these nodules were outgrowths of fibrous tissue, analogous to the simple vegetations found on cardiac valves—i.e., the slow change in the mitral valve which may protect the valve without causing any fibrinous deposit upon it.—Mr. Godlee asked what structure was affected by these rheumatic nodules, for in a case supposed to be ganglion on the palm of the hand there were nodules on the palmar fasciæ. On searching he found many nodules elsewhere, and detected a bruit at the heart.—Dr. Barlow had satisfied himself that these nodules were attached to the deep fasciæ. It had been asserted that the periosteum was their seat; but this is not the case; it is the deep fasciæ, and often the tendons.—Mr. Barker believed he had seen these nodes in a middle-aged woman, be-

tween forty and fifty, suffering from rheumatic arthritis.—Mr. Travers mentioned a case in a patient forty-five years old. It was a severe attack of acute rheumatism, with high temperature. The nodules which appeared on the right elbow and the patella caused some pain; there was no cardiac disease. The nodules eventually disappeared. This case was not benefited by salicin.—Mr. Golding Bird asked whether the nodules were allied to Dupuytren's contraction of the fingers. Some years ago he saw a case of this affection in an early stage in a woman of forty-five; there were nodules on the palmar fasciæ adherent to the skin and tendons. No rheumatic pains. Observed for some months, the nodules gradually diminished under iodide of potassium. They had since recurred. The fingers were not much bent, and under treatment could be straightened.—Dr. Duckworth, in reply, took the opportunity of stating that English literature was much indebted to Dr. Barlow and Dr. Werner for their papers on this subject at the Congress last year. He believed Mr. Parker had examined these nodules microscopically, and found them to consist of delicate fibroid tissue. They come and go quickly, lasting in one of his cases for six months, the longest recorded. As to age, the majority of cases are in young people, but he had seen cases in old people.

MEDICAL SOCIETY OF LONDON.

Congenital Cystic Hygroma.—The Treatment of Wounds.

At a meeting of this Society, held on Nov. 6th, Mr. F. Mason, President, in the chair, Mr. Edmund Owen exhibited two cases of Congenital Cystic Hygroma, and read a short paper on them.—The President was not satisfied that the tumour on the side of the cheek communicated with the cyst beneath the tongue.—Mr. Bryant remarked that the cases were seen in a later stage, and no communication between the larger tumour and the mouth was to be found. He advised enucleation and removal. In its present state the smaller tumour might be taken for a congenital nevus. In three cases he had noticed hygroma to be associated with imbecility.—Mr. Owen, in reply, admitted that perhaps there was no communication between the two cysts in the first case, but he thought they were connected by fibrous tissue. In the second case, he thought the hygroma was degenerated. The difficulties of removal of the cyst in the first case were very formidable.

Mr. Sampson Gamgee then read a paper on the Treatment of Wounds.—The President asked if Mr. Gamgee made any difference in treatment between hospital and private cases.—Mr. W. Adams coincided entirely with the principles laid down by Mr. Gamgee. The exclusion of air and water were the leading features of his own practice. Wounds from which air and water were excluded ran the course of subcutaneous wounds. He presumed that Mr. Gamgee excluded water as favoring decomposition. What did Mr. Gamgee use when wounds required to be washed? The principle of firm support and even compression was unduly neglected in modern practice. Richardson's colloid styptic he used extensively in his own practice, and knew nothing of the kind so valuable.—Dr. Richardson suggested that it deserved to be determined by surgeons what was the precise thermometric indication for taking off the dressing from a wound. What account, in respect to rise of temperature, ought to be made for natural reaction? What degree of temperature should be

considered as necessary to determine interference with the dressing? What time of continued increased temperature should be allowed to elapse before such interference? There ought to be a fair approximative general rule on this subject. Referring to the practice inculcated in Mr. Gamgee's paper, he said that in principle it dated long back. It was a treatment more or less in use ever since Friar's balsam was known as a remedy for wounds. It contained the true secret of Sir Kenelm Digby's expectant non-interfering method; it was the method enforced in a past century by Belloste; it was a method which, in this country, has from the last century into the present held its own. It had sometimes been supplemented by extraneous and fanciful procedures. Sir Kenelm Digby and his adherents had supplemented it by introducing, as an adjunct, the sympathetic powder with which the sufferer was taught to polish the weapon which caused the wound, as if that were a part of the cure; and in our day we had seen it supplemented by procedures which in future times would read, he believed, as equally unnecessary and nonsensical. Mr. Gamgee had brought the practice back to its true physiological bearing by showing that the sustinment of life in the injured part itself was the cause of success in healing, apart from any mysterious local surroundings or imaginary destructive agencies. In cases where there is bleeding from a wound that has been inflicted some time, and from which there is offensive odor, Dr. Richardson agreed with the author that the iodized was more effective than the styptic colloid. He agreed equally in opposing the employment of water for dressing wounds, and recommended for cleansing purposes proof spirit, containing tannin and glycerine, a solution which was at once a good wash and a good styptic. Dr. Richardson concluded by urging that the profession ought to continue on the splendid historic lines that had been laid down for it in the past, and that if, instead of pursuing this course, it allowed itself to be led away by the hypotheses of men, however distinguished, who did not belong to it, and did not understand its practical work, it would go down altogether in fact as well as in estimation.—Mr. Page did not think the thermometer a sufficient index of danger by reason of the various nervous temperaments of the different patients, which determined a rise in temperature in the reaction after a wound. Mr. Gamgee's paper was based on sound physiological principles; but he could not agree with Dr. Richardson's strictures on Listerism, which he thought would always be regarded as an effort to restore natural conditions to the seat of the wound.—Mr. E. Owen corroborated Mr. Page's remarks about the varying degrees to which the temperature might normally rise in different persons.—Mr. Bryant agreed with Mr. Page that Mr. Gamgee's paper was based on physiological principles. He noticed that Mr. Gamgee seemed to advocate light pressure by bandaging, not the firm pressure he formerly recommended. He agreed as to the importance of immobility in wounds of soft parts. Mr. Gamgee had hardly emphasized the advantage of drainage as much as he might have done. To secure free drainage was a most important indication, and caution should be used in dressing wounds in such a manner that free drainage was not permissible. Though not a "spray and gauze" man in any sense, yet he had faith in the action of the drugs known as antiseptics, which obviated the tendency to decomposition induced by water. Mr. Gamgee eschewed water altogether in dressing. He recommended also his principle of letting wounds alone as much as possible. The degree of elevation of temperature was as important an indication as persistence of elevation. Isolated

risers were of little consequence. Persistence after the second or third day was of much consequence.—The President had for many years practiced Mr. Gamgee's method, as a rule in private practice, and occasionally in hospital practice, although this was rather difficult in a hospital imbued with the doctrines of Listerism.—Mr. Gamgee, in reply, said he did not trouble too much about the arrest of bleeding. He shut the wound up as quickly as possible, and under this system he never had secondary hæmorrhage. It was on accurately fitting universal pressure that he relied, not on localized hard pressure. He never sealed wounds without allowing free drainage. The washing of wounds should be as slight as possible; too much was injurious. He could find no difference, physiological or practical, between boroglyceride and glycerinum boracis (B. P.), with an excess of borax. He warmly advocated the study of Dr. Richardson's book on the healing of wounds, and mentioned certain facts showing the influence of mental excitement on the elevation of temperature in surgical cases. Many great operations were accomplished without any rise whatever. He treated private and hospital patients in precisely the same manner. The secret of Mr. Lister's success was the consummate skill and care with which those whom he had educated were trained to carry out their treatment.

Osteitis Deformans.—Ammonia, Chloroform, and Ammoniated Chloroform as Antiseptics.—Cases of Nephrectomy.

At a meeting of this Society held on Nov. 13th, Mr. F. Mason, President, in the chair, Mr. Walsham showed a case of Osteitis Deformans (Paget) in a man, aged fifty-five. The affection of the right leg had been noticed for about five years. The left leg was affected shortly after. The right and left femora, the right radius, and the right clavicle enlarged in the order given about three years later. During the last twelve months the skull had increased in size, and the spine had begun to bend. His height had been reduced from 5 ft. 7½ in. to 5 ft. 5½ in. during the last two years. He had previously enjoyed excellent health, and had been free from syphilis, gout, rheumatism, and injury to the bones. One sister had died of phthisis, and another of cancer of the uterus.—The President asked whether there was any defect of intellect. Mr. Noble Smith inquired whether the urine contained sugar. In a case of a lady, sixty-one years old, he had pursued a tonic treatment in view of defective nutrition.—Dr. Routh had seen a similar case twelve years ago; the anterior portion of the cervical spine being chiefly affected. The patient was an anæmic and ill-nourished child, and death was caused by choking. Defective nutrition seemed to underlie these cases.—Mr. Walsham, in reply, said that the man's intellect was unaffected. The urine had been examined for albumen, but none was present. Iodide of potassium had been given without effect.

Dr. Richardson read a paper on Ammonia, Chloroform, and Ammoniated Chloroform as Antiseptics. The author first recalled attention to his original paper in 1850, on the Antiseptic properties of Gases. He had shown that various gases and vapors, including arseniuretted hydrogen gas and chloroform vapor, acted as antiseptics on fresh animal structures, together with many other æriiform and vaporous agents. He showed two small specimens of lung which were shown in 1850 in illustration of the antiseptic powers of chloroform vapor. The specimens had remained in their bottles untouched for over thirty-two years, and were

still well preserved. He next referred to a paper he had read in 1862 on the antiseptic properties of ammonia, in which he had shown that the vapor of ammonia was one of the most perfect of antiseptics. In further demonstration Dr. Richardson exhibited a specimen of blood which had been drawn from a sheep's neck into an ammoniated atmosphere in April, 1862. It had been enclosed in a well-corked bottle for more than twenty years. It was still perfectly fresh and fluid, and although its microscopical characters were changed it could be made to undergo coagulation on displacement of the ammonia, so that it still exhibited what John Hunter would have called "the final act of life." Proceeding to his present research, the author said that since his last paper he had continued to use ammonia vapor as the antiseptic most convenient, and he had improved upon it in two ways. 1. When a structure to be preserved contained a great deal of fat it was apt, after a few weeks, to become saponified, by which its character was changed. To avoid such change he had used what he called ammoniated chloroform, which was simply chloroform and ammonia vapor combined. By this means much less ammonia was required, and the saponifying process was prevented. 2. It was sometimes important to preserve the color of a substance; to effect this the bottle containing the specimen was charged with common coal gas, as well as with the vapor of chloroform. The coal gas contained sufficient carbonic oxide to maintain the color. Specimens of the heart, kidney, spleen, and the viscera of birds were shown, preserved in these various ways. The advantages were as follows:—1. In making a post-mortem the operator had simply to take with him a jar or bottle well stoppered and ready charged with antiseptic vapor. Into this gas drop the specimens, close them down, and keep them for days, or even weeks. 2. In some forensic cases specimens might be retained in pure ammonia or chloroform vapor in a perfectly sound state during a long investigation. 3. The antiseptic results obtained indicated certain uses of ammoniated chloroform in diseases attended with rapid putrefactive change.—In reply to questions from the President and Dr. Routh, Dr. Richardson said that chloroform would only take up a certain small proportion of ammonia. The solution should be used concentrated. In the case of sore-throat it was administered by inhalation. He feared it would be impossible to use the preparation on a large scale so as to preserve whole bodies. He had it tried on sheep and failed, owing to the gases destroying the tissues. Chloride of zinc and spirit embalmed a body perfectly, but made it too hard for dissection.

Mr. Knowsley Thornton read notes of three successful cases of Nephrectomy by Abdominal Section. The first case was that of a child seven years old, in whom the left kidney was removed by median abdominal section for hydronephrosis, which was probably congenital, as the ureter was only represented by a small fibrous cord. The child made an excellent recovery, and is now strong and well-developed; before the operation she was delicate and puny. The second case was that of a woman aged twenty-six, who dated her illness from her second and last pregnancy. The kidney was much enlarged. The patient was almost in a dying state when admitted into the Samaritan Hospital in February, 1892. Mr. Thornton first operated through the loin, but failed to find by this exploration the cause of the trouble. She improved for a time, but soon relapsed, and he removed the kidney by lateral abdominal section (incision of Langenbüch), and then found it to contain a large number of small calculi or con-

cretions. The bladder end of the ureter was tied and brought out of the wound at its lower angle—an important precaution, as this portion of the ureter was generally diseased and putrid in its interior. The patient made an excellent recovery, and in a letter just received she states that her health is good, and the urine clear and natural. The third case was that of a woman fifty-eight years old, who had been known to have had supuration of the kidney for sixteen years. The kidney had been aspirated several times without relief, and Mr. Thornton decided to remove it by Langenbüch's incision. The operation was exceedingly difficult, owing to the great obesity of the patient and the extensive adhesions. The sac into which the kidney had been converted weighed after removal $4\frac{1}{2}$ lb., and it contained twenty pints of pus. The patient made a rapid and perfect recovery without fever, the only complication being some bronchitis, which was present before the operation, and became more acute for two or three days afterwards. Mr. B. Morison, of Canonbury, reports her present condition as satisfactory. The cause of the mischief was found to be a very small umbrella-shaped calculus, of which the handle was fixed in the opening of the ureter. All the operations were performed under strict Listerian principles, and to this Mr. Thornton attributed in great part the even and rapid recovery of the patients. He pointed out the great advantages of the lateral abdominal incision over the median or lumbar section, and expressed his belief that it could be the operation of the future in nephrectomy. He drew special attention to his method of treating the ureter in these cases, as he thought it of great importance. He considered that these cases emphasized the fact already demonstrated by his ovariectomy practice, that under antiseptic conditions the peritoneum can dispose of considerable quantities of effused material without the aid of the drainage-tube, and without constitutional disturbance, even after the removal of so important an organ as the kidney. The kidney could be more safely and thoroughly explored by Langenbüch's incision under antiseptic management than by the lumbar incision.—Dr. Richardson remarked that the use of iodine, which was an oxidizing agent, destructive of putrefactive products and not a germicide, could hardly be considered as an instance of Listerism.—Mr. H. Morris thought the cases did not bear on the comparison between the merits of nephrectomy and nephrotomy. All these cases were clearly cases for nephrectomy; but in others nephrotomy was the proper course to pursue. In the third case an early exploratory incision might have obviated the necessity for nephrectomy. In the second case, were the small black concretions really calculi or concretions of pus and blood? He had lately made an exploratory incision in the case of a man who had since passed a small calculus. A second exploratory incision failed to reveal a stone; but he believed that one was present; and possibly nephrectomy might be required at a later date. No especial antiseptic treatment was employed in that case, but cotton-wool dressings were used. The wound closed with remarkable rapidity, as it did in a previous similar case of his. He alluded to cases where relief had followed nephrotomy, though no stone had been found, and thought that in these cases the affection was an unduly mobile kidney, which became fixed by adhesions resulting from the operation.—Mr. Thornton, in reply to the President, said he considered silk ligatures more convenient than, and as easily made antiseptic as, catgut. He did not deny that good results might be obtained without antiseptics, but still he held that better results

followed their use. Thus he was able to close his wounds without resorting to drainage. He used iodine when he wished to destroy the products of putrefaction; carbolic acid to prevent putrefaction. He did not intend to deny the utility of nephrotomy, but merely to point out that it was not applicable to these three cases. So far as examination had yet gone the calculi contained crystals of oxalate of lime; their outer coating was probably blood.

OBSTETRICAL SOCIETY OF LONDON.

A MEETING of this Society was held on Wednesday, Oct. 4th, Dr. Matthews Duncan, President, in the chair.

Spurious Hermaphrodite.—Dr. Fancourt Barnes showed a child (living) which presented malformations such as those classified by Sir James Simpson under the title of "spurious hermaphroditism." He could find no trace either of testes or of uterus, but thought the child most likely a male.—Dr. Champneys had, in a somewhat similar case, detected the uterus by examination per rectum.—Dr. Swayne said that there was a specimen in the Museum at Bristol in which the external parts were like those in this case, but the internal organs those of a female.

Hypertrophy of Placenta.—Dr. Herman showed a specimen of hypertrophy of the placenta. It had been removed piecemeal, and a large part left at the patient's house. The portion exhibited weighed more than four pounds. To the naked eye its structure did not differ from that of normal placenta. The child was decomposed when born.—Dr. Robt. Barnes had observed in some cases of hypertrophy of the placenta, dropsy of the placenta, and ascites and anasarca of mother and foetus. Possibly the placental villi were overdeveloped in order to find enough pabulum in the hydræmic blood.

Degeneration of Placenta.—Dr. Champneys showed (for Dr. Murray) a placenta exhibiting fibrinous degeneration in the uterine and calcareous degeneration on the foetal surface. The child was born alive.

On an Obliquely Contracted Pelvis of Unilateral Synostosis.—Dr. Champneys read a paper on this subject. The pelvis was that of a child, aged between seven and fifteen, in which the changes at puberty had already slightly commenced. At this point the left sacro-iliac joint became inflamed, leading to synostosis of part of the articular surface. The left half of the sacrum was dwarfed, and this bone rotated so as to look somewhat to the left. The left half of the pelvis was narrowed, the pubic symphysis driven to the right, and its left half displaced behind the right. But compared with most Naegele pelvises, the outline of the brim was less straight, there was less verticality of the ilium than usual, and there was no evidence of transverse rotation of the left os innominatum on its acetabular axis. The author considered the specimen one of a half developed obliquely contracted pelvis of unilateral synostosis, most instructive in its bearing on the production of the typical pelvis of Naegele.—Mr. Griffith thought that the synostosis was congenital. If so, Dr. Champneys' theory would require modification.—Dr. Champneys thought the joint showed clear evidence of disease.

Transverse Septum in the Vagina.—Dr. Gervis described a case of the above malformation. The patient was aged twenty-two, and menstruated regularly. She sought advice on account of pain in micturition, due to a urethral caruncle. About an inch and a half or two inches from its orifice

the vagina seemed to end in a cul-de-sac, having on either side a pouch, giving at first the impression that there was a double vagina. In the left cornu was a small opening admitting a probe into the space beyond. The hymen was present. The uterus could be felt per rectum. The septum was divided with the thermo-cautery, giving exit to a quantity of brownish mucus. A granular erosion surrounded the os uteri. The caruncle was at the same time removed. The patient did well, and the endocervicitis began immediately to improve when freed from the apposition of retained secretions. The author remarked on the value of the thermo-cautery in lessening the risk of septic infection in such cases.

Case of so-called Imperforate Hymen.—A paper on this subject, by Dr. Matthews Duncan, was read. He was induced to relate the case by three circumstances. 1. There was a remarkable absence of any kind of suffering during nearly the whole time of the development of the disease. The patient had never menstruated nor suffered from any uneasiness in connection with that function until eight months before admission, when she was told by a medical man that she had a lump in the lower belly. Since then she had suffered from irregular aching. The author thought the probable explanation of this was that the uterine body was not distended, for facts showed that dilatation of the uterine body was more difficult and painful than dilatation of the vagina and uterine cervix. 2. The case illustrated the treatment without any injections, which had been the subject of remarks at a recent meeting of the Society. An incision was made by Paquelin's cautery knife. About twenty-five ounces of the usual treacly fluid escaped, about twenty ounces on the following day, and the last of it on the fifth day, in all about fifty ounces. At no time had it any fœtor. No hypogastric pressure or interference with the flow was permitted. A piece of carbolized lint was put to the vulva. The patient made an uninterrupted recovery. He thought the risk of peritonitis was increased by the washing out sometimes practiced. He thought the cautery knife was preferable to any other mode of making the incision, because its wound was not an absorbing surface. 3. The condition of the pudendum, rendering the term "imperforate hymen" erroneous and misleading. The vagina was closed by a membrane upon which the hymen could be seen to have its normal position and relations. He had made the same observation in other cases, and he had seen the hymen present when vagina and uterus were both absent. On these grounds he regarded the view of M. Budin (that the hymen was nothing but the anterior extremity of the vagina) as incorrect.—Dr. Robert Barnes said that in these cases toxæmia arose before the blood was evacuated, from decomposition of the hæmato-globulin in the retained fluid. He had not used injections; they were not called for in all cases.—Dr. Gervis could hardly accept Dr. Duncan's view, that the membrane occupying the area within the hymen was vaginal wall. He thought the variations in shape of the hymen, and the absence of muscular fibres in it, militated against M. Budin's view.—Dr. Carter had had under his care a case similar to that described by Dr. Gervis. He had divided the septum and the patient did well. He thought washing out was meddlesome unless the discharge was offensive or there were symptoms of septicæmia.—Dr. Rogers mentioned a case under his own care. Some pyrexia followed the operation. The vagina was not washed out till a week after the operation, and when this had been done the pyrexia subsided.—Dr. Galabin thought it an important question whether in these cases it was desirable to use in-

jections immediately after an interval or not at all. The danger was greater the higher the atresia was situated. He had known of two cases of high obstruction, in which death had followed evacuation, although no syringing was used. Emmett had published a number of cases, many of them of atresia high up, in which recovery had followed treatment by injections. He generally let the fluid flow for twenty-four hours, and then began antiseptic injections. All his cases so treated had been successful. Perhaps it would be best if a perfectly aseptic condition could be maintained by antiseptic dressings.—The President said that Dohrn had entered elaborately into the developmental histories of vaginal closures. What he (Dr. Duncan) wished to show was that cases with blue, thin-walled bulging between the labia were generally, often erroneously, called imperforate hymen, whereas in many, and also in cases where there was no vagina, a hymen could be distinctly seen.

New Intra-uterine Stem Pessary.—Dr. Swayne showed a new form of stem pessary. It consisted of a perforated vulcanite stem, which rested on an indiarubber band attached to a modification of Greenhalgh's pessary. These were introduced separately, but when *in situ* united by a silk thread. The advantages he claimed for it were that it was easily introduced, kept in place, and allowed uterine mobility, so that it was free from some of the dangers that attend stem pessaries. He should only use stem pessaries when simpler and safer means of treating uterine flexion had failed.—Dr. Heywood Smith asked what advantages Dr. Swayne's pessary had over that of Dr. Wynn Williams?—Dr. Edis thought stem pessaries very dangerous. The position of the uterus was too much regarded, whereas its condition was the chief thing. Numbers of cases of pelvic peritonitis occurred from the injudicious employment of stem pessaries, producing much suffering and not infrequently death.—Dr. Rogers did not think Dr. Swayne's instrument more perfect than that of Dr. Wynn Williams.—The President did not use any kind of stem pessary. He had known of many deaths from them, but he never knew of a case of version or flexion cured by them.—Dr. Robert Barnes thought stem pessaries necessary in some cases. Accidents had occurred from them, but now more scientific instruments had been contrived. He preferred that of Dr. Greenhalgh. He had cured cases of anteversion with stem pessaries.—Dr. Herman had known of a death following the use of one of Greenhalgh's stem pessaries.—Dr. Swayne said that in his pessary the indiarubber supporting the stem was firmer than in that of Dr. Wynn Williams. He had used it many times, always with good results. He had always carefully watched the patient, and withdrawn the stem whenever it gave rise to pain or rise of temperature.

A meeting of this Society was held on Wednesday, Nov. 1st, 1882, Dr. J. Matthews Duncan, President, in the chair.

Interstitial or Tubo-uterine Gestation.—Mr. Alban Doran exhibited a specimen of this condition. The gestation cyst was situated at the right side of the fundus uteri. At the anterior and outer aspect of the cyst the round ligament sprang from it, and the Fallopian tube passed into it, expanding as it did so into a funnel-shaped orifice. At the opposite aspect the cyst bulged into the uterine cavity, and a bristle could be passed from the uterus through the tube into the cyst; the tube being here also dilated into a funnel shape at its entrance into the cyst. The tubal origin of the cyst was thus proved. It had burst at the second month. There was a corpus luteum in the right

ovary. Mr. Doran had examined other cases of the kind in the London museums, and gave an account of them. He remarked on the rarity of the condition, and the tendency to early rupture. Had the abdomen been opened, amputation of the uterus would have been the only practicable treatment. He thought that cases in which development in a supposed hernial pouch of the uterus was suspected were probably tubo-uterine.

Cephalotribe.—Mr. C. E. Jennings exhibited an improved cephalotribe.

Hermaphrodite.—Dr. Chalmers exhibited the genito-urinary organs of a child in which the internal parts were female, while the external resembled those of the male. The clitoris was grooved below, but not channeled.—Mr. Doran said that grooving, and even channeling, of the clitoris was normal in some of the lower animals.—Dr. Fancourt Barnes informed the Society that the child he had exhibited at the last meeting had since died, and proved to be a female.—Dr. Champneys exhibited the genito-urinary organs of a female with extroversion of bladder, described by him in the St. Bartholomew's Hospital Reports. The external genitals were such as might belong to either sex.

Torsion of Cord.—Dr. Chalmers also showed an Umbilical Cord presenting remarkable twisting and narrowing near the umbilicus.

Tumour of Placenta.—Dr. Galabin showed (for Dr. J. C. Roberts) a placenta in which was embedded a tumour about the size and shape of an adult human heart. It was incapsuled, and on the uterine side covered by a complete layer of placental tissue. Near it were several small similar detached masses.

Description of a Kyphotic Pelvis, with Remarks on Briesky's Description.—This paper, by Dr. Champneys, was read. The pelvis, except for slight asymmetry, and a process which the author termed "posterior spondylolisthesis," was a typical kyphotic pelvis. The author criticised Briesky's description, laying stress on the influence of sitting, which, in the kyphotic pelvis, he believed, increased the inversion of the tubera ischii, while in the flat pelvis it increased their eversion; the difference depending upon whether the deformity caused the tubera ischii to be inside or outside the line transmitting the body weight—i.e., the sacro-iliac synchondrosis.

Puerperal Diabetes.—A paper on this subject by Dr. Matthews Duncan was read. The author pointed out the distinction between the slight glycosuria of pregnant and suckling women and real diabetes, with its polyuria and large amounts of sugar. Physicians and surgeons were well aware of the dangers introduced into their cases by complication with diabetes. But the subject of diabetes complicating pregnancy and parturition had attracted almost no attention, and this probably arose from its rarity, which might be accounted for by the disease frequently destroying in women the sexual energies, as it is said to do in man. The author had collected twenty-two cases in fifteen women, and they demonstrated the great gravity of the complication, as respects both mother and child. Of the twenty-two pregnancies (including those ending prematurely), four had a fatal result soon after delivery. In seven of nineteen pregnancies in fourteen women the child, after reaching a viable age, died during pregnancy. In two the child was born feeble, and died in a few hours, making an unsuccessful issue in nine of nineteen pregnancies. The histories showed that diabetes may intervene on pregnancy; that it may occur only during pregnancy, being absent at other times; that it may cease with the cessation of pregnancy; that it may come on after

parturition; that it may not come on in a pregnancy occurring after its cure. They showed that pregnancy may occur in a diabetic woman; that it may be not appreciably affected in its natural progress and termination by the disease; that it is very liable to be interrupted by death of the fetus.—Dr. John Williams thought that these cases were less infrequent than, owing to the fact that the urine was not always examined, was supposed. He had met with four. A trace of sugar in the urine was common, but this was not diabetes.—Dr. Robert Barnes had investigated the condition of the urine in pregnancy as to albumen, urea, and sugar. The occurrence of sugar was physiological, though not constant. Sinéty had shown that sugar appeared in the urine when lactation was suppressed; this was of interest in connection with the normal fatty change in the liver shown by Tarnier to occur in pregnancy. He (Dr. Barnes) drew a parallel between albuminuria and glycosuria during pregnancy. Both were physiological, but might pass the physiological boundary, and then grave accidents ensued.—Dr. Champneys inquired as to the treatment.—Dr. Carter said that the tendency of diabetics to collapse and coma would make us expect danger from pregnancy and labour.—The President said that the terribly fatal complication he had been describing had no relation to normal glycosuria. He thought, with Dr. Williams, that attention having been drawn to the subject, more cases would be published. He could lay down no special rules as to treatment.

On the Treatment of Post-partum Hæmorrhage by Hypodermic Injections of Ergotinine.—A paper on this subject, by Dr. C. Chahbazian (Paris), was read. Ergotinine was the alkaloid of ergot of rye; insoluble in water, soluble in alcohol or chloroform. One pound of powdered ergot yielded three grains of ergotinine. It was indicated in post-partum hæmorrhage due to imperfect contraction of the uterus. The dose for hypodermic injection was five to ten minims of a solution containing one-fiftieth of a grain in twenty minims. This might be repeated if necessary, but more than twenty minims should not be given. This produced strong and permanent contraction of the uterus, acted more quickly than ergot (which was only an extract of ergot), and did not cause local abscesses or indurations. Ergotinine was to ergotine as morphia to extract of opium. It was discovered and prepared by Tanret, of Paris.—Dr. Champneys inquired how long ergotinine would keep.—Dr. Wiltshire suggested that the hypodermic injection of ether might with advantage be combined with that of ergotinine.—Dr. Brunton asked how long ergotinine took to act.—Dr. Chahbazian said that uterine contraction usually came on in from two to five minutes after the injection of ergotinine. He could not say how long ergotinine would keep.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

THE first meeting of this Society was held on Friday, October 6th, at the West London Hospital, Hammersmith. The President, Dr. Hart Vinen, was in the chair, and over eighty-three gentlemen were present.

The President delivered an inaugural address, in which he thanked the members for the honor they had conferred upon him by electing him their first President, and congratulated them on the large number of practitioners who had already joined their ranks, which augured favorably for

the future progress of the Society. After alluding to the numerous Societies which exist for the prosecution of scientific pursuits, and the value of their labors to the general welfare of mankind, he urged the members to look to science as the best aid to the successful practice of their profession, and as not without its moral results. "For if the suggestion of Newton, that in proportion as natural philosophy is improved in its various branches, the bounds of moral philosophy will be enlarged also—if this be true, as it undoubtedly is, we may point to the labors of our scientific men as not only serving to extend the boundaries of our intellectual horizon, but as exercising a refining and humanizing influence over man's moral nature. But there is another light in which we may regard such societies as this, I mean their social aspects. The daily routine of professional duties too often restricts medical men to a very limited orbit, and furnishes them with few occasions for friendly intercourse with their brother practitioners. Here they have opportunities of meeting periodically on common ground, of exchanging opinions on professional and other topics, and by other men's experience enlarging and correcting their own. No remedy is so effectual for healing professional animosities as frequent intercommunication; and if I were asked to prescribe a panacea for their prevention, I should recommend an occasional dinner at the Star and Garter. Some may think this view of the matter savors too much of the sensual, but the periodical recurrence of such a social reunion would, perhaps, be more productive of good results than the strictest code of medical ethics." Dr. Vinen then alluded to the fact that more than twenty years had elapsed since he had filled the presidential chair of another medical society, and referred briefly to the most prominent changes which had taken place during the interval, especially dwelling on the germ theory of disease, which recent researches had done so much to establish, and the benefits which resulted to public health from the advance of sanitary science, in which he claimed for the medical profession the honor of being the foremost workers.

Dr. Burney Yeo then delivered the address.—Dr. Thudichum said he was much interested in Dr. Yeo's paper, though he did not agree with him. There was no proof that the bacteria were destroyed by his process. Those who had examined the expectoration of a phthisical patient and observed the bacilli present in it must have been impressed with the awful nature of the disease; the incalculable number present in the organ seemed to him to render the question of total destruction mathematically impossible. Dr. Yeo admitted that advanced cases were not suitable for this treatment, but he thought that there was no specific which did not cover all cases. He would ask how could these antiseptic inhalations reach the brain, or heart, or any other organ (except the lungs) which might happen to be the seat of tubercular disease?—Dr. Alderson thought that great benefit was to be derived from the use of the respirators, and was most certainly ready on this, as on other points, to reiterate the President's cry for "More light."—Dr. Rayner also endorsed Dr. Yeo's theory.—Dr. Browne wished to know how long it was necessary to wear the respirator at a time.—Mr. Jack was of opinion that whether the bacilli were destroyed or not, the process, in whichever form adopted, put the patient into a condition calculated to prevent a nidus being formed for the bacilli.—Dr. Thorowgood had no great experience on the subject, but he had most certainly noticed great improvement in those cases which he had so treated. He was accustomed to

order the respirator to be worn for an hour in the morning and evening; he found it promoted expectoration. Of the various antiseptics he himself preferred creasote. Sea air as obtained in a voyage was, too, he thought, most efficacious in the early stages of the disease; later on, it seemed to do more harm than good.—Dr. Yeo, in reply, said he did not wish in the remarks he had made to dogmatize in any way, he was only anxious to show that the theory he had been laying before them had a scientific basis. He must say, in answer to Dr. Thudichum, that he was unaware of his having used the expression "specific;" it was not his custom to use the word, and he failed to see anything detrimental to his theory in the fact that advanced cases were not suited to the treatment. As regards the alarming number of bacilli pictured, he would simply suggest that if Mr. Lister had frightened himself about the number of organisms to be encountered there would never have been any such thing as antiseptic surgery. The advantage of the respirator, as suggested by himself, consisted in its lightness and comfort in wear, in fact to its not being a muzzle; his patients wore theirs as long as possible during the working day, it being only necessary to remove it while eating or drinking. He agreed with Dr. Thorowgood in preferring creasote, but he had used eucalyptus and pinewood oil with great advantage, though the latter was to some rather irritating. He saw no reason why still more direct treatment should not be attempted, and he hoped soon to try the effect of injecting by the long needle of an aspirator, a small quantity of bichloride of mercury.

Mr. Saville Kent and Mr. Baker showed specimens of Bacilli, Bacteria, etc.

A meeting of this Society was held on Friday, Nov. 3rd, and was devoted to clinical cases. Dr. Hart Vinen, President, was in the chair, and some forty-five members were present. The principal feature of the evening was the exhibition of three cases of Charcot's joint disease.

The first case was shown by Dr. Atkinson. Besides the usual phenomena of locomotor ataxy, the left shoulder-joint was seriously affected. Some three months after the first symptoms were manifested this joint became swollen till it measured thirty-nine inches in circumference, without any pain or inflammation. At that time (some ten years after) the joint was not enlarged, but there was marked prominence of the acromion process and flattening of the deltoid, and on examination the head of the humerus was distinctly absent, having been entirely worn away, so that the arm could be thrown about in any direction, as if it were a flail. Dr. Atkinson said that the pathology of the joint affection appeared to be some degeneration or disturbance of the trophic nerves supplying the bone leading to the defective nutrition of the osseous tissue, and this might also cause the spontaneous fractures described by Dr. Weir Mitchell as sometimes happening in patients with this disease.

Mr. Edwards, in bringing forward the second case, said that here too the left shoulder was the special joint affected. When the patient first came under his notice some twelve months ago there was a large effusion under the pectoral muscles (not in the joint itself), which was said to have come suddenly a few days before after lifting a weight; he at first thought it must be a hæmatoma, and aspirated it, drawing off some ounces of reddish fluid. Soon after the swelling recurred in the joint itself, in moving which distinct crepitation could be felt, and the head of the humerus

could be easily dislocated, showing that the head of the bone was partially absorbed. With regard to other symptoms, the patient had experienced the "lightning pains," his pupils were contracted unequally, and this patellar tendon-reflex was modified, but not absent.

Mr. Keetley exhibited the third case, in which the symptoms of ataxia as well as joint affection were well marked. He remembered seeing Mr. Edwards' case before, and thought then that there was no ataxia present, but was not aware if further symptoms had been developed since.

A discussion followed in which Dr. Thudichum said that locomotor ataxia was accompanied with a change in the nervous centres termed amyloid (first described by Virchow). Granules were deposited, which after treatment with dilute sulphuric acid and iodine became blue and appeared like iodized wheat-starch granules. It had been said that amyloid matter was albuminous, but that was erroneous. Some amyloid is a starch-like body, and no doubt derived from the decomposition of some of the cerebrin bodies, of which the brain and nerve tissues contained more than 4 per cent. This decomposition set free a sugar cerebrin, all of which can be reduced by losses of water to the amyloid matter. The deposition of this matter in any part of the nerve tissue, particularly the spinal marrow, produced all the varied symptoms shown in these cases.

Mr. Potter next showed a patient, aged sixty-six, who, three years ago, whilst engaged as a laborer, was struck on the occiput by a falling wall, and the cervical spine was forcibly flexed. He was rendered unconscious for two days, but indistinctly remembered some one pulling upon the head and twisting it from side to side. Loss of power and sensation of the right arm and leg was noticed by the man when consciousness returned. He kept his bed for four months, an immovable apparatus for the head and neck being applied. One month after the injury the neck was noticed to be swollen, and increased till one year ago. No history of syphilis or rheumatic arthritis. A swelling in the median line at the back of the neck, extending from one inch below the external occipital protuberance to the sixth cervical spinous process, measuring about four inches in diameter. The trapezii appeared to be incorporated with the swelling on each side. It was hard, dense, with no discoloration, not tender on pressure, and with no evidence of deep fluctuation. The manubrium sterni and upper three costal cartilages and larynx were abnormally prominent; the chin almost touched the sternum. The posterior boundary of the pharynx could hardly be reached with the tip of the finger. The patient complained occasionally of dysphagia and dull aching pain in the swelling. Mr. Potter thought the nature of the tumour obscure; the history, however, tended to show that the swelling was due to callus, which, in this case, was exuberant, owing to the movements of the neck being difficult to restrain. Whether the spinous processes with a portion of the laminae were fractured without much interference with the cord and nerves it was difficult to determine.—Mr. Keetley said that after careful examination of the case he could not help thinking that the patient's injury had been rather under-estimated. It appeared to him that there was a general bending backwards of the cervical region, and that the bodies of the vertebrae had been forcibly compressed, leading to fracture; the deformity was owing to a condition similar to that met with in Pott's curvature of the spine.—Mr. Potter, in reply, said although this was possibly the case, the absence of callus deposited on the anterior parts of the bodies was a fact to be borne in mind.

Mr. Lunn exhibited the Brain of a patient who had died after a third attack of Apoplexy. The case first came under his notice in the second attack, which was one of right hemiplegia, and aphasia, and from these partial recovery, when the third seizure took place. It was observed that the temperature rose from the commencement of the seizure till death from 99° to 106° F., and after death there was a further rise to 108° in the rectum. Mr. Lunn had noticed this rise in temperature in three other cases of apoplexy. On examining the brain, the right ventricle was found distended with a dark soft clot and fluid blood, and the optic thalamus was extensively lacerated. On cutting through the left corpus striatum, a cyst about the size of a walnut, lined by a smooth yellowish-brown membrane, and filled with clear yellowish fluid, was found.

Dr. Clippindale brought forward a case of Spontaneous Dislocation of the Sternal end of the Clavicle consequent upon lateral spinal curvature, due to dislocation of the hip, and observed that he could find no similar case on record, and only one case of spontaneous dislocation of the sternal end of the clavicle.

Mr. Keetley lastly shewed a case of Arterial Embolism. When the patient was admitted into the hospital in the month of August, pulsation could be felt in both external iliacs, and in the right but not in the left femoral artery; strongly in the right tibials, feebly in the left. In the situation of the left common femoral was a slight swelling tender to touch. Temperature in both legs about the same; no signs of cardiac disease; had shortly before admission been so "low-spirited" as to lead his friends to fear an attempt at suicide. He was put on iodide of potassium (ten grains) and aromatic spirit of ammonia (half a drachm) three times a day. He steadily improved; pulsation gradually returned in the left femoral and grew strong in the tibials, while the tenderness over the common femoral diminished; but the oedema of the left leg, which had at first been scarcely perceptible, increased considerably till the difference in measurement was two inches. His spirits also brightened up, and he felt quite well, strong, and cheerful.—Dr. Pope asked if the patient were in the habit of flexing his leg.—Mr. Lloyd also wished to know whether there had been typhoid symptoms, or whether the rectum were loaded.—Mr. Keetley answered the last two questions in the negative, and said that the man's employment was that of a machinist.

EPIDEMIOLOGICAL SOCIETY.

A MEETING of this Society was held at University College, Gower-street, on Wednesday, November 1st, Dr. George Buchanan, President, in the chair.

Dr. Norman Chevers read a paper on the Sanitary Defects of the Site of London and its Environs, of which the following is an abstract. He was of opinion that notwithstanding all that modern land and town drainage had effected in the way of improvement, the most prevalent and worst diseases of the United Kingdom are due to the survival of thousands of acres of unreclaimed marsh land, and to the presence of thousands of miles of sewers, drains, and ditches, which retain, exhale, and exude as much as they void. The Celtic and Roman founders of London chose their position mainly because it was defensible in war, and without any knowledge of the laws of malaria. The superficial geology of London may be represented by an oval cup of London clay and brick earth, extensively traversed and margined by marsh alluvium across the longer diameter, of which

irregular heaps of more or less sandy gravel form a broken line of slight elevation. The greater part of Roman London was seated on good building ground. Originally marshes or swampy soil surrounded the entire land aspect of modern London, with the exception of an isthmus on the north-west. The whole line of the northern hills had, at its foot, oozy soil, into which the drainage of the uplands sank, to be only partially carried off by streams. The City was also protected on the north side by Finsbury and Moorfields, formerly a vast swamp. To the east London is bordered by the extensive marshes of the river Lea and the Thames, and east of these marshes extend vast tracts of the Essex and Kentish marshes, sixty miles to the sea. The Kentish marshes extend also to the south border of London, and those parts of the City now bearing the names of Bermondsey, Southwark, and Lambeth, were especially notorious, almost down to the present time, for the occurrence of ague, dysentery, and remittent fever, amongst the inhabitants. Originally the marshes westward were as injurious to the public health as those to the east; Westminster was almost an island even in Queen Elizabeth's reign, and St. James's Park was liable to be flooded up to 1682. Even now South Belgravia is threatened with inundation from the Thames. Northward of this part of London the ground is more or less elevated, and gravel and clay are found more abundant. Dr. Chevers next pointed out that much of the ground upon which houses are now, and have been for centuries, built consists of made earth; for instance, that in Finsbury-fields in 1549 one thousand cartloads of bones were deposited, and upon this was laid the soilage of the City, all of which has long since been built over. He then briefly alluded to the significance of the Anglo-Saxon word *ey* in many of the place names of London, as showing that the localities were originally paludal; and mentioned a few facts which indicated the great prevalence in old times, and as late as the end of the seventeenth century, of dysentery and intermittent fever in London. Dr. Chevers urged the necessity for a great national movement for the reclamation and utilization of marsh lands near London, and that a Royal Commission should be appointed to inquire into the whole question and adequate funds raised. He believed trees might be planted on the Essex and Kentish marshes which would in a few years mitigate the severity of the east wind; that all kinds of manufactures not requiring night service might be carried on there; and that market gardens and reservoirs for fish for markets might also be made, and thus render the lands not only more salubrious, but more valuably productive than they are at present. He concluded by saying that every landlord should be under legal obligation to satisfy his tenant whether the site of his house had been a marsh, a brickfield, a burial-ground, or a plague pit; whether the house is built upon concrete, and whether there are disused cesspools near the building. In the discussion which followed, the President, Sir Joseph Fayrer, Surgeon-General Hunter, Surgeon-Major Don, Dr. Thorne, Mr. Shirley Murphy, Dr. Henderson, Mr. Long, and Dr. Balfour took part.

CAMBRIDGE MEDICAL SOCIETY.

At the meeting on Oct. 6th, 1882, Professor Humphry, President, in the chair, Mr. Wherry related a case of Complete Inversion of the Uterus. The patient was a woman who had been delivered two days previously of a healthy male child, which was born rather suddenly and with a short

thick cord. She was given twenty minims of liquid extract of ergot after delivery, and shortly after this had a pain, and there was protruded from the vagina what at first appeared like the head of another child, but which proved to be the inverted uterus, with the placenta adherent. There was not much hemorrhage. The medical attendant detached the placenta and endeavored to replace the uterus by his hand, but he was obliged to desist, owing to the great softness of the uterine walls and the collapsed condition of the patient. Two days later, when called in, Mr. Wherry found the uterus completely inverted. Ether was administered, but it was quite impossible, owing to the doughy softness of the fundus, to replace the uterus with the unaided hand. Accordingly a large rubber drainage-tube was inflated to about the size of an egg at one end and ligatured. The hand, in the form of a cone, was passed into the vagina, and the finger tips, pressed against this air pad, were in no danger of lacerating the walls of the uterus. Half an hour's pressure, first with one hand and then with the other, against the most prominent part of the fundus, at length reduced the uterus, leaving the dilated tube in the cavity. The string was then cut and the collapsed tube withdrawn. The replacement was not by a jerk, but gradual, and to be compared to the relief of a paraphimosis; it was evidently effected by squeezing fluid out of the oedematous tissues of the uterus. The patient, after three days of fever and pain in the body, made an excellent recovery.—Dr. Ingle said that complete inversion of the uterus must be a rare occurrence if the figures given in some text-books were correct. Braun states that of 150,000 births in the clinics respectively under the charge of Spæth and himself, not a single complete inversion had come under their notice. There was one case in 190,000 confinements at the Rotunda; but much doubt had been thrown on these statements by later writers. He had not seen a case of complete inversion, but remembered one of partial, in which the patient died very quickly from hemorrhage. Might not such an accident arise from a mal-condition of the walls of the uterus brought on by constitutional disease; by previous imperfect involution; or from irregular contractions; the normal rhythmical movements of the muscular coat being interrupted from either of the above causes? Would not restoration be better effected by the free use of chloroform before an attempt at replacement? It had been shown by Dr. Hewitt how more or less inversion may occur days after labour from incautious exertion. Is it not likely that partial inversion takes place much oftener than is supposed, but is altogether overlooked, leading to grave subsequent interruptions of the monthly health?

Mr. T. Lucas (Cambridge) produced a specimen of Membranous Cystitis from the bladder of a woman he had attended for this condition. The patient was twenty-eight, and was delivered of her third child in 1881. She had phlegmasia dolens after the birth of her second child. On the ninth day after her last confinement she had pain over the hypogastric region and retention of urine. In a few days she had feverish symptoms and a temperature of 103°, pain in the left groin, followed by swelling of the left thigh and leg. The use of the catheter was required for twelve days, after which time the leg was well. The urine contained mucus and albumen. Ten days later there was complete and sudden retention of urine, and on passing the catheter an obstruction was met with which proved to be a piece of membrane blocking the urethra. This was withdrawn in pieces, and then a quantity of ropy urine escaped through the catheter. A few days later a piece of

membrane about six inches by four was removed, and subsequently another piece, ten by twelve inches, came away. Ten days later the woman had entirely recovered. The membrane consisted of a fibrillated network, in the meshes of which were enclosed leucocytes, granular matter, and crystals of phosphate of lime, and seemed to be a cast of the mucous surface of the bladder.—Dr. Humphry said he had, in the case of a young woman, dilated the urethra with his finger and removed a large amount of mucus membrane covered with phosphatic deposit; and observed that the mucus membrane of the bladder had hardly any secretion and very little glandular substance. In cases where the whole mucus membrane sloughed off it seemed due to a process called by Leuchars necrosis of the membrane.

Dr. W. A. Smith (Newport) related a case of Lateral Sclerosis. The patient, a man, aged forty-four, eighteen years previously had sprained his back by lifting a heavy weight, and had for the last two years been getting more feeble and stiff in his back, and had pains in his legs. He was removed to St. Walden Hospital, and while there the chief symptoms were general rigidity of back and legs, excessive knee-jerk and ankle clonus, slightly impaired sensation, especially in left leg, and considerable wasting, also deep-seated tenderness at lower part of spine on pressure, and pain extending to the groin. There was also a general shaky condition of head and lips, and fibrillary twitchings and stiffness about muscles of the neck. He was treated with iodide of potassium, blisters, and actual cautery. Dr. Smith considered the case one of lateral sclerosis, with very slight, if any, disease in the posterior columns, and that the stiffness of the muscles of the head and neck might possibly point to some patches of sclerosis high up in the cord. He discarded the notion that there might be any deep-seated caries, but thought these pains might be due to pachymeningitis of the cord. This, too, would satisfactorily explain the lateral sclerosis, because primary sclerosis is very rare, the disorganization usually following a focal lesion as a focal myelitis.—Dr. Bradbury mentioned a case he had treated in hospital, and which had rapidly mended under the use of iodide of iron and the battery, after the failure of other remedies, and another case in which ankle clonus and knee-jerk had existed and in which iodide of potassium had failed, but which had, after two months, nearly recovered under the use of syrup of the iodide of iron and quinine.—Dr. Paget referred to a case under his care where apical disease occurred in a man accustomed to violent exercise in cricket, skating, etc.

Dr. Bradbury narrated a case of Cerebellar Tumour. The patient was twenty-two years of age, had never had syphilis, and there was no history of injury or fits. He had been subject for years to neuralgia in face and forehead, and for a month, before coming under Dr. Bradbury's care, to neuralgic pain on the top of the head and the occipital region. Sleep was disturbed, and the pain had exacerbations every few minutes, always increased at night. Had vomited at first, but that abated. There was an expression of suffering in the face (in May), pain in occipital region, but no signs of disease in the thoracic or abdominal organs, and the optic discs were normal. In June he had had considerable relief from pain and had taken belladonna and quinine, and afterwards iodide of potassium. During the next month he had occasional sickness and pain varied in amount. In July he lost control over his rectum, but not over the bladder. He was unable to walk without help, but when assisted took short hesitating

strides with some tremor of legs. Gait unaltered when eyes shut; has had no tendency to bear to one side more than the other in walking. Sensation unaffected. Patellar reflex slightly exaggerated. No ankle clonus. In August there was no vomiting or diarrhoea, but a good deal of headache, though there was progressive weakness and emaciation. On September 9th he died rather suddenly, after having got steadily weaker. The pain had diminished and he had been getting drowsy, and had lately lost the control of his sphincters. The autopsy revealed a tumour in the right hemisphere of the cerebellum, as large as a hazel nut, consisting of a white cheesy mass of irregular shape, surrounded by softened cerebellar structure of a reddish color with a few hæmorrhagic spots. The rest of the lobe was softened and altered. In the left lung was a small cavity at the apex, surrounded by caseous tubercles, and there were miliary tubercles scattered in the lower lobes of both lungs. Dr. Bradbury remarked that in this case two of the symptoms of an intracranial growth were present at an early stage—viz., vomiting and cephalalgia; another symptom, double optic neuritis, was absent throughout, as sometimes happens in cases of even large intracranial tumours. As there was no optic neuritis or atrophy, so the sight was not affected. The diagnosis of cerebellar tumour was based on the seat of pain, which was chiefly occipital, and the peculiar gait of the patient, which was like that of a drunken man—a swaying of the trunk during progression from front to back and from side to side. This has been called the "cerebellar reel." Vertigo was not a prominent symptom. During the latter part of his illness the patient lay in a peculiar apathetic condition, but answered questions on being roused. There was no complaint of stiffness about the back of the neck. The patellar tendon-reflex was slightly exaggerated. The presence of tubercles in the lungs showed the cerebellar tumour to be of a tuberculous nature.

MIDLAND MEDICAL SOCIETY.

THE first ordinary meeting of this Society was held in the Birmingham Medical Institute on October 25th, Dr. Malins, president, in the chair.

Mr. Furneaux Jordan exhibited a specimen of a Suppurating Node, situated on the upper portion of the diaphysis of the tibia. The child was the subject of inherited syphilis, and its general condition was such as to necessitate removal of the affected limb above the condyles. The subsequent recovery was rapid.—Mr. Chavasse thought that the bone disease of inherited syphilis originated in the medulla of the diaphysis, as suggested by Waldeyer, and was not an osteocondritis commencing in the cartilage.

Dr. Malins showed a new form of Uterine Sound of ingenious construction.

Mr. Chavasse exhibited a specimen extracted by literal lithotomy from the bladder of a man forty-seven years of age. It consisted of three inches of solid indiarubber tubing thickly coated with phosphates. The patient had introduced the tubing to relieve himself of scalding during micturition.

Mr. E. L. Freer showed a portion of the Cranial Vertex, about two inches square, devoid both of aponeurosis and dura mater, which had been blown off a boy's head by the bursting of a small pistol. The weapon contained neither bullet nor foreign body. Death was instantaneous.

Mr. Furneaux Jordan gave the details of three cases of Gunshot Injury to the head, in which recovery took place with retention of the bullets.

The first was that of a man who shot a woman through the ear, and afterwards himself, with a fatal result. The bullet entered the woman's external auditory meatus, and passed into the petrous portion of the temporal bone. With difficulty a portion of the bullet was extracted by one of the three surgeons who met in consultation, but it was deemed advisable to make no attempt to interfere with the remaining part. The patient made a perfect recovery. The second case was that of a middle-aged clergyman and magistrate, seen in association with Mr. Walker, of Upper Gornal, who was deliberately fired at three times. The first bullet entered behind and above the right mastoid process and penetrated to the interior of the cranial cavity, as evidenced by an escape of cerebral matter through the wound. The second bullet entered the mouth, passing upwards and perforating the hard palate. The third bullet entered the side of the neck, and probably lodged in the body of one of the cervical vertebrae. On receipt of the injury the patient did not fall, although a certain amount of shock resulted. When examined by Mr. Jordan the wounds were dry and covered with blood-clot, so no attempt was made to dislodge the bullets. With care and quietude a complete recovery resulted, and now, after three years, a hard substance can be felt along the floor of the right orbit. This is considered to be the second bullet, which has worked its way into the orbital cavity, where it gives rise to no inconvenience. The third case was that of a gentleman who was seen in consultation two days after an attempt had been made at suicide. The pistol had been pointed just above the right zygomatic arch, and the bullet had probably passed towards, and fractured, the roof of the right orbit. The brain matter was found outside the wound. There was complete unconsciousness and an enormous sanguineous extravasation around the orbit. The aperture of the bullet was small and covered with a dry blood-clot. Expectant treatment was adopted; consciousness gradually returned. The extravasation subsided, and ultimately recovery took place. Mr. Jordan agreed with the general rule that no attempt should be made to extract bullets which had perforated any of the great cavities of the body unless they can be easily and certainly reached, the retention of the bullets giving the patient a far better chance of life than that afforded by strong or prolonged efforts to extract them. To trephine in such cranial injuries was held to be a dangerous expedient. If ever needed it should be only with full Listerian precautions. If any foreign body is driven into the wound the prognosis is rendered more grave, but pieces of bone were not regarded as such a bad complication as were portions of clothing.—In the discussion which followed, Mr. Greene gave an account of an attempted suicide in which the bullet was found quite flattened out, lying in contact with the parietal bone.—Mr. Eales narrated the case of a man, aged sixty, who, in the dissecting-room at Queen's College, was found to have a bullet encysted in the mastoid process, and impinging upon the lateral sinus. On inquiry it was found that the man was an old soldier who had served in the Crimea and also in the Indian Mutiny. The wound had been received many years before death.

Mr. Priestley Smith, who had had charge of a hospital in the Franco-German War, and many hundred cases of bullet wounds, did not see or hear of any instance recurring in which the cavity of the skull had been opened. Such patients generally died before they could be sent back from the front.—Mr. Freer, Mr. Bennett May, Mr. Jordan Lloyd, and Mr. Harman also made remarks upon the paper.

Dr. Saundby read a paper on the Treatment of

Epilepsy, in which the following points were insisted on:—1st. The value of combining the bromides of potassium, sodium, and ammonium, as recommended by Professor Brown-Séquard. 2nd. The advantage of adding tincture of digitalis and sometimes theine to the mixture to counteract the depressing influence of the bromides. 3rd. The utility of zinc as an adjuvant in the treatment. 4th. The successful use of borax in some cases of obstinate epilepsy, of which two illustrative cases were given. 5th. The value of theine or caffeine and nitro-glycerine in the treatment of epileptic vertigo.—In the discussion which followed the paper, Mr. R. Smith, Dr. John Greene, Mr. J. H. Palmer, Mr. Lloyd, Dr. Robinson, Mr. Eales, and Mr. Chavasse took part.

NORWICH MEDICO-CHIRURGICAL SOCIETY.

THE first meeting of this Society was held on the 7th inst. at the Norfolk and Norwich Hospital, Dr. Barnes (Eye), the President, in the chair.

An exhaustive retrospective address of the work done during the past year was read by Mr. T. L. Lack.

Mr. F. C. Bailey (Norwich) exhibited a specimen of a Double Fœtal Monstrosity, united apparently by the sternum; the specimen was reserved for dissection in order to demonstrate the bond of union.

Dr. McKelvie (Cromer) exhibited a fibro-sarcoma of the neck removed post mortem; the tumour had existed about fifteen years; it measured 32 in. by 30 in., and weighed 17½ lb.

Editorial.

SIR THOMAS WATSON, BART.

FULL of years and of honors, the greatest English physician of the present century has at length gone to his rest. We have elsewhere given some details of Sir Thomas Watson's distinguished career, and we have traced his progress from the Grammar School at Bury St. Edmunds to the unquestioned headship of the medical profession, a position which for many years he occupied with singular honor and dignity. As he was honored by being so highly placed amongst his professional brethren, so his exaltation may be said to have reflected honor upon the profession, whose members so highly and so universally appreciated the high qualities of their revered head.

The last occasion on which Sir Thomas Watson attended a meeting of the Fellows of the College of Physicians was in the spring of the present year, when Sir William Jenner was for the second time elected President. In the absence of the senior censor, the senior Fellow present was called upon, in the usual form, to deliver to the re-elected President the insignia of his office and to administer the formal oath. When Sir Thomas Watson got up to walk towards the President's chair, the whole of the assembled Fellows rose as one man to show their respect and affection for their venerable ex-President. The respectful feeling which was then so touchingly and spon-

taneously displayed by the assembled Fellows of the College of Physicians is shared by the entire profession, who will feel as a personal loss and sorrow the removal of one whom they have so long been accustomed to regard as their most distinguished member. What, then, are the qualities which have gained for this great physician the respect and affection of all who have had the privilege and the happiness of knowing him? It is the rare and happy combination and balance of great intellect with the highest moral qualities which constitute the truly wise and good man. In this sense an eminent living physician has spoken of Sir Thomas Watson as the wisest man whom he had ever known; and a near relative describes him to have been the most unselfish of men. His own lectures and public addresses may be looked upon as giving the best and fullest illustration of the illustrious physician's mind and character. What student or practitioner of medicine can read thoughtfully that well-known and often-quoted introductory lecture in which, in terms of solemn and lofty eloquence, are set forth the privileges and responsibilities of those who enter the profession of medicine, without being led to form a higher estimate of his calling? without being inspired by the desire to act up to those lofty principles which the earnest teacher endeavors to infuse into his pupils? And that he taught no less by example than by precept is known and gratefully acknowledged by thousands who have had the privilege of his acquaintance. He was himself a living impersonation of the principles which he so eloquently expounded in his lectures. And, withal, he was modest and unassuming, as becomes a truly great and wise man.

THE MOVEMENTS OF THE BOWELS IN HEALTH AND DISEASE.

PERHAPS there is no function of the body which plays a more important part in various morbid conditions of the abdominal viscera than the movements of the bowel; and certainly there is none which, in its pathological relations, has received less experimental study. Uncertain inference from clinical symptoms is almost all that physicians have had to depend upon in their diagnosis, and in their endeavor to alter by treatment that which they assume to be present. As an instance, we may adduce the difference of opinion which has existed and still exists among distinguished authorities on the question whether there ever is, in morbid states of the bowels, what has been mis-called an antiperistaltic action—a question of great importance in many acute disorders.

Thanks to the well-directed energy of Nothnagel, and so far as animals can furnish it, we have now some definite knowledge. He has made a series of experiments to ascertain by actual observation what modifications the intestinal movements undergo in morbid states. The experiments (de-

scribed in the *Deutsche Zeitschrift f. Klin. Med.*) involved no suffering to the animals concerned. All were kept insensible by ether—dogs and cats by inhalation, rabbits by subcutaneous injection; and all were killed by division of the medulla oblongata as soon as the experiment was over, and before the return of consciousness. The method employed was that of Sanders and Van Braam Houckgeest, of keeping the animal, with abdomen opened, immersed, with the exception of the head, in a one-half per cent. saline solution, at a uniform temperature of 100-2° F. Under these circumstances, as the originators of the method pointed out, rest is the rule in most parts of the bowel, with the exception of the duodenum. Now and then, at rare intervals, there is a gentle peristaltic movement in the small intestine, and local irritation causes only a local effect, without producing any trace of general peristalsis. But the condition is changed at once by the presence of a quantity of gas and liquid distending part of the bowel. This is immediately moved forwards by a stormy peristalsis, a circular contraction behind it pushing the distended portion onwards to the cæcum. Sometimes, however, the movement suddenly stops, to go on again after a brief pause. It is distinctly analogous to the sudden temporary cessation of griping pain, which is familiar to most people. Nothnagel can discover no cause for it, except a sudden inhibitory nervous influence, which its aspect indeed suggests.

As regards the first fundamental question—the occurrence of antiperistalsis—Nothnagel entirely corroborates the statement of Engelmann, that the intestinal contractions may take place either upwards or downwards. But the last-named observer, experimenting with the intestine exposed to the air, was in error in assuming that peristaltic action, upwards or downwards, was set up by any local irritant. When the bowel is preserved from the air by the saline solution, local irritation causes a local constriction, if the bowel was previously at rest. Moreover, Nothnagel concludes, from a series of sixty observations, that antiperistalsis never occurs in the normal uninjured intestine so long as no pathological influences are brought to bear upon it.

The effect of injections into the rectum was next investigated, the injections being of indifferent or irritating liquid, tinted with carmine so as to show how far it was sent up the intestine, and post-mortem examination subsequently showed whether it had been carried higher by any movement of the intestine itself. A small quantity of warm water (from two to five cubic centimetres) had no effect; it remained in the rectum until ejected by a contraction, or until it was absorbed. A somewhat larger quantity distended the rectum, but seemed to excite little peristaltic action, some of it escaping in consequence apparently of the elasticity of the bowel. Iced water caused constriction, which passed a short distance upwards so as to move the

injected fluid up from five to twenty centimetres. Olive oil gave a similar result. Of greater significance, however, was the effect of a strong solution of chloride of sodium. A small quantity, three to five cubic centimetres, passed up, by the force of the injection, about ten centimetres. In a few minutes, however, the colored liquid was carried upwards by a distinct ascending contraction, and the antiperistalsis gradually carried it, together with a mass of faeces, as high as the caecum. Sometimes the antiperistalsis took the form of a series of circular constrictions, especially marked at the highest part of the column of liquid. Besides this, descending contractions occurred in the lowest part of the rectum. Similar results were obtained with injections of concentrated solutions of nitrate of potash and bromide of potassium, and weak solutions of sulphate of copper.

Nothnagel found that the needle of a hypodermic syringe could be passed through the wall of the small intestine without exciting local contraction, and the minute wound immediately closed without allowing the escape of the intestinal contents. Injections of chloride of sodium were found invariably to cause contractions which passed upwards as well as downwards. In a case of ileus in the human subject he found that chloride of sodium solution has evidently the same effect as in animals, since a small colored injection into the rectum was found after death to have passed upwards some distance above the caecum. The fact may possibly prove of great practical importance in the treatment of intestinal obstruction. The injection of indifferent fluids of the temperature of the body had as little effect on the small intestine as on the rectum. The conclusion from this series of experiments is that when the intestine is under normal conditions, or contains only unirritating contents, the peristaltic contractions occur only in the direction from the stomach towards the anus. If, on the other hand, the contents of the bowel consist of an irritant substance, the stimulant causes contractions to pass also in the opposite direction. Nevertheless it was found that the latter only occurs when the irritant substance is introduced into the bowel in, so to speak, an unphysiological way. A solution of sulphate of copper was injected into the stomach, and quickly passed into the bowel, but, entering it thus, it caused only descending peristaltic contractions. Hence we must assume that, so to speak, performed arrangements exist, of an anatomical or physiological nature, which determine the direction of the movement.

How does faecal vomiting occur in cases of obstruction of the bowels? It will be remembered that many authorities, from the time of Van Swieten, have asserted that it does not necessarily occur by antiperistaltic contractions. Van Swieten maintained that it was by the action of the diaphragm and abdominal muscles, and Brinton urged with great ability that its mechanism must

be a reflex current in the centre of the distended intestine, opposed in its direction to that of the peristaltic action. Van Braam, Houckgeest and Lichtenstern have experimented on the subject, and were unable to discern any ascending contractions. Nothnagel has made a large number of experiments on this subject. Ligature of the small intestine caused in some cases very little effect. The intestine above gradually became filled without any marked contractions, and the portion below gradually became emptied. In other cases, however, a series of vigorous contractions passed down from the stomach, and distended the part immediately above the ligature, ceasing in the distended portion, and as this extended upwards higher, the section in which the peristaltic contractions occurred became smaller and smaller, until it was reduced to a narrow segment near the pylorus. After the distension had existed for half an hour, local contractions could no longer be excited by mechanical stimulation; the intestine was evidently paralyzed. In these cases there was no antiperistaltic action. In others, however, the descending contractions on reaching the ligature seemed to return up the bowel for a very short distance, and were even augmented in force just above the ligature, so that the intestine here was emptier than it was higher up. There was no regular antiperistaltic action, and after a short time these "rebounding contractions" ceased, and the distension and paralysis went on as just described. Sometimes, however, the peristaltic action quickly ceased, but the distended bowel seemed to undergo a slow imperceptible contraction, which caused its contents to pass upwards, because the ligature prevented them from passing downwards. In a series of experiments in which the intestine was ligatured through a small opening in the abdominal wall, and was returned into the cavity for some hours before the abdomen was opened, the events were found to be essentially the same. Various injections were also made into the intestine above the ligature. When indifferent liquids were injected, these were moved upwards, sometimes as much as thirty centimetres, although only by the descending peristalsis and the rebounding contractions already described as occurring just above the ligature. Injections of a concentrated saline solution, however, produced distinct ascending antiperistaltic waves, precisely similar to those produced in the unligatured bowel by the same injection, and by them the liquid was quickly moved upwards.

The paralyzing effect of the distension of the bowel above the ligature, which quickly annihilates its movements, throws an instructive light on the well-known injurious effect of purgatives in cases of intestinal obstruction. As they increase the peristaltic contractions, they carry the contents of the intestine more rapidly to the neighborhood of the obstruction, and so more quickly bring about the paralysis which follows distension.

The results of these experiments are certainly opposed to the idea that fæcal vomiting is the effect of any regular antiperistaltic contractions. These were only observed as the effect of the presence of irritant substances in the bowel, and the only condition in man to which this observation can fairly be applied is that in which irritating aperients, such as croton oil or colocynth, have been given. The simple diffusion of liquid contents causes their slow extension upwards, and a still greater effect is produced by the rebounding contractions, but the influence of both these was too slight to allow them to be regarded as the cause of fæcal vomiting. The conclusion of Nothnagel therefore is that this symptom results indirectly by the mechanism which Van Swieten rightly assumed. To some very instructive observations of Nothnagel on the movements of the intestines in other morbid states, we must return on another occasion.

THE GROWTH OF THE BODY.

THE course of the physical development of the human body has often been the subject of investigation, and most of the facts relating to it have been so carefully ascertained that it might seem that there is scarcely room for fresh researches on the subject. The facts of growth have been, however, once more verified, and, we must add, our knowledge of them has been extended by Dr. Thoma, who has described, in a volume of nearly three hundred pages, the observations he has made, which relate to the development not only of the body as a whole, but also of some of its constituent organs and tissue-elements, and thus constitute a very complete account of the subject. The comparison of his own measurements, and those of others, shows that to the usual excess of the body-length and body-weight of males over females, there is an exception between the twelfth and fifteenth year of life. At this period the development of the female equals, or even exceeds, that of the male, an indication of the earlier attainment of puberty in the female sex. Normal growth is not uniform, but presents an increased or lessened activity at different periods of development. The most rapid growth is observed in the last months of foetal life; after birth it gradually becomes slower, until some time between the sixth and ninth year. An acceleration then commences, which becomes most rapid between the thirteenth and sixteenth year, and after this epoch a progressive retardation is observed. The full height is attained at latest by the thirtieth year, but the average weight continues to increase. In later life both lessen. The variations from the average are greatest at the period of most rapid growth, and least when this is slowest. All the phenomena occur earlier in females than in males.

Of the internal organs, chief attention was paid to the heart and the kidneys. The average weight

of the heart undergoes the most rapid increase immediately after birth; its rate of growth gradually diminishes, but at puberty it presents a transient acceleration. After forty-five a slight increase in weight occurs, and no doubt, as commonly believed, this increase is the result of degenerative changes in the arterial system. Apart from these special influences the curve presented by the rate of growth has nearly the same shape as that which indicates the body growth. Like this, also, the chief deviations from the average are met with at the period of most rapid growth, immediately after birth. Thoma has given certain rules for comparing the weight of the heart and body, by which he believes that the existence of hypertrophy can be recognized with certainty even when it is too slight to be detected by ordinary methods of estimation. The rate of growth of the kidneys is nearly the same as that of the heart and the whole body; and the relation borne by the weight of the heart and of the kidneys to that of the whole body is nearly the same throughout life. At all periods of life the weight of the left kidney is greater than that of the right.

Measurements of the larger bloodvessels showed, amongst other facts, that the post-foetal growth is least in the common carotid artery, and greatest in the renal and femoral arteries, while the rate of growth of the subclavian is between these, and nearly corresponds with the aorta and pulmonary artery. These differences correspond with those which exist in the growth of the parts of the body to which the vessels belong. Up to the thirtieth year of life the pulmonary artery is, on the average, a little wider than the commencement of the ascending aorta. From facts which he has ascertained Thoma has formulated many very interesting mathematical conclusions.

Obituary.

SIR THOMAS WATSON, BART.

To the entire profession and to a very large portion of the public, from the Sovereign downwards, the death of this eminent physician, which occurred on December 11th, will be a source of deep sorrow. We purpose now to give a sketch of his very distinguished career.

Thomas Watson was born at Kentisbeare, in Devonshire, on the 7th March, 1792. He was educated at the Grammar School at Bury St. Edmunds, of which Dr. Malken was head master, where he was a contemporary of the late Bishop Bromfield, with whom he always retained an intimate friendship. On leaving Bury school he was entered as a pensioner in St. John's College, Cambridge, of which college his uncle, Mr. Catton, was then a resident Fellow. He graduated B.A. in 1815, being placed tenth in the list of wranglers, was elected a Fellow of his college in the following year, and became M.A. in 1818. According to the rules then in force at St. John's College, no Fellow could retain his Fellowship for more than a short time without being ordained. From this rule, however, two Fellows were exempted, one of whom

was to study medicine. A vacancy having occurred he availed himself of it, and retained his Fellowship until he married in 1825. During his residence at Cambridge as Fellow of his college, a period of eight years, he took private pupils, many of whom (including, amongst others, the late Lord Auckland, Bishop of Bath and Wells, and Lord John Thynne) continued their friendship with him in after life. He served the office of junior proctor in the University of Cambridge in 1823 and 1824.

In 1820 and 1821 he attended the medical classes in Edinburgh, and in a letter to his sister dated from Edinburgh he speaks of his intention to return thence in a sloop as being more economical and allowing the carriage of an unlimited amount of luggage. During his residence at Cambridge he made the acquaintance of his future wife, a daughter of Edward Jones, Esq., of Brackley, in Northamptonshire, who, as a favorite niece of the Rev. Dr. William Turner, then Dean of Norwich and master of Pembroke College, was a frequent visitor to Pembroke Lodge. They were married in 1825 in St. Luke's Chapel in Norwich Cathedral, and in the same year he took his M.D. degree. In the following year Dr. Watson was elected a Fellow of the College of Physicians, and in May, 1827, Physician to the Middlesex Hospital, an office which he continued to hold until November, 1843. For some years after he settled in London practice came very slowly, patients and fees were few, and he was not free from pecuniary cares and anxieties. In September, 1830, he had the great grief of losing his wife, who died suddenly three days after the birth of their second child. In a letter written to his sister a few days after this terrible blow occurs this characteristic sentence: "My business henceforward in this life must be to endeavor to train up the children as nearly as I can as she would have trained them, and so to live as to acquire, through God's blessing, a hope that we may all hereafter meet their poor mother in happiness."

At the opening of the medical school of King's College in the autumn of 1831 Dr. Watson was appointed Professor of Forensic Medicine, and what we believe to be his first contribution to medical literature appeared in the *Medical Gazette*, vol. ix., 1831, entitled, "Remarks on the Dissection of Bishop, and the Phenomena attending Death by Strangulation." Bishop had been hanged for the murder of an Italian organ boy, whose body he brought to the dissecting-room of King's College for sale. The late Professor Partridge had his suspicions excited, and gave the man Bishop into custody. He was tried and condemned, and after his execution his body was sent to King's College for dissection. After this Dr. Watson was a frequent contributor to the *Medical Gazette*. The same ninth volume contains clinical lectures "On Pulmonary Hæmorrhage and on Epilepsy." In the tenth volume there are the Lumleian lectures on "Hæmorrhage from the Stomach, Intestines, and Urinary Organs." In the thirteenth volume there is an admirable introductory lecture, delivered at the opening of the medical session at King's College. In the fifteenth volume appears a paper "On the Efficacy of the Vapor Bath in Cases of Diabetes." The sixteenth volume contains two lectures "On Rheumatism of the Heart," and a paper "On the Connection of Hypertrophy of the Heart with Cerebral and Pulmonary Hæmorrhage." In July, 1832, Dr. Watson accompanied Sir Walter Scott from London to Edinburgh on his last sad journey from Italy to Abbotsford. In "Lockhart's Life of Scott" it is stated that Dr. Watson went the whole way to Abbotsford with Sir Walter; but in a copy of the work which he gave his son

Dr. Watson has written the following foot note: "This is a mistake of Mr. Lockhart's. I did not accompany Sir Walter to Abbotsford, but returned from Edinburgh to London."

In 1836, Dr. Watson was appointed Professor of Medicine at King's College, and he continued to hold this office until the spring of 1840, when, at the opening of the newly-founded King's College Hospital, he had to resign either his office of physician to the Middlesex Hospital or his chair at King's College, and he preferred to retain the former office. The resignation of his professorship, which was felt as a calamity by King's College, was attended with this great benefit to the entire profession and the public, that it led to the publication of his admirable lectures on the "Principles and Practice of Physic." The lectures were first published week by week in the *Medical Gazette*. The first lecture appeared on Sept. 25th, 1840 (vol. xxvii.); and the last of the series on Sept. 23rd, 1842 (vol. xxx). In the following year, 1843, they were collected and published in two volumes by Messrs. J. W. Parker & Son, West Strand; a second edition was called for in 1845; and a third in 1848. Two editions have since been published; one in 1857, and, lastly, the fifth in 1871.

The publication of these lectures, admirable as they were universally acknowledged to be, not less for the soundness of their teaching than for their lucid, elegant, and scholarly style, greatly increased the reputation of their author, acquired for him the well-merited title of the Cicero of English medicine, and led at once to a large extension of his practice. The well-known volumes had, for a number of years, probably a larger sale than any other similar work that has ever been published, and we have pleasure in recording here an anecdote illustrative of his publishers' liberality, which was related to us by Sir Thomas Watson. Mr. Parker one day called on him and said that the sale of his lectures, and the profit resulting therefrom, had so far exceeded his (the publisher's) anticipations, that he did not feel justified in sharing the profits equally with the author, according to the terms of their original agreement; he therefore proposed that the author should receive two-thirds of the profits, while the publisher retained one-third. And as a practical illustration of his generous intentions, he handed the author a cheque for twelve hundred pounds. This surely is an example of liberality not unworthy of imitation.

At the College of Physicians Dr. Watson held numerous offices before he was elected President. In 1827 he was Gulstonian Lecturer; in 1830-31 Lumleian Lecturer; in the years 1833, 1834, and 1835 he gave the College lectures on *Materia Medica*; he was Censor in 1828, 1837, and 1838; on the Council at various times between 1833 and 1868. From 1858 to 1860 he was the College representative on the Medical Council. In 1862 he was elected President, and he held that office for five successive years. The College would have gladly elected him for a sixth period of office; but he declined on the plea of advancing years, and at the annual meeting for the election of President, after referring in graceful terms to the Fellows who had died during the previous year, he bade the College, as their President, farewell in the following eloquent and characteristic words:—"It only remains that I should attempt to do that which I feel to be well-nigh impossible—to embody in any form of words that I can devise the deep and inextinguishable sense of gratitude with which my mind is full for that kindness and trust which have placed me, year by year, on five successive occasions, at the head of the College of Physicians; in other words, at the head of the medical pro-

fession in this great country. According to my estimation, already more than once expressed, there is no nobler position in medicine, whether I look before me and around me to the body of men from whom it comes, or backwards to the splendid list of names of those who have preceded me in the presidential chair—Linacre, Caius, Glisson, Sir William Browne, Pitcairn, Sir George Baker; these, to go no later, are but a few of the eminent men and sound scholars with whom it may well be deemed a proud distinction to have one's name in any way associated. But, besides this great and repeated honor—the greater because so repeated—I have much else to thank you for. I have to acknowledge your indulgence towards the many shortcomings of which I am but too conscious. I have to express my thanks for your constant support and counsel in all difficulties, for your unvarying courtesy and deference, for the friendships which my official intercourse with you has formed or strengthened, and most especially for that recent signal and touching evidence of your approbation and esteem shown by your wish to possess within your walls some pictorial remembrance of my unworthy person. Of this high and generous compliment I can never, while life and reason remain to me, be otherwise than most gratefully, and I hope pardonably, proud. Further, I have to rejoice that the happy *lustrum* during which I have presided over your affairs has been harmonious and peaceful—disturbed by no unseemly quarrels or serious differences among us—stained by no scandal arising within our proper body, and productive, through your exertions and self-sacrifices, of something at least of benefit to the common weal. If I find anything to regret it is that I have not taken larger advantage of the opportunity which you have confided to me of promoting the interests of the College, and of our useful and noble profession.

Still, I must cherish the hope that the College has suffered no abatement of its ancient dignity and renown through my occupation of the office, which I now respectfully render back into your hands. And so, without encroaching further upon your time and in redemption of the pledge which I gave you last year, I bid you, as your President, one and all, a cordial, affectionate, and final farewell.

The "pictorial remembrance" to which he refers is an admirable portrait by his old friend, George Richmond, which was subscribed for by a large number of the Fellows, and which is now amongst the most cherished treasures of the college. A replica is in possession of Sir Thomas Watson's family, and it has been successfully engraved by Samuel Cousins.

Dr. Watson was appointed Physician Extraordinary to the Queen in 1859, and in 1870 one of the Physicians in Ordinary. On the 9th December, 1861, he was summoned to attend the Prince Consort at Windsor in consultation with Sir James Clark, Sir Henry Holland, and Sir (then Dr.) William Jenner, and his attendance continued until the lamented death of the Prince on December 14th. In 1866 Dr. Watson was created a baronet, the honor having been offered to him, as he was informed by the then Prime Minister, Lord John Russell, by the express desire of Her Majesty. Amongst other distinctions which were conferred upon the great physician, he was elected an Honorary Fellow of his old college, St. John's, at the same time with the late Sir John Herschell. He was Hon. D.C.L. Oxford, 1862; Hon. LL.D. Cambridge, 1864; and Hon. Fellow of King's and Queen's College of Physicians, Ireland.

In 1859, he was elected a Fellow of the Royal

Society. For many years he was a most influential member of the Council of King's College, London. During the session 1857-8, Sir Thomas Watson was President of the Pathological Society. In 1868, he became the first President of the Clinical Society; and in his inaugural address he urged upon the Society, with his customary good sense and grace of style, the supreme importance of an endeavor to obtain "more exactness of knowledge and therefore more direct and intelligent purpose, and more successful aim in what is really the aim and object of all our labors—the application of remedies for the cure and relief of disease."

During the last ten or twelve years of his life he had retired from the active practice of his profession, but continued to take great interest in all that concerned it.

Notwithstanding his advanced age, he enjoyed his usual good health, spending great part of the last summer and autumn with his daughter and his son's family, partly at the seaside and partly at his son's house, Reigate Lodge, Surrey. On Sunday, Oct. 22nd, he had attended the morning service, as usual, at the parish church. On attempting to rise from the table, after lunch, he made a sudden inclination towards the left side, and would have fallen if he had not been supported by his son, who was standing by him. He afterwards took a short walk in the garden, but the left leg was found to be weakened, and he walked with great difficulty. He was seen at once by his neighbor, Dr. Walters, and on the following Wednesday he was visited by his old pupil and friend, Dr. George Johnson, to whom he calmly said, "This is the beginning of the end." There was then some paralysis of the left leg and of the left side of the foot and tongue, but there was no appreciable weakening of the arm. The mental faculties and the power of speech were quite unimpaired. Drs. Johnson and Walters were of opinion that there was probably obstruction by thrombosis in some of the smaller cerebral arteries.

On the following Thursday, Oct. 26th, after some exertion in walking across the room (up to this date he had been dressed daily and had gone downstairs), he was suddenly seized with difficulty of breathing, his face became blue, and he believed himself to be dying. There appeared to have been some sudden failure of the heart's action; but in the course of an hour or two the distress passed off. He was then carried to his bed; and from that day he did not leave his room, and rarely could even be moved from his bed. It is neither necessary nor desirable to dwell on the details of the subsequent seven weeks. The condition was one of increasing weakness and often of most distressing restlessness. Then there came irritation of the bladder with some retention, for which Dr. Walters was prepared to render the needful aid; but the restless sufferer, with a firm conviction that he had stone in the bladder, insisted on having Mr. Lister telegraphed for; and it was not until Mr. Lister had been sent for and had come a second time that he would allow Dr. Walters to give him the relief which henceforth was required two or three times daily.

During the last few weeks, a little milk with a small quantity of brandy was all the nourishment that could be taken. Weakness and emaciation, with a falling temperature, steadily increased. He retained his consciousness until within the last two days of his life, although his power of speech was latterly much impaired. It was believed that he understood and was gratified by a kind message of inquiry and sympathy from her Majesty the Queen. He was often soothed by the reading of a prayer or a hymn.

At length he sank into a slumber, and so on Dec. 11th, near midnight came the final rest for which he had longed and prayed. To quote his own words with reference to his old and beloved friend, Dr. P. M. Latham, "Ripe in years as he was, and ready in spirit for the solemn change, his death must long be the subject of tender and sacred regret among the nearest and dearest of his surviving family and friends; nor will his memory soon cease to be reverently cherished throughout a much wider circle."

Throughout the trying seven weeks of weakness and of suffering Sir Thomas was most assiduously attended by his kind friend and neighbor, Dr. Walters, and occasionally by Dr. Holman. He was also seen from time to time by his neighbor, Dr. Greenhow, who was always ready to render assistance when needed, and he was frequently visited by Dr. George Johnson. We have already mentioned that Mr. Lister twice obeyed the distinguished sufferer's summons. It need scarcely be said that all felt it a privilege to minister to the relief of one so universally revered and beloved.

Reviews and Notices of Books.

Report on the Scientific Results of the Voyage of H.M.S. "Challenger" in 1873-76, under the Command of Captain George Nares and Captain Frank Thomson. Prepared under the superintendence of Sir C. WYVILLE THOMSON, F.R.S. Vol. III: Zoology. London: Longmans & Co.; John Murray; Macmillan.

THIS volume contains a report on the Echinoidea, dredged in the course of the voyage, by Alexander Agassiz; and a report on the Pycnogonida, by Dr. P. P. C. Hook, assistant at the Zoological Laboratory of Leyden University.

Agassiz states that a careful comparative study of the new species collected by the *Challenger* and by the *Blake* seems to make a short revision of some of the principal lines of the recent and fossil Echinids desirable, as, from our present knowledge of the affinity of the Echinoidea, several groups formerly considered somewhat aberrant can now be shown to be closely connected. The consideration of this group could have passed into no better hands than those of Alexander Agassiz, for he possesses an extensive acquaintance with both the recent and fossil specimens, and has himself examined all but a few of the deep-sea species, whilst he has had the further advantage of describing the first important collection of deep-sea echinids made by Count Pourtales. He holds that the artificial classification of the Echinoidea at present accepted is unsatisfactory, because based upon characters of such uncertain value as the presence or absence of teeth and of actinal cuts. He founds his classification of the echinids on that of Loven, which he regards as by far the most ingenious that has yet been proposed, and who has suggested a most admirable notation to denote the several ambulacral and interambulacral areas, which simplifies to a remarkable degree the comparison of the various types. The number of fossil species is about 2,000, whilst there are not more than 300 recent, and about one-third of the whole number of known species have been discovered since the days of deep-sea dredging; but the difficulty of tracing the genealogy of these is almost insuperable, for, as he shows, the number of variable terms are at least twenty—viz., the apical system, the actinal system, the genital, ocular, anal,

and coronal plates, the ambulacral and interambulacral areas, the poriferous zone, the primary, secondary, and miliary tubercles and their corresponding spines, the modifications of the poriferous zone near the apical and actinal systems and on the test; the fascioles, jaws, alimentary canal, the position of the apical system, of the anal system, of the actinostome, and the modifications of the same; and when we consider that these may be combined in all possible ways, it is hazardous, to say the least, to attempt anything beyond the broadest indications of the outlines of the relationship.

The study of the Echinids dredged by the *Challenger* has shown very plainly the antique character of many of the deep water species, and their resemblance to Cretaceous genera, and Agassiz points out many noteworthy relationships. He remarks that in comparing the Tertiary fossil Echinids of the European beds with the species now living in the West Indies, it is impossible to avoid being struck with the similarity existing between them. Thus the species of *Cidaris*, *Clypeaster*, and others, which are found in the Tertiary beds of Malta, are no longer found in the Mediterranean, having undoubtedly disappeared from that sea as soon as it became closed, and the temperature of the water became raised above that of the ocean; while, on the contrary, where the oceanic conditions have not undergone any great change, we find a remarkable identity in the genera of the Tertiaries and of the surrounding deep sea, as can be easily seen by comparing the Tertiary West Indian types of *Echinolampas*, *Agassizia*, *Brissopsis*, and others, with the species of the same genera now found in the deep waters of the Caribbean Sea and Gulf of Mexico.

The number of deep sea species discovered by the *Challenger* appears to have been forty-nine, whilst forty-one were discovered by the *Blake*, *Porcupine*, and *Josephine*. The plates are sixty-four in number, many of them representing several forms.

We must refer to the original for the descriptions and beautifully executed lithographs of the numerous new species collected by the *Challenger* and the *Blake*. Many interesting facts are related in the account of each genus and species. Thus, under "*Goniocidaris*," he quotes Thomson's "*Voyage of the Challenger*," to the effect that the eggs, after escaping from the ovary, are passed along on the surface of the test towards the mouth, and the smaller spines articulated to the tubercles round the peristome are bent inwards over the mouth, so as to form a kind of open tent, in which the young are developed directly from the egg, without undergoing any metamorphosis until they have attained a diameter of about 2.5 mm. Even before they have attained this size the more mature or more active of a brood may be seen straying away beyond the limits of the nursery, and creeping with the aid of their first few pairs of tentacular feet out upon the long spines of their mother; after a short ramble they return to the marsupium.

In regard to the Pycnogonidae the results of the *Challenger* dredgings are most satisfactory, for it appears that of the forty-one species obtained during the voyage of the *Challenger* and the cruise of the *Knight Errant*, thirty-three are new to science, and of the nine genera represented three are new. The pycnogonids are long-limbed aquatic animals, distantly resembling a spider or a "daddy long-legs," or a spider crab. They breathe by the general surface of the body, which body consists of a cephalo-thoracic segment, three thoracic segments, and rudimentary abdominal segment. They have a proboscis and three pairs of cephalic appendages, of which the first represents antennae, whilst the two others are post-oral. The thoracic par of

the cephalo-thoracic segment and the three thoracic segments are each furnished with a pair of long eight-jointed legs, into which the alimentary canal sends off long cæca. The nervous system shows a supra-oesophageal and five thoracic ganglia. The eyes are feebly developed in the deep water species, but rather highly developed in the shallow water species. The sexes are separate. The paper is illustrated by twenty plates, seven of which are devoted to the elucidation of the internal structure of this curious group of animals.

The Physicians' and Surgeons' Visiting List, Diary, Almanack, and Book of Engagements for 1883. Thirty-seventh year. London: John Smith & Co.

THIS season of the year reminds us that we must renew our visiting lists, than which nothing contributes more to the easy and methodical discharge of medical duty. Of these none holds its ground better than Smith's, which this year, amongst its new features, has a useful list of so-called "American Eclectic Remedies" and other doses, which is not always to be found in available works of *materia medica*. The doses of remedies do not always correspond with those given in the *Pharmacopœia*. Sometimes a larger dose is recommended than that of the *Pharmacopœia*, as in the case of *ext. nuc. vomic.*; sometimes a smaller, as in the case of *tinct. conii*. We think it would be better to give the *Pharmacopœial* doses. The book is full of useful tables, including one of corresponding degrees on different thermometric scales, one of days of incubation of eruptive fevers, etc., and is altogether too well known to need further commendation.

Études de Physiologie Sociale: La Prostitution. Par Yves Guyot. Paris: G. Charpentier. 1882.—This laborious work has been written with the well-conceived purpose of proving that the various legislative measures in force with regard to prostitution, in their relations to the preservation of the public health and morals, have not only altogether failed in these respects, but have exaggerated the evils they were intended to suppress. We will see upon what grounds, and by what arguments, the author supports these positions, and to what extent he has succeeded in establishing them. He commences by asking, "What is prostitution?" and, accepting the definition of Littré—"An abandonment to unchastity"—very properly remarks that the term is applicable to either sex. But when he pushes his premises farther, and claims for the word "prostitute" a similar latitude, he contends for a point of no practical value, inasmuch as it is universally understood to mean an abandoned woman. He then gives a graphic account of the cruelty and atrocities exercised against this unfortunate class of females, at various times and in divers countries, from the time of Solon and Charlemagne to more recent periods. He is very eloquent on the effects of the unequal laws that govern the relations between the sexes; but though he moves us to pity that the insanitation and infamy of the one should be punished and not of the other, yet he has failed to suggest any remedy for them. It appears, from his numerous records on the subject, that until the nineteenth century the legal regulations with regard to prostitution had for their sole object the preservation of the public morals, and that it was not till the period mentioned that the question of sanitation was conjoined with it. With a minuteness of detail often revolting in its gross indecency, and which no

English author would have dared to have published he explains the *modus operandi* of the "French system," as administered by "the police of morals," together with the medical staff connected therewith. The primary object of this system, it would seem, is to concentrate prostitution into certain licensed houses, "*des maisons de tolérance*," and confine it, as far as possible, to certain districts; and in the desire to attain this the author says that its administrators are often "brutally harsh, venal, and unjust." The result has been a moral degradation of both the women and their clients of so frightful a nature that it is appalling to contemplate it; and we may well felicitate ourselves that a system that encourages or permits the herding together of a number of women in one house, under the tutelage of a vile wretch, "*la maîtresse de la maison*," who often becomes affluent through her abominable traffic, has not, and never can have, any legalized existence in this country. M. Guyot makes an assertion to the contrary. He says: "Since the passing of the Contagious Diseases Act licensed houses have greatly increased at Aldershot, and the police have fostered this movement." We are in a position, from inquiries recently instituted on these points, to give an emphatic denial to this statement. The authorities say "such houses have greatly decreased, as has also the number of prostitutes, and very young girls are now seldom seen in the streets." Nothing can be more explicit than this, and nothing more satisfactory; for it would be impossible to devise a more certain means of undermining the health and morals of the rising generation than by legally countenancing an institution such as has been so realistically described by the author. It is, however, in its relations to the public health that this system more immediately concerns us, because our own Contagious Diseases Act, intended for an analogous purpose, is largely modelled on that portion of it that applies to sanitation. Here the author has entirely failed to make out his case. How does he attempt to establish it? In the first place, from the fact of there being relatively more venereal diseases amongst women in licensed houses, who are medically visited once a week, than amongst *les filles isolées*, women living alone in furnished rooms, who are obliged, or rather expected, to go to the dispensary once a fortnight, he concludes that medical intervention in this respect increases these diseases amongst them. He himself has unconsciously furnished proof of the fallacy of this deduction, for he states "that while the former cannot exercise any choice in the selection of their clients, and are obliged to receive a much greater number, six to twenty-five daily, the latter can exercise that selection and are able to please themselves as to the number of their receptions." Moreover, he says, "the first are always amenable to examination, while the others are made to submit with much more difficulty, and often go away when diseased to avoid being sent to hospital." Comment on this is superfluous, and statistics handled in this way are worse than useless. Another argument he advances in support of this position is that "it is almost impossible to discover a primary infecting chancre or to decide the nature of vaginal discharges in a woman." This assertion is contrary to experience, for though, no doubt, it may be difficult in some instances to detect the one or differentiate between the several kinds of the other, yet in the majority of cases it will not be so. Besides, irrespective of this, are not syphilitic mucous patches infective? And is there anyone so obtuse as to deny that when the subject of them is sent to hospital for treatment a fruitful source of infection has been withdrawn from circulation? It is idle to attempt to refute

such statements as these, and if those who are agitating for the repeal of the Acts in question have no stronger testimony to bring forward than this their case is desperate indeed. The French system is utterly demoralizing, but the legislation exercised in this country has an opposite effect, for it has been proved by numerous letters in *THE LANCET* and elsewhere, and by other testimony, that many young women, more impressionable than those more hardened in sin, have been rescued from their evil courses by the interposition of these Acts, and this is a sufficient answer to a favorite theory of the repealers that "the duration of time during which prostitutes exercise their calling has been greatly prolonged by the influences they have exerted." If they are enforced efficiently, and the medical examinations are conducted with proper skill and care, it is absurd to suppose that the diseases for the prevention of which they were passed are not correspondingly ameliorated. M. Guyot's elaborate ventilation of this subject will undoubtedly do good, and we strongly recommend all interested in it to read the book for themselves.

On Duty under a Tropical Sun: being some Practical Suggestions for the Maintenance of Health and Bodily Comfort, and the Treatment of Simple Diseases, with remarks on Clothing and Equipment for the Guidance of Travellers in Tropical Countries. By Major S. LEIGH HUNT and A. S. KENNY, M.R.C.S.E. pp. 138. London: Allen & Co. 1882.—The object of this work is to assist persons visiting tropical climates to counteract and palliate many of the petty annoyances and personal discomforts to which, from lack of experience, they may be exposed. The remarks on diet and the suggestions on clothing and equipment seem well calculated to be useful to the class for whom they are intended, but we are afraid that the remarks upon the diseases of tropical climates and the directions for their treatment will rather have a tendency "to foster a false sense of security by leading anyone to think it is possible for him to dispense with proper medical assistance when these evils befall him." This is far from the intention of the authors, who endeavor to impress upon their readers the "imperative duty" of availing themselves of the skill and experience of medical men acquainted with the diseases of the country; but we entertain doubts as to the practical results of the attempt in the direction of "domestic medicine."

Metropolitan Sewage, and what to do with it. By EDWARD MONSON, A.M.I.C.E. Part I. London: Prentice & Monson.—Mr. Monson's small work appears opportunely at a period when so much attention, both public and private, is being given to the condition of the Thames as the result of the metropolitan outfalls for sewage. The whole history of the London sewerage system, and of the formation of the Metropolitan Board of Works, is entered into, and much of the action of the board is sharply criticised, both on account of the plan on which some part of the sewerage works have been designed, and because the scheme has never been carried out in its entirety. Especially does the author complain that flooding of houses, insufficiency of sewer provision, needless expense, and other difficulties have resulted from the initial error of not separating streams with much of the rainfall and the storm-water from the sewage proper. The sewers are in consequence of enormous size; they are, notwithstanding their huge capacity, totally inadequate to carry off storm-water, and the sewage which, under a separate system, could have been concentrated at a point

where it might easily have been either chemically treated or utilized, is so diluted and in such quantity that the question of its proper disposal has never been faced. As a result, the effect of discharging the metropolitan sewage into the Thames has been to cause a nuisance of imperial magnitude and concern; shoals of sewage mud are found in the river; and very general complaint emanates from the Thames Conservancy, the Port Authority and the riverside population. Even now Mr. Monson maintains that there would be true economy in reconsidering the system as a whole, and he specially advocates that the sewage should be treated by the lime process before the effluent is passed into the river. With regard to the sewage sludge which would result from this process, Mr. Monson points out how much it partakes of the character of the washed clay and chalk used in the manufacture of stock bricks; and he shows, as the result of actual experiment, not only that in this direction will in all probability be found the remedy for that accumulation of apparently useless sludge which has so often been associated with the lime process of dealing with sewage, but that the utilization of the sewage sludge in the manner he proposes will open out a great future for the manufacture of a brick which will be much sought after in building operations.

What to do in Accidents and Sudden Illness, etc. By PHILIP FOSTER, M.D. pp. 76. Leeds: Spark.—This is one of a class of books which, if not called into existence, has, at least, been greatly developed by the formation of ambulance classes. The work now before us is not, however, confined to instruction in what should be done on the occurrence of an accident or the infliction of an injury, but covers a much more extensive field. It discusses the conditions necessary for the preservation of health and the prevention of disease among the people generally; the duty of sick nursing; "the symptoms and treatment of certain ailments for which medical advice is frequently not sought, and of some others in which serious consequences might ensue before it could be obtained," including cases of poisoning; and concludes with a few remarks on the rearing of children. The work seems to have been carefully drawn up, and on the whole to be judicious and well calculated to answer the purpose intended. We think, however, it might have been abridged without detriment by the omission of the introductory chapter on the structure and functions of the body; and we must protest against the author's opinion that "the duties pertaining to the office of the nurse do not call for special knowledge or training." There may possibly be good nursing without these, but it is the rare exception to the rule. We hold that no greater improvement has taken place in the treatment of the sick than the introduction of a thorough practical training of the nurse.

Diseases of the Ear. By GEORGE P. FIELD, M.R.C.S., Aural Surgeon to St. Mary's Hospital, and Lecturer on Aural Surgery in the Medical School. Illustrated with colored plates and woodcuts. London: Henry Remshaw. 1882.—We have noticed the previous editions of this book, and are not now surprised to receive a third edition. The class of diseases of which it treats are of great importance, and yet unfortunately are seldom the subject of much attention in medical education, either on the part of the student or his teachers. Mr. Field does his best, and does well, to make up for this defect. His book will be found very useful both by students and practitioners. This edition contains many new illustrations and several additional chapters.

Medical Annotations.

"Ne quid nimis."

A NEW VEGETABLE STYPTIC.

A RECENT number of the *Neue Freie Presse* states that during the French expedition to Mexico a plant was discovered, called by the natives by a name which may be rendered as "Fowlwort" (*Tradescantia erecta*, Jacq.), which has the property, when chewed or crushed, of stopping any hæmorrhage. A specimen planted in 1867 by the discoverer, in his garden at Versailles, has not only flourished, but flowered and fruited, without having its peculiar properties as yet appreciably diminished. Although no exotic, or remarkable for particular beauty of bloom, it, nevertheless, deserves a wider extension on account of its valuable properties, especially as its acclimatization may be regarded as having been fully established. Its action exceeds that of all styptics as yet known, as, for example, perchloride of iron, and it can, moreover, be very cheaply procured.

THE DANGERS ATTENDING SHAMPOOING.

RECENT and unsatisfactory experience in one or two West-End hair-cutting saloons leads us to inquire whether sufficient care has been bestowed on the sanitary management of the shampooing contrivances. Those persons who avail themselves of the very refreshing pleasures of a "shampoo" must, however, have noticed that they are compelled to bend over, and bring their faces in close proximity with, the hole in the centre of the huge basin used for this purpose. If they watch the soapuds that form around this hole before any large volume of water is allowed to flow, they may perceive the air coming up the pipe; for it inflates the soap and forms a large bubble that bursts close under them. Whatever may be within, it is too near to avoid breathing its contents. Nor does the absence of any suspicious odor inspire a sense of security; for it is very evident that even a strong whiff of sewer gas would be lost in the scent that perfumes the soap and surrounding atmosphere. If therefore the pipes attached to the basins communicate direct with the house-drains and the sewer, there is surely some danger that the atmosphere breathed within a couple of inches of the aperture may carry, disguised under the fragrance of the rose or jassamin, the virus of disease. In one of the most celebrated West-End houses we noted that the pipes from the shampooing basins all led on to the roof of an outhouse, and there the soapuds and water travelled some three or four yards in the open air before reaching the water-spout that conveyed them to the sewer. A back current could therefore only bring in air from the roof—that is, air as pure as any to be had in London. But in another house nearly as celebrated the pipe from under the basins ran direct to the drains. There was no S-trap visible, and apparently no intercepting ventilation. The basins had, in fact, all the appearance of so many sewer mouths, ventilating the sewer-gas into the faces of the customers as they leaned over the aperture. Even a syphon in such cases is not, we maintain, a sufficient protection; the constant flow of water, the difference of temperature between the hot and cold water, and the varying degrees of density of the water through the presence in small or larger quantities of soap, oil, etc.—all these circumstances must so affect the pressure and tension of the air within the pipes as to produce suction, up

currents, and syphonage. Consequently it is indispensable that all the pipes conveying the waste from hairdressers' saloons should empty in the open air over a gully-trap or an interceptor, and should not have any direct connection with either the house drains or the public sewer.

SUMMER DIARRHŒA IN 1882.

JUDGED by the figures published from time to time in the Registrar-Generals' weekly return for twenty-eight of the largest English towns, with an aggregate population of about eight million and a half of persons, it is evident that the fatality of diarrhœa during the past summer, although slightly higher than it was last year, was again considerably below the average. In London the annual death-rate from this disease showed a larger proportional decline than in the provincial towns, and did not exceed 1·5 per 1000, against 3·2 and 2·5 in the summers of 1880 and 1881. The rates in the large provincial towns showed the same, a similar variation which should throw light upon the true causation of this disease, but which has not yet led to its satisfactory explanation. During the thirteen weeks ending September 30th last the death rate attributed to diarrhœa did not exceed 0·9 in Halifax, 1·0 in Bristol and Derby, and 1·3 in Plymouth and Huddersfield, whereas the highest rates in the other provincial towns were 4·0 in Leeds, 5·7 in Leicester, 5·8 in Hull, and 6·0 in Preston. All these towns are old offenders in respect of infantile diarrhœa, and of infant mortality generally. It is also noticeable that while, as we have stated, the death-rate from diarrhœa last quarter in these large towns showed a general increase upon that in the corresponding period of 1881, the rate of increase varied in a marked manner; indeed, in several of the towns the rate showed a decline. All these facts point conclusively to controlling influences other than meteorological. It may be hoped that the Local Government inquiry on this subject, now being conducted by Dr. Ballard, will throw satisfactory light upon this much discussed but yet unsolved problem.

THE LATE PROFESSOR BALFOUR.

AN influential meeting was held on Oct. 21st, 1882, in the Lecture room of Comparative Anatomy at the New Museum, Cambridge, to consider the best mode of establishing in the University a memorial of the late Professor Balfour. The Vice-chancellor presided, and the meeting was attended by Professor Huxley, Messrs. H. Smith, Lankester, Foster, Paget, Humphry, Newton and others. Great regret at Professor Balfour's untimely close of a career so full of promise was expressed by every speaker. Professor Paget proposed the first resolution, that a memorial of Professor Balfour be established in the University of Cambridge which was seconded by Mr. H. Smith. In supporting this resolution Mr. Adam Sedgwick instanced as proof of the attractive address and teaching of Professor Balfour that his class which at first only consisted of ten or twelve students, had in the course of seven years increased to ninety. Professor Huxley then proposed that the memorial take the form of a fund to be called the Balfour Fund for the promotion of research in biology and especially animal morphology. Professor Newton proposed, and it was unanimously agreed upon, that the proceeds of the fund should be applied to establish a studentship, the holder of which shall devote himself to original research in biology, especially animal morphology, and further, that the fund should supply occasional grants of money for the furtherance of original research in the same subjects.

Professor Foster finally proposed that the studentship should be endowed with £200 per annum, and that it should not be given away by competitive examination. It was stated at the meeting that £3000 had been subscribed by the family of Mr. Balfour, and that £1000 which he had himself bequeathed to Professor Foster would be expended in promoting the objects aimed at in the memorial.

BLOOD AND OZONE.

It is usually asserted by physiologists that even traces of ozone, introduced into the blood, injure it by leading to the formation of methæmoglobin, and conversely ozone in contact with blood quickly undergoes destruction. The question has been re-investigated by Professor Binz, of Bonn, who has found that pure ozonized air has an action on human beings quite similar to that of nitrous oxide. Persons whose respiratory passages are so little irritable that they can take a full inhalation, experience a brief agreeable stimulation, and then become somnolent and actually fall asleep for a short time. This observation has led him to make further experiments on the tolerance of blood for ozone. He found that a stream of ozonized air might be passed through defibrinated blood for at least an hour without the occurrence of any change in its aspect, or microscopical or spectroscopical appearances. The only difference is that the alkal-escence diminishes more than in similar blood, through which simple pure air is passed. The ozone manifestly first combines with the dissolved organic elements of the blood, and only acts on the formed elements after prolonged action. A small quantity of blood subjected to a similar current of ozone first becomes bright red, then darker, and, at the end of an hour, it resembles reduced blood in aspect, but differs from this in not regaining its tint when shaken up with air. Its spectrum presents weak but unmistakable oxidation lines, which are not accompanied by methæmoglobin lines until the following day. Microscopically the blood-corpuscles were pale, and apparently spherical, and no fragments were visible. In another series of experiments the ozonized air was passed through fresh blood, to which a little saline solution had been added. At the end of ninety minutes the blood was uncoagulated, dark, but still showing oxygen lines, and the corpuscles had lost their depressions. A longer exposure rendered the blood very dark, and the next day the corpuscles had disappeared, and the methæmoglobin had considerably increased in quantity. A solution of pure oxyhæmoglobin resisted the action of the ozone much less than the blood, although it never presented alterations in less than ten minutes. Binz further ascertained that the decomposition of ozone by blood is not complete; considerable traces seem to remain in the blood in an unaltered state, and can be recognized by the usual tests.

OUR ORIGIN AS A SPECIES.

THE first number of *Longman's Magazine*, to whose prosperity we wish well, contains an article by Professor Owen with the above title, and which is a polemic upon a paper by Grant Allen in a late number of the *Fortnightly*. That author had rather strongly insisted on the evolution of man from some man-like animal developed from the anthropoid apes, and living about the mid-miocene period; a creature that was partly frugivorous, partly carnivorous—a tall and hairy creature, more or less erect, but with slouching gait, black-faced and whiskered, with prominent prognathous muzzle and large pointed canine teeth, those of each jaw fitting into an interspace in the opposite row:

the forehead low and retreating, with bony bosses underlying the shaggy eyebrows; his brain about halfway between that of the anthropoid apes and that of the Neanderthal skull. Then came the Pleistocene period, and with it the age of the cave-men, who presented some similarity to the existing Eskimo, but with lower foreheads, with high bosses like the Neanderthal skull, and big canine teeth, like the Naulette jaw. Professor Owen, in commenting upon these statements, observes that the human jaws of this supposed period which he has examined give no evidence of a canine tooth of a size indicative of one in the upper jaw necessitating such vacancy in the lower series of teeth, as the apes present. He refers to the skulls he himself obtained from the cavern at Bruniquel, and now in the Museum of Natural History, which show neither lower foreheads nor higher bosses than do the existing races of mankind, and he makes an observation which, coming from such an expert, is of great weight—that, so far as his experience has reached, there is no skull displaying the characters of a quadrumanous species, as that series descends from the gorilla and chimpanzee to the baboon, which exhibits differences, osteal or dental, on which specific and generic distinctions are founded, so great, so marked as are to be seen in the comparison of the highest ape with the lowest man. Clearly the missing link has not as yet been discovered, and many more undoubted specimens of river-drift and cave-men must be collated before any positive statements can be made.

PEAT DRESSINGS.

At the suggestion of Dr. Neuberg, Professor Es-march has recently been using in his hospital at Kiel bags of peat-dust impregnated with an antiseptic. This dust is very light and powerfully absorbent of gases and liquids, taking up more fluid, it is asserted, than jute, gauze, or cotton wool—even to nine times its own weight; it is also soft and elastic, and in Germany very easily obtained and inexpensive. The peat may be used alone in bags of muslin, but the more approved method is to have two bags of muslin—one twice the size of the other—purified by being wrung out in carbolic solution, 5 per cent. The smaller is filled with the peat-dust containing 2½ per cent. of iodoform, and is placed immediately in contact with the wound. The larger bag is filled with the peat-dust soaked in carbolic solution, 5 per cent., and this is placed over the other. Such a dressing may remain undisturbed for from several days up to a fortnight, and it is stated that excellent results have been obtained with it. This we do not doubt, but we are unable to believe that this newest form of "antiseptic" dressing will in any way revolutionize surgical practice or become generally adopted.

TUBERCLE OF THE CHOROID.

An interesting discussion took place at the Ophthalmological Society on Oct. 12th, 1882, upon the significance of choroidal tubercle. Examples of the disease were related by Drs. Mackenzie, Warner, and Brailley, and the discussion turned chiefly upon a point raised in the communication of the second-named gentleman—namely, whether the choroidal affection were not more frequently met with as a part of general tuberculosis than in association with tubercular meningitis simply. The question produced some slight divergence of opinion—such experienced observers as Dr. Baxter, Mr. Hulke, and Mr. B. Carter stating that tubercle of the choroid was of extreme rarity in case of meningitis, and therefore the inference is

that much reliance cannot be placed upon it in determining a diagnosis, or rather that its absence proves nothing in the exclusion of a diagnosis of tubercular meningitis. On the other hand, Dr. Barlow mentioned that he had detected it in as many as twenty cases, verified on post-mortem examination. After all, the issue seems to have been a narrow one; for it must be borne in mind that in the vast majority of cases of tubercular meningitis there is tuberculosis of other viscera, and that the meningeal affection is as much a part of the general dissemination of tubercle as is the choroidal. At the same time this fact is plain, that tuberculosis of the choroid no more depends upon tuberculosis of the pia mater than this latter does upon tuberculosis of any other organ. Dr. Sansom's contribution to the discussion was instructive. He cited a case with symptoms of meningitis in which he had given a most unfavorable prognosis because ophthalmoscopic examination revealed choroidal tubercle. The event proved one of three things: either that tubercular meningitis is not necessarily lethal, or that tubercle may exist in the choroid without being present elsewhere to any grave extent, or that the ophthalmoscopic diagnosis of choroidal tubercle is open to fallacy. Which of these interpretations is the most likely must remain undecided, but it is to be regretted that Dr. Sansom had no opportunity of again examining the eye after the recovery of the patient from the meningitis. The attention thus drawn to the subject should encourage investigation into the occurrence of choroidal tubercle, not only as detected by the ophthalmoscope, but as found in post-mortem examination of all cases of tuberculosis.

EXCISION OF THE PYLORUS.

On October 17th, 1882, at St. Thomas's Hospital, Mr. Sydney Jones removed the pylorus for malignant disease. The patient, aged fifty-seven, was under the care of Dr. Bristowe. A large growth completely surrounding the pylorus, together with some affected glands, was removed. The operation was a prolonged one, and was carried out with antiseptic precautions. The patient was much emaciated before the operation, and unfortunately did not rally from the shock, dying about six hours afterwards. We hope shortly to publish the particulars of the operation and morbid appearances.

THE ORGANISMS OF TYPHOID.

MARAGLIANO, of Genoa, has published, in the *Centralblatt für die Med. Wissenschaften*, an important note on the uniform occurrence of organisms in the blood of patients suffering from typhoid. He has found them in the blood of the spleen as well as in that of the general circulation. The blood was obtained by means of a hypodermic syringe, the middle of which was passed through the abdominal wall into the substance of the spleen. Dr. Sciamano, of Rome, first showed that blood may be thus obtained from the substance of the spleen during life without any injurious consequences. The blood of the general circulation was taken from the tip of the finger. In each method every precaution was taken to avoid the accidental introduction of organisms. The examination, in this way, of fifteen patients gave the following result. At the height of the disease the blood of the general circulation contains micro-organisms both isolated and grouped. These consist, almost exclusively, of spherical bodies, which have a delicate contour, appear to be homogeneous, and are analogous to micrococci.

Some of them are mobile. Similar organisms, again, were seen in the blood of the spleen, and in it, too, were others, rod-shaped, also with delicate outlines, perfectly corresponding to those described by Eberth and Klebs. During convalescence these micro-organisms lessen in number in both the splenic and systemic blood. When quinine was given to the patient in large doses the organisms either disappeared from the blood, or were present in it only in small number. The blood from both the finger and the spleen were treated by the method of fractional culture, and a large number of rods were then obtained, similar to those seen in the fresh blood except that some of them were of greater length. The presence of such organisms in the blood of the spleen after death had been previously established by Sokoloff and Fischel, but Maragliano is the first who has demonstrated their presence in the splenic blood during life. He avoids the expression of any opinion as to their relation to the disease.

THE MUNICH ELECTRICAL EXHIBITION.

In addition to a varied display of electricity as applied to technical uses, there is a special branch of the above exhibition devoted to the illustration of the employment of this force in theoretical and practical medicine. In the descriptive remarks which Dr. Stintzing has published on the subject, he alludes to the value of electricity as an exciting medium when judiciously applied to various parts of the human organism, and remarks that electrophysiology has done much to increase our knowledge of the properties and functions of the nervous system, the muscles, the glands, etc. Another important branch of medical science connected with electricity is the diagnosis of certain diseases by means of electrical tests applied to the living body; on which subject he further remarks that physiology teaches us the laws as to convulsive motions, according to which the nerves and muscles are affected by the exciting power of electricity. For instance, if an electrical current (whether constant or interrupted) of a given strength be applied to a nerve, the muscles with which it acts are excited and become contracted according to fixed laws. In these involuntary reactions of the organs of motion upon the electrical current it makes a difference whether the latter passes through the nerves in an ascending or in a descending direction, and whether the action of the positive or negative pole preponderates. When the body is diseased, these physiological laws are subject to changes, and by carefully noting the deviations from the general rules which may be observed in the application of the electrical current in different ways to sick persons, conclusions may be drawn of practical value in the diagnosis and prognosis of such cases and in the regulation of the most suitable form of treatment for them. Electro-diagnosis and electro-therapeutics go hand-in-hand, and the exhibits at Munich affecting medical electricity illustrate both subjects; the appliances connected with the former being of course the more complicated. The Munich Medical and Clinical Institute and various manufacturing firms exhibit instruments of great exactness for ascertaining and regulating the force of the electrical current. A great variety of instruments and appliances of a portable form, suitable for general use by medical men, are also exhibited, including batteries, communicators, wires, etc., constructed with special reference to the different models which the various parts of the body require for the successful application of the electrical currents. For electro-therapeutical purposes the accurate measurement of the strength of the

electrical current is indispensable, and the simple yet effective galvanometers for this purpose, made in two sizes by Dr. Edelmann, of Munich, at the suggestion of Professor von Ziemssen, are highly spoken of. In contrast with the use of electricity, as applied by means of batteries and inductive appliances, the employment of electricity obtained by friction has been specially recommended of late by Dr. Stein, of Frankfurt, and various instruments, etc., required for the application of this method are exhibited by Messrs. Albert, of that city. The photographs illustrative of the effects of electricity upon the nerves and muscles, and other representations showing the muscles, or groups of muscles, most easily effected by the electrical current, are interesting adjuncts from a medical point of view. Dr. Stintzing also refers to an electro-endoscopic apparatus, which is applicable to diagnostic purposes. It is intended for the partial illumination, by electrical means, of the ear, nose, jaws, and other portions of the human body. In the same category mention is made of two small endoscopic instruments exhibited by Dr. Michael, of Hamburg, in which phosphorescent substances are subjected to the influence of an electrical discharge.

THE HARVESTING OF ICE.

THE season has again come round when large quantities of ice are collected and stored with a view to its being used during the summer months in connection with our food supplies. Some of it is actually mixed with foods and drinks, more still is brought into close contact with such articles of diet as fish, poultry, butcher's-meat, etc., in order that it may act as a preservative. Unfortunately, however, but little regard is had to the sources whence the supply is derived, and after every frost, carts laden with ice which has been collected from the surface of ponds, canals, and streams which would be studiously avoided as water-supplies, may be seen passing along our streets to the shops of tradesmen dealing in articles of food and drink. That the use of such ice for the purposes to which it is put is not without risk has been shown both in this country and more especially in America, where in the warm weather ice enters largely into the list of table requisites; indeed, it has been further proved that ice has acted as the vehicle of disease germs capable of conveying enteric and scarlet fever, and its use has also been associated with conditions of ill-health which have much resembled these and other specific fevers. The carelessness which has obtained in selecting sources for the collection and storage of ice has been largely due to the fact that there is a very general opinion that in the act of crystallization water practically rids itself of all its injurious qualities, however offensive it may be in its liquid state, and acting on this view, it is notorious that ice for domestic use has been, and still is, collected from streams receiving sewage, ponds that are offensive in summer time with decomposing vegetable growth, and similar sources. There is also a sufficient amount of truth in the general opinion as to the process by which noxious and foreign matters are eliminated from water during the act of freezing to lead to some lack of caution on the part of the uneducated, but recent experience has clearly shown that the process of purification is only a partial one. In connection with this subject an interesting paper comes to us from across the Atlantic in Dr. Wight's First Annual Report to the Board of Health of Detroit, and it includes a copious reference to certain recent experiments by Mr. C. P. Pengra, an analytical chemist. In the first instance, urea, as a representative of the crys-

taloids, was mingled with water, which was then frozen; and it was found that whereas 100 cubic centimetres contained 0.83 gramme before freezing, they still retained 0.50 gramme when in the form of ice. Very similar results followed in experiments made with urea as found in urine, and with other substances, such as grape sugar. The next experiment was with the colloids; albumen, both from the egg and from a case of albuminuria, being taken as a sample, and it was shown that the amount retained in the frozen mass was greatest at its under, and least at its upper, surface. Thus 50 cubic centimetres from the lower third contained 6.87 grammes, the same quantity from the middle and upper thirds containing 4.19 grammes and 3.0 grammes respectively. Other experiments with the same material showed that the purification which did take place amounted to about 20 per cent. of the total admixture. The results would doubtless vary according to such circumstances as the rapidity of freezing, but since in all the instances recorded the specimens were frozen naturally, they amply suffice to show, as the author contends, that pure ice can only be procured from water free from impurities, and that ice for domestic purposes should never be collected from ponds or streams which contain animal or vegetable refuse or stagnant and muddy contents.

FLOORING AS A MEDIUM OF INFECTION.

THE *Zeitschrift für Biologie* lately published a statement on the above subject from the pen of Dr. Emmerich, of Leipzig, in which it is remarked that notwithstanding the attention paid to disinfecting walls, furniture, bedding, and clothing after illness of an infectious character has taken place in a house, the danger from the flooring, though usually neglected, is no less real than that which might arise from any of the sources enumerated. The material used in filling up flooring is often of a nature, it is urged, capable of itself producing, under certain circumstances, emanations of a noxious character. Should, however, even quite harmless materials have been used for the purpose indicated, it is argued that while a house is inhabited there is a gradual accumulation of organic substances going on which penetrate through the openings in the flooring. The constant washing tends, it is said, to make the filling damp, and in addition to this source of danger the temperature under the flooring is often higher than that of the room itself, it having been demonstrated that when the temperature of a room has been 61° Fahr., that of the space underneath the boards has been as high as 90°. This has apparently been specially the case in the vicinity of a stove. This fact is referred to in connection with the theory held by Dr. Koch that a temperature of 90° is necessary for the development of bacilli, the existence of which he has demonstrated. This temperature as a normal one was found by him not to exist in connection with our daily surroundings. In addition to dry rot, which is not without an influence on health, Dr. Emmerich found in numerous samples of the filling used underneath flooring quantities of bacteria. That other substances of a noxious character were present was likewise proved by the fact that Dr. Emmerich and his assistant became ill whenever they had been engaged in protracted investigations of this kind. It is evident that if infection lurks in the flooring, the most thorough measures of disinfection which may be taken as regards other portions of a room may fail to restrain the spread of disease. This explains how illness has been found to originate in one room of a house, or even in certain portions of a room. A mouldy smell in a room after it has been

washed is said to be in some measure an indication of the existence of the state of things which has been described. It is, however, remarked that the absence of such a smell must not be taken as conclusive proof of the room being free from any such noxious influences from underneath, as earth has the property of checking the bad odor of decaying organic matter without, however, arresting the process of decomposition. The practical recommendations of Dr. Emerich consist for the most part of suggestions for the prohibition of the employment as filling material in new buildings of any substance containing phosphorus, potash, or magnesia; it being remarked incidentally that they are notably abundant in coal-slag. For houses already inhabited, he recommends that the inner portions of the flooring should be shut off by an air-tight and water-tight substance from any communication with the air of the room itself. It is further suggested that divisions between the boards should be avoided as much as possible, and that the boards themselves should be coated with some water-resisting substance in order to render them impervious to the influence of moisture.

AN "EDITION DE LUXE."

We have received from Messrs. Sampson Low & Co. a copy of the first volume of Dr. Francis Delafield's "Studies in Pathological Anatomy," published by Messrs. Wood & Co., of New York. This work, which has, we believe, been several years in preparation, is produced in a style that does great credit to both the author and publisher. It forms a large handsome quarto, admirably printed as to the text, and contains no fewer than ninety-three plates illustrative of the histological changes in inflammation of the connective tissues, serous membranes, and lungs, and also of tuberculosis, a large number of plates being devoted to acute phthisis. Some of the plates are lithographs of camera-lucida drawings; others are photographs of microscopical preparations. We shall have occasion to comment on this work when we have more thoroughly examined it; but meanwhile we may congratulate Dr. Delafield upon its appearance, and trust that he will continue the undertaking according to the plan he has marked out for himself, which must take many years to complete.

APPOINTMENTS OF HEALTH OFFICERS.

We are glad to record the reappointment of Mr. E. L. Jacob as medical officer of health for the Surrey United Sanitary District. In the nine years during which Mr. Jacob has held this appointment he has performed the duties attaching to his office with singular success. During periods of comparative healthiness, he has inaugurated and steadily pressed on sanitary measures with a view to a still further improvement in the health of the inhabitants. Whenever any special incidence of disease has manifested itself, he has been indefatigable in tracking it to its source; and his reports, both as to such occurrences and as to the general sanitary circumstances of his district, have always been such as to command confidence in the remedial measures he has recommended. The *Surrey Advertiser*, the leading paper of the county, emphatically corroborates the above testimony. Owing to the fact that Sutton has somewhat recently been converted into an urban district, the appointment to this parish will have to be effected separately, but we hope that no effort will be made to detach this place from the united district which Mr. Jacob has held up to the present. Both in his and other districts we are glad to note a recommendation from the Local Government Board to

the effect that medical officers of health who have successfully served their districts should be reappointed for comparatively long terms. In the case of the Surrey combined district the recommendation extended to a term of ten years, and though the authorities in this instance only made it for six years, yet the principle involved in thus making the office of a health officer secure for a number of years is one which we are glad to see carried out. Many such officers have found themselves seriously hampered by the knowledge that at frequently recurring and short intervals they would be compelled to submit to re-election, and the practice has not only prevented the commencement of permanent works of improvement in many districts, but it has deterred many competent men from joining the medical sanitary service. The step taken is one in the right direction, and it is probably the first instalment of a more complete recognition by the central authority of the proper status of a medical officer of health.

THE NUTRITIVE PROPERTIES OF RICE.

THE increase in the consumption of rice has lately attracted the attention of several men of science in Germany, and amongst other investigations, an attempt has been made by Professor Voit to discover the relative capacity which various forms of nourishment possess of being incorporated into the system. He has drawn up the following table of the percentage which remains in the body, and of that which leaves it:—

	Percentage incorporated.	Percentage which is not retained.
Meat.....	96.7	3.3
Rice.....	96.1	3.9
Eggs.....	94.8	5.2
White bread.....	94.4	5.6
Maize.....	93.3	6.7
Potatoes.....	90.7	9.3
Milk.....	88.9	11.1
Black bread.....	88.5	11.5

According to these results (the *Bremer Handelsblatt* remarks) meat and rice leave the smallest amount of residuum, and occasion the smallest excessive exertion to the digestion, and in fact introduce the minimum quantity of ballast into the human frame. Dr. König, of Münster, considers that the fact of large masses of population living on rice is easily accounted for, and in summing up the information collected upon the subject, Professor Voit remarks that potatoes, when consumed in excessive quantity, fail to nourish the frame effectively, make the blood watery, and render the muscles weak. Apart from the subject dealt with in the table drawn up by Professor Voit, the question of the relative nutritive value of rice and potatoes has been investigated by Dr. König, who is of opinion that if similar quantities of both articles are compared, the former possesses four times the value of the latter in really nutritive properties. It is also remarked that the introduction of rice as a substitute for potatoes is facilitated by the fact that no such variation takes place in its quality as is the case with the potato, which is liable to be materially influenced by the effects of unfavorable weather.

THE REFUSAL OF OUT-DOOR RELIEF.

THE iniquity—we can use no less opprobrious epithet—of the "workhouse test" is becoming one of the crying sins of this rich nation. If we were fatalists we should say it is one of the devices by which the gods are dementing us; let us rather say by which political economists of the advanced school are dragging this country down to

the depths of social confusion and consequent obscurity. The workhouse test is an offence against humanity—a hideous folly unworthy of men with brains, to say nothing of hearts. Can anything be more unnatural or inhuman than to refuse poor married folk struggling against pauperism the help of a crust unless they will go into the workhouse and consent to be torn asunder at the moment when their lives are on the wane, and when the only particle of happiness left them at the fag end of a luckless existence is to go to the grave hand in hand. It is hard to write temperately of such brutality as is smirched over the glamor of political economy in this device. We have heard enough to freeze the blood in our veins of the encouragement offered to idleness by what has been held up to reprobation as “indiscriminate almsgiving.” Let us tell those who originate and flaunt this phrase in the face of Englishmen that it is offensive to the first instincts of our nature. The cold calculating spirit which sits down to tottle up its figures to prove that beggars are encouraged by giving them alms, has found its fruition in the “workhouse test.” There is no humanity, no true philanthropy, underlying this crazy cleverness. Give to the poor!—on their heads be it, not on ours, if charity is abused. Let the struggling creatures who are striving to keep out of the “house,” who do not wish to be wholly dependent, who have a scrap of self-respect still left in them, be helped to live, not left to die. We appeal to the ratepayers of this country to say, when next the election of guardians occurs, that not one man shall be returned who will refuse outdoor relief to the poor. Make the relieving officers and the overseers do their work, and see to it that the public money is not wasted on impostors; but let it once for all be understood that the ratepayers of England will not permit the funds they subscribe for Poor-law purposes to be so administered that the black crime of letting honest and true-hearted couples die because they will not be separated lies at their door.

NEW HUMAN ENTOZOOON.

A few weeks back it was announced in our columns that Dr. Patrick Manson, who is now in England, had detected a curious cestode in the human body. He found twelve parasites in the subperitoneal fascia and elsewhere. How they came there is a matter of opinion, but under the name of *Ligula Mansonii* the worm was described by Dr. Cobbold at the last meeting of the Linnean Society. The author of the paper stated that probably the infested Chinese had drunk from a pond frequented by water birds infested by ligules, whose immature stages of growth are passed within the fishes living in the same ponds. Dr. Cobbold alluded to the destructive effects of ligules amongst the tench living in the ponds of La Bresse. He pointed to the circumstance that Italians were accustomed to eat fish-tapeworms under the name of *macaroni piatti*, and he expressed the belief that Dr. Manson's patient had swallowed the ciliated embryophores and their contained proscolices which had thus strayed and bored their way into the man's tissues. It is satisfactory to know that they had no concern in the production of the human victim's death.

A HEAVY BRAIN.

It is well known that, although many distinguished men have had very large brains, these have been occasionally equalled by the brains of persons who never displayed remarkable intellect. Another illustration of this has been lately pub-

lished in the *Cincinnati Lancet* by Dr. Halderman, of Columbus. A mulatto named Washington Napper, aged forty-five years, recently died in the hospital at that town in consequence of purulent infection due to an abscess of the thigh. His brain was found to weigh 68½ oz., nearly 5 oz. more than the famous brain of Cuvier. His height was six feet, his limbs are said to have been ape-like in length, his head was massive, lips thick, lower jaw prominent, but his forehead large and well developed. He had been a slave until the year 1862, and had never been regarded as particularly intelligent; he was illiterate, but is said to have been reserved, meditative, and economical.

FACE POWDERS.

It is necessary to raise a warning cry against a most mischievous statement which has recently been circulated, and has already done harm, to the effect that “arsenic in small doses is good for the complexion.” It is not difficult to imagine the risks women will incur to preserve or improve their “good looks.” No more ingenious device for recommending a drug can be hit upon than that which the authors of this most baneful prescription of “arsenic for the complexion” have adopted. Suffice it to recall the fact that for many years past chemists and sanitarians have been laboring to discover means of eliminating the arsenical salts from the coloring matter of wall-papers, and certain dyes once largely used for certain articles of clothing. It is most unfortunate that this hopelessly antagonistic recommendation of arsenic to improve the complexion should have found its way into print. Those who employ the drug as advised—and there are many either already using it or contemplating the rash act—will do so at their peril. So far as they are able, however, it will be the duty of medical men to warn the public against this pernicious practice, which is only too likely to be carried on secretly. It is not without reason that we speak thus pointedly, and urge practitioners to be on the *qui vive* in anomalous or obscure cases.

PASTEUR ON RABIES.

At a recent meeting of the Académie de Médecine, M. Boulay communicated, in the name of M. Pasteur, a series of conclusions regarding rabies at which the distinguished investigator has arrived. The first two enunciate the familiar truths that the dumb madness and furious madness, and, in short, all varieties of rabies, are caused by the same virus, and that the symptoms of rabies are extremely variable. It is assumed that the characters of the several cases depend on the points in the nervous system at which the effect of the virus is chiefly localized. In the saliva of rabid animals the virus is associated with several kinds of organisms, and the inoculation of the saliva may cause death in three ways: by means of the special salivary organisms, by excessive suppuration and by rabies. The medulla oblongata of the human subject, as well as that of animals, after death by rabies, is always virulent, and the virus is also found in all parts of the brain, and it persists even after putrefaction has set in. There are two methods of inoculation by which the period of incubation of rabies may be greatly shortened, and the disease produced not only rapidly but with certainty: one is by the injection of the virus into the blood; the other is by trephining the skull and placing the virus in the arachnoid cavity. Rabies then comes on at the end of six, eight, or ten days. M. Pasteur has met with some cases of the “spontaneous cure” of rabies, but only in cases in which

the disease did not develop beyond the initial stage. In such a case, in which the early symptoms passed away, the disease has been known to return at the end of a certain time—as two months—and then to run the ordinary acute and fatal course. Mention is also made of the cases of three dogs inoculated in 1881: two quickly died from rabies; the third, after manifesting the early symptoms, recovered. The latter animal was inoculated by trephining in 1882 on two separate occasions, but without effect. M. Pasteur asserts that he now possesses four dogs which will not contract rabies, whatever the method of inoculation adopted or the proved virulence of the material employed. These facts he believes to be the first step towards the discovery of a method of the prevention of rabies by its inoculation. He confesses, however, that the end seems to be at present far distant.

LISTERISM IN ITALY.

LISTERISM grows in favor in Italy, if we are to judge from an article "On the Foundations of Modern Surgery," just published by Professor Andrea Ceccherelli in the *Gazzetta degli Ospitali* (Milan, Dec. 13th). The author is a firm believer in the clinical potency of micro-organisms, and extols antiseptic dressings as amongst the greatest of modern surgical conquests.

Correspondence.

"Audi alteram partem."

NEW YORK.

(From our Correspondent.)

THE announcement is made that the German Government have prohibited the importation of American pork at the ports of Germany. This once more revives the question as to the relative danger of using American hog meat, and as I have watched the subject on this side for some years, I will offer your readers such facts as I have gathered. The common policy of all interested in the exportation of pork from the United States is to deny that trichinæ exist in American hogs; this statement is generally endorsed by the newspapers, and even to some extent by Government bureaux. The many Chambers of Commerce throughout the country and those who deal in the article preserve a safe silence and inaction. Statistics therefore from such sources are not forthcoming, and the difficulty is great when an attempt is made to prove the truth of the various statements. The only reliable inspection of hog meat for trichinæ which has been made in the United States, was once made at Chicago under the auspices of the Board of Health by two microscopists. I believe about two thousand hogs were examined, the result being that eight per cent. were found infected with trichinæ. Such a high percentage certainly invited a closer consideration of the subject, but no steps were afterwards taken either to prove or disprove the result of this single examination. Cases of trichinosis occur in the United States at rare intervals. The last case brought to my personal notice was that of a family at Erie, Pa., where a family of five persons was attacked. The attending physician attributed the trouble to typhoid fever, supposed to have been caused by a well, but Dr. Ed. W. Germer, the health officer of the

city, solved the mystery by finding trichinæ in pork of which all the patients had eaten. A portion of the psoas muscle was forwarded to me, and from sections made by myself I could display ten to twelve trichinæ in the field of the microscope at one time. The pig in question had been raised by the family, and it was clearly a case of trichinosis due to a native hog. Curiously, another pig had been raised in the same sty; they had been fed with the same food, and reared under similar conditions. Both were killed at the same time, when one was found to be infested with trichinæ, while the other was perfectly free from that parasite. A few weeks later, Dr. E. C. Wendt, of Hoboken, N. J., reported the fatal termination of a case of trichinosis, attended by Dr. W. T. Kudlich, of that city. In this instance a robust young married couple were attacked by trichinosis, the case of the woman terminating fatally. Dr. Kudlich stated that the disease was unmistakably traced to home produce. On this occasion some interesting experiments and observations were made with the trichinæ found in the unfortunate woman's body. None were found encapsulated, but some had assumed the spiral form, or the preparatory stage, but the majority were free, and either stretched out or twisted at either extremity. Little pieces of the woman's muscle were exposed to cold, and even frozen several times. After four days of such exposure an examination found them quiescent; but a gradual elevation of the temperature to 100° F. caused them to show active motion, and ten days later these parasites were still alive. Thirteen days after the death of the woman some of her muscle was allowed to undergo putrefaction, but the trichinæ still lived. On the day following the autopsy some of the fresh muscle was teased, and there being abundance of trichinæ many became isolated; these were never found to creep along in a definite direction, but some were seen to move in a manner to resemble the unfurling and recoiling of a pennon, and a change of place was sometimes fortuitously effected. Dilute acids increased their motion, and alkalies had a contrary effect, while concentrated solutions of both rapidly killed them. In carbolic acid they squirmed and writhed before dying. Glycerine did not immediately kill them. A little fresh muscle was submitted to artificial digestion by being placed in a suitable fluid and exposed for twelve hours to about body heat. The muscle was in great part dissolved at the end of this time, and many free parasites were found in the liquid. They were, if anything, less active than they had been, and as the liquid cooled their movements ceased, but were renewed on re-heating the slide. During this period of experimenting, a noteworthy fact of interest was observed, that the trichinæ had grown. Dr. Wendt on this occasion made the observation on the diagnostic value of examining small pieces of muscle from accessible regions in patients suspected of trichinosis. If the parasites were found, the evidence was of course incontrovertible; but he added, if *vice versa*, a conclusion could not be arrived at. In the present fatal case of trichinosis, small bits of the deceased woman's muscle were torn from the gastrocnemius and deltoid muscles; and while some specimens contained numerous parasites, others were found without them. In the diaphragm, intercostal muscle, and other well-known places of predilection, every examined specimen showed abundant parasites. In regard to the prevalence of trichinosis in the United States, medical statistics cannot be relied on; as Dr. Satterthwaite, President of the New York Pathological Society, observes, although a vast amount of labor has been expended on the origin, clinical history, and treatment of trichinosis, we have

good reason to believe that it is seldom recognized during life, and even after death escapes notice, unless the examiner has his attention specially directed towards the possibility of its occurrence. Cases of trichinosis are certainly very often found in the dissecting-rooms and deadhouses. Dr. Carpenter's observation at the dead-house of the Bellevue Hospital has been that the encysted trichinæ are found more frequently in the pectoral muscles or the diaphragm than in the deltoids or the gastrocnemii. It is with the Germans only, who persist in eating raw ham, that trichinosis is found; others who thoroughly cook their meat appear to preserve immunity from contagion. I believe the result of the Chicago examination of pork showing a percentage of 8 per cent. of infected pigs to be perfectly unreliable as a test of the extent of the contagion among American hogs, and that if proper steps were taken to obtain trustworthy statistics a condition of American hogs could be shown which would inspire confidence for this stable article of food in foreign countries. I do not desire to discredit the work of the Chicago microscopists, but I maintain that a single test is valueless. What I desire to see is the result of daily examination carried over twelve months; with such statistics a sound average could be presented.

New York, Dec. 2nd, 1882.

DR. HENEAGE GIBBES' "NEW METHOD FOR THE DETECTION OF THE TUBERCLE BACILLUS."

To the Editor of THE LANCET.

SIR—At a meeting of the Medical Society of London on the evening of Dec. 22nd, Dr. Heneage Gibbs exhibited some specimens of various forms of bacteria. Amongst them were several examples of the bacillus of tubercle stained in a way which Dr. Gibbs has described as "new." In the course of some remarks which I made during the meeting, I expressed my inability to perceive anything new in the method of staining the bacillus of tubercle used by Dr. Gibbs. I also said, in effect, that in the specimens of the bacillus of tubercle then before the Society I could not see evidence of any advantage in the results obtained by Dr. Gibbs' plan of mixing the ingredients of the coloring solutions in certain definite proportions. In describing what he claims as his method, Dr. Gibbs says: "It is necessary to make two staining fluids—one, magenta, which stains the bacillus; the other, chrysoidin, which stains the surrounding substance but not the bacillus." Now, on reading this, it certainly appears as though in using magenta Dr. Gibbs has introduced a new dye for the purpose of staining the bacillus. As is well known to those who are familiar with the subject, Dr. Ehrlich uses fuchsin for that purpose. I had always been under the impression that fuchsin and magenta were different names for the same substance. When Dr. Gibbs described his "new" method and spoke about magenta, I thought that I must have been in error, and that fuchsin and magenta were names for two different substances. On looking up the literature of the subject, however, I found that these two names are given to one and the same substance. In order to put the point beyond dispute, as regards the use of the dye in the staining of this particular bacillus, I called upon Mr. Beck, the manager of the Badesche Anilin Fabrik, 22 Bush-lane, Cannon-street, E.C. I called upon him because Dr. Gibbs says that the aniline colors are made by that company. Mr.

Beck, in answer to my question, told me that fuchsin and magenta are names given to one substance. He said that if he received an order for magenta he would supply the same substance which he would supply were an order given for fuchsin. Fuchsin he said, is the name used on the Continent, magenta is the name in use in England. I was also told that the substance supplied by Mr. Beck to Dr. Gibbs was known in the trade by the two names, fuchsin and magenta. Mr. Beck said that Drs. Koch and Ehrlich used this same dye in their experiments. In April last Dr. Ehrlich used fuchsin to stain the bacillus of tubercle, and my friend, Dr. Koch, the discoverer of the bacillus, described to me in a letter last May the details of Ehrlich's use of fuchsin in this connection. So much then for Dr. Gibbs' stain for the bacillus in his "new" method.

It not necessary for me to say anything here about Dr. Gibbs' use of chrysoidin in his "new" method, for that night he himself informed the Medical Society that he had given up the use of that substance in staining tubercular tissue and sputum, although, he says, he still regards chrysoidin as most useful when the object in view is merely to examine the bacillus. In saying this I, of course, speak from memory; but that was the sense in which I understood what fell from Dr. Gibbs upon this point.

Having given up the use of chrysoidin for the purpose of staining "the surrounding substance, but not the bacillus," Dr. Gibbs has substituted methylene blue for it, as was seen in his specimens. In the *British Medical Journal* of October 21st last, on page 787, under the heading, "Further Remarks on Staining Bacillus Tuberculosis," Dr. Gibbs writes: "I have made a number of experiments with the view of finding a good contrast to the magenta, and one which would not at the same time stain the surrounding tissues too deeply. I find methylene blue the best for this purpose." Now, at my demonstration at Worcester, in August last (and Dr. Gibbs was present), I pointed out that Ehrlich used methylene blue as a contrast color to his red-stained bacilli¹. The fact was also known to several men who were then working at Ehrlich's process, and it was mentioned to me by Dr. Koch in May last.

Where, then, is the newness in Dr. Gibbs' "new" method? I suppose it is meant to be found in the statement which he makes on page 787 of the *British Medical Journal* of Oct. 21st, where he says, "There are one or two points about this method which I should like to mention. In the first place; the magenta solution used is a definite chemical compound having a distinct formula; it is, in fact, a diphenolrosanilin resulting from the addition of a fixed portion of pure anilin to a certain form of rosanilin, or, as it is commonly called, magenta. In Ehrlich's method, a definite compound is not formed, hence the fading of the color from the bacilli, which does not take place when a stable compound is used. In his process, also, the protoplasm alone is stained, and with high powers rows of bead-like bodies only are seen. With the method I have given, the whole organism is stained, and appears, as it really is, a rod-shaped bacillus containing deeply stained spherical bodies (?spores)." I do not know whether a diphenolrosanilin results; but let that be taken for granted. Of the rest of this statement, in so far as it refers to Ehrlich's process, I can only say that it is altogether at variance with my own experience. I have not yet seen a specimen of bacilli produced by that process in which "with high powers rows of bead-like bodies only are seen." On the con-

¹ *British Medical Journal*, Oct. 14th, 1882, p. 736.

² *British Medical Journal*, Oct. 14th, 1882, page 735.

trary, the vast majority of the organisms appear as distinct rods.

Dr. Gibbs asserts that with his "new" method the color does not fade from the stained bacillus, and that it does fade where Ehrlich's process has been used. It is true that when men first worked at this process the stained bacilli did, now and then, lose their color. In my own early experience that has happened more than once. It is different now. Ehrlich's process, properly carried out, gives quite as good results as any yet shown by Dr. Gibbs. As an illustration I may mention that I have now in my possession specimens which I stained by Ehrlich's process in June last for exhibition at the conversazione at the Royal College of Physicians. They have faded certainly, as all aniline colors will, but the organisms are still perfectly distinct. As M. Vignal, of Paris, remarked in writing upon this subject, "When the chemicals are not good, the color fades with equal rapidity, whether Gibbs' modification be adopted or not."

Dr. Gibbs also claims for his "new" method that by its use the bacillus can be shown "with the greatest ease with an ordinary quarter-inch object glass and daylight." According to him, where Ehrlich's process is used the bacillus is so faintly stained "that high power or artificial illumination is required to show it in anything like a satisfactory manner." This is another example of Dr. Gibbs' surprising statements. My friend, Mr. Watson Cheyne, showed the bacillus, prepared by Ehrlich's process, in May last at the Royal Medical and Chirurgical Society, under a quarter-inch object glass. I have myself repeatedly examined the bacillus under an ordinary quarter-inch object glass, and with very ordinary London daylight as my only illuminator.

It is not very surprising to find that Dr. Gibbs has so poor an opinion of Ehrlich's process when one reads his description of it on page 736 of the *British Medical Journal* for Oct. 14th. It runs thus: "In Ehrlich's process the stain for the bacillus is too faint, and the vesuvin used to stain the ground substance too opaque; consequently the bacillus appears a faint pink color on a dense yellowish-brown ground, and is not easily made out without high power or special illumination." If with Dr. Ehrlich's process the staining of the bacillus is found to be too faint, the fault will lie with the experimenter and not with the process. In August last Dr. Gibbs evidently did not know what was meant by Ehrlich's process, else he would surely never have said that at that time, or for months before that time, Dr. Ehrlich used vesuvin to give a "dense yellowish-brown ground," to a bacillus of a "faint pink color." Since April last Dr. Ehrlich has used methylene blue as a contrast color for red stained bacilli.

I am, Sir, yours faithfully,
G. A. HERON.

London, Dec. 5th, 1882.

ON EXAMINING THE SPUTUM IN LUNG DISEASES OR THE BACTERIA OF TUBERCLE AS A MEANS OF DIAGNOSIS AND PROGNOSIS, AND SOME REMARKS ON STAINING.

To the Editor of THE LANCET.

SIR—I have lately used as a means of diagnosis of tubercle an examination of the sputum for tubercle bacilli in all my cases of lung disease where grounds for suspicion existed, and I have found such means of diagnosis very valuable, in many cases solving the question where auscultation gave merely negative evidence. In two cases of apparently chronic pneumonia the discovery of

bacilli in the sputum of one and not in the other led to a decided diagnosis and a variation of treatment, which was afterwards completely established by the subsequent progress of the cases, for in the one decided symptoms of phthisis became established in one lung, and in the other the lung trouble completely cleared up; and if the theory concerning the existence and connection between these bacilli and tubercle be correct we cannot too highly estimate the value of the means that the existence of these bacilli affords of forming a correct diagnosis and a consequent prognosis, which is so anxiously looked for by the friends in these cases. I have used the methods of Ehrlich and Heneage Gibbs, but find the latter's method the easier to follow, and at present use that solely. I prefer, however, that the secondary staining be done in methylene blue instead of chrysoidine; the surrounding tissue is rendered more distinct, whilst the contrast between the red bacteria and the blue is greater than between the red and brown of the chrysoidine.

I regret to say that when I first used either method my attempts were failures for a long time, and I began to almost give up in despair when it occurred to me that at the time the methods were described the weather was very warm, and I discovered that the cover-glasses when in the magenta solution should be kept at a temperature of 100° F. This I found ensured a uniform and deep crimson stain to the bacilli, so that in the sputa, examined previously without any result, I now found plenty of bacilli, and on obtaining fresh sputa I found them at once. The bacilli of putrefaction are not stained by this process, but in specimens which have passed through the nitric acid process and been washed, the putrefactive bacilli may be well shown by staining with a solution of gentian violet without affecting the tubercle bacilli—thus demonstrating the two kinds, and proving that they are not identical. I find also that for rapid work and purposes of diagnosis, the cover-glass may, after staining in methylene blue and washing in water, be dried at once over a spirit-lamp flame, and mounted in a solution of Canada balsam, in chloroform and benzole, and examined at once. I have specimens prepared in this way two months ago in which the bacilli can be easily discovered by any one, even if not an experienced observer. They may be clearly seen with a No. 6 Hartnack, or even a quarter-inch, and with the former the spherical bodies within them are easily distinguished. I thus dispense with the washing in absolute alcohol and drying in the air. It is also necessary that the washing after staining should be done with distilled water. I find the dyes obtained from Martindale are quite stable, and my preparations have not faded at all as far as I can judge.

I am, Sir, your obedient servant,
ENGLEDUE PRIDRAUX, L.R.C.P. Lond., etc.

Wellington, Somerset, Dec., 1882.

HAMAMELIS VIRGINICA.

To the Editor of THE LANCET.

SIR—*Hamamelis virginica* is an indigenous American shrub, growing chiefly in the New England States. It has been used by the laity as a domestic remedy in various complaints since very early times. It was first noticed in regular medicine by Dr. Fountain in 1848 (*New York Journal of Medicine*), and a year later by Dr. N. S. Davis (*Transactions of the American Medical Association*). It was recommended by these gentlemen as a remedy for hæmoptysis and hæmorrhoids, taken internally for the former and used locally and internally for the latter. These notices fell dead, and for many

years nothing further appeared on the subject except in the advertisements of a remedy known as "Pond's Extract of Witch Hazel." This preparation is not, pharmaceutically speaking, an extract. It is in reality a distilled water, obtained by distilling the bark of the young twigs with water and adding alcohol to the distillate to preserve it from decomposition. Since the introduction of this preparation numerous imitations of it have appeared, and I presume the hazeline of the English market is one of them. Your correspondent, Mr. Symes, speaks of this as being "the active principle of the witch-hazel." This is unquestionably not the case. Thus far no active principle has been isolated. That hamamelis contains an active principle is undoubted, but thus far no one has been able to obtain it, although a great deal of time and money have been expended on the research. We simply know that it is not an alkaloid, glucoside, resin, or resinoid, but what it really is remains as yet a problem. The plant itself is of considerable commercial importance, and a good deal of capital is invested in the manipulation of it. One firm, for instance, manufacture a "concentrated extract," which they sell to dealers, who dilute it with alcohol and water and then place it on the market under various names. I presume hazeline is one of these, but cannot speak with certainty, as there is no preparation with this particular name on the American market.

Hamamelis is officinal in the new U. S. Pharmacopœia (1882), and official directions are given for the preparation of a "fluid extract." The writer has been familiar with the uses and virtues of hamamelis for many years, has made some fruitless chemical investigations as to the nature of its active principle, is one of the "Committee of Revision" of the Pharmacopœia, and believes that the official preparation is the one that will give the most satisfactory results in practice.

I remain respectfully yours,

HENRY G. PIFFARD.

New York, Nov. 16th, 1882.

HYSTERICAL IMITATION OF THE EFFECTS OF ETHERIZATION.

To the Editor of THE LANCET.

SIR—A curious hysterical condition that came under my notice Nov. 30th, 1882, is, I think, unique.

The patient was a young lady, about eighteen years of age, and had to undergo an operation in connection with the mouth. It was arranged that this should take place under the influence of an anæsthetic. About three years and a half ago I had administered ether to this patient, and some teeth had been extracted while she was under its influence. Hysterical laughing and crying preceded the return to sensibility, and this condition lasted for several hours. On the morning of Nov. 30th I poured some ether into a cone, which I held for a second or two about three inches from my patient's mouth, so that she might get accustomed to the smell, this being a practice I am in the habit of adopting before pressing the cone on to the face. She could have scarcely recognized the odor when I was struck by her peculiar appearance, and I therefore placed my cone upon a table that was near to me and watched the strange hysterical condition that ensued. First the eyelids quivered with great rapidity and there was a strong convergent squint, the face becoming congested and assuming that purple tint so common in the early stage of anæsthesia. Then followed violent trembling of the upper and lower limbs, succeeded by strong convulsive struggles, and lastly com-

plete muscular flaccidity, with heavy breathing. I could now touch the edge of the upper eyelids without producing reflex action. The time occupied by these successive stages was from two to three minutes, and no ether was inhaled beyond such whiffs as might have reached the patient while the cone was three inches away from her mouth. The moment I replaced it she became sensible, and it was with considerable difficulty, and after the expenditure of seven ounces of ether, that I produced insensibility. When the operation was over violent hysterical crying came on and lasted for more than three hours. I am, Sir, your obedient servant,

JAS. GODFREY THRUPP,

Formerly Etherist, etc., St. George's Hospital.
St. Stephen's-road, W., Dec. 5th, 1882.

"PERFORATING ULCER OF FOOT AND LOCOMOTOR ATAXY."

To the Editor of THE LANCET.

SIR—Out of three well-marked cases of locomotor ataxy which I have had considerable opportunities of observing, one had an intractable abscess situated over the outer tarso-metatarsal joints of the left foot on the dorsum. This was open for the last two years of the man's life. It certainly could not come under the title of perforating ulcer, but I always connected it with the nerve affection in my own mind.

I am, Sir, yours, etc.,

E. E.

October 30th, 1882.

VACCINATION.

To the Editor of THE LANCET.

SIR—There really seems no limit to the aspects of the vaccination question. Now comes an ethical one. As small-pox has recently made its appearance in more than one of our African colonies, and is spreading rapidly among the colored populations, the point may not be unworthy of attention.

Dr. Tinsley, a well-known practitioner of the Island of Cuba, alleges that vaccine virus after passing through the negro's system is rendered prophylactically valueless for the race. If there be any grounds for such a view, it would be well to ascertain whether the Negroid Hottentot, Kaffir, and such like dusky peoples of South Africa, ought to be included, or to what extent.

It is to be hoped that in such a negative inquiry as is suggested, observation would prove more edifying than in the positive one with ourselves. In any case, should we fail to learn how far Dr. Tinsley's conviction is supported by fact, there would be something gained in knowing if his opinion was shared by those as favorably situate as himself for judging in the matter.

I am, Sir, yours, etc.,

A. M. BROWN, M.D.

Keppel-street, Russell-square, London, Dec. 13th, 1882.

VARIOLA AND VACCINIA.

To the Editor of THE LANCET.

SIR—In a popular lecture on Vaccination, what view should be taken in reference to the experiments of Ceely, Badcock, and Thiele? The writer of a lately published pamphlet says, p. 16, "The small-pox of man conveyed to the cow produces cow-pox, but the cow-pox thus induced, retransferred to man, is as incapable as the natural cow-pox itself of producing infectious small-pox."

Is this view scientifically correct? The Lyons Commissioner, Dr. Warlomont, Mr. Fleming, and others assert that small-pox and cow-pox are distinct diseases. Fleming is very positive on this point (Human and Animal Variola). He states that human small-pox is not vaccinia, and cannot be converted into that malady; and that all recent attempts to produce this conversion in France, England, and Italy have failed.

Warlomont writes (June 28th, 1881), "L'enquête lyonnaise a donné le dernier coup à l'idée représentée par MM. Ceely, Badcock, Burrows, et Thiele, laquelle enseignait que la variole de l'homme confiné par inoculation à la vache est restituée par celle-ci à l'état de vaccin. *Cela est faux.* . . . Il existe deux maladies distinctes."

I wish to give the real truth about vaccination, and ask—which is truth?

I am, Sir, yours truly,

INQUIRER.

December 11th, 1882.

. There is not sufficient definite knowledge on the subject to enable us to answer the question positively, but we are disposed to think the former view more likely to be correct. Natural cow-pox is essentially a disease of the female animal, the site of the eruption being the udder. This raises the presumption that the disease is produced by inoculation, seeing that it is with the female animal, and particularly with this part, that man comes in contact in the process of milking. The fact that since small-pox has become far less frequent than formerly in rural districts, so called natural cow-pox has almost disappeared, tends to confirm this view, and makes it probable that the latter disease was dependent on the former. The more recent failures to inoculate the cow with small-pox are likely enough to be due to the same kind of difficulties as those which at one time led attempts to cultivate cow-pox in successive calves to be attended by failure. The Lyons experiments cannot be regarded as conclusive.—ED. L.

CINCHONA BARK.

To the Editor of THE LANCET.

SIR—I shall be glad if you could, through your influential journal, assist the growers of cinchona bark in bringing their valuable tonic within the reach of the million at a price which will well content the producer, and not be exorbitant to the laboring poor.

The importance of this new branch of Indian and Ceylon industry is remarkable, and their fine cinchonas, rich in sulphate of quinine, are driving the corky barks of South America before them. But, although the price obtained in London at wholesale auctions does allow a splendid profit to the manufacturer who converts the bark into sulphate of quinine, yet a further immense profit is made by the retail chemist, who purchases it at 7s. or 8s. per ounce of 437 grains, and retails it at 300 per cent. profit on 480 grains to the ounce. And this magnificent tonic, so prized by physicians on account of the certainty of its effects, cannot be prescribed by doctors in the quantities they would wish to a poor man or his wife and children, owing to the exorbitant rates charged by chemists (especially country chemists) in making up a prescription, so that practically it is only the moderately wealthy to whom the doctor gives a quinine prescription without stint.

In one of the largest cities of the north I lately purchased a packet of quinine powders, being charged 1s. 9d. for thirty-six grains, or at the rate of 23s. per ounce; and the druggist seemed surprised at my remarks at the price. If this is the price at our town establishments, what must it be in country towns and villages? And in the interest of the masses of the people and the hard-working planter I would solicit your aid.

I am, Sir, yours faithfully,

THOMAS DICKSON, Managing Director.

The Scottish Trust and Loan Company of Ceylon (Limited),
Palmerston-buildings, London, Dec. 21st, 1882.

"SALICYLATE OF SODA IN SCARLATINA."

To the Editor of THE LANCET.

SIR—I wish to state that for several months past I have prescribed the following mixture in cases of scarlatina, and with the happiest of results:—

Forty grains of salicylic acid, half a drachm of carbonate of ammonia, two drachms of syrup of mulberry, and three drachms of syrup of lemons to three ounces of water; one teaspoonful every two hours (for a girl eight years of age), the dose to be regulated according to age and sex.

The subject is at present engaging my attention, and I hope on a future occasion to offer a communication on the subject.

I am, Sir, yours, etc.

P. W. M.

December 20th, 1882.

To the Editor of THE LANCET.

SIR—An extensive experience with the above has satisfied me that it is a very valuable medicine if used early and with sufficient power. It seems to modify the throat and nasal symptoms. The dose had better be left to the judgment of the practitioner.

I am, Sir, yours, faithfully,

JAMES COULDREY.

Scunthorpe, Brigg, Dec. 26th, 1882.

To the Editor of THE LANCET.

SIR—I have tried salicylate of soda in persons suffering from scarlatina, and have fancied it did good. I have also given it to all persons in communication with the patient, and to those in the house unprotected by previous attacks, and have, as yet, always appeared to prevent the disease spreading. I have tried it thus, fifteen grains every four hours, in three different families, the first of which was the most striking example. It was in the family of a fishmonger, where the parents and four children slept in two adjoining rooms. One of the children was attacked by scarlatina, and in less than a week a second took it. There was no possibility of absolute isolation, but I put the other two children on comparative doses of salicylate of soda, whilst the parents took none, having previously had scarlatina. Both parents and one child had sore-throats for two or three days, but the other child never appeared to suffer in any way. This and other instances may be cases of *post hoc ergo propter hoc*, but made some impression upon the patients friends, and may interest some of your readers.

I am, Sir, yours, etc.,

AMAND ROUTH, M.D.

Upper Montagu-street, Montagu-square, W., Dec. 27th, 1882.

PRINTED AND PUBLISHED BY

THE INDUSTRIAL PUBLICATION CO., 49 Malden Lane, N. Y.

THE LANCET.

A Journal of British and Foreign Medicine, Physiology, Surgery,
Chemistry, Criticism, Literature and News.

JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

PUBLISHED MONTHLY.

No. 3.

NEW YORK, MARCH, 1883.

Clinical Remarks

ON A

CASE OF BRONCHIECTASIS TREATED BY TAPPING.

By C. THEODORE WILLIAMS, M.A., M.D., etc.

Physician to the Hospital for Consumption and Diseases of the
Chest, Brompton.

GENTLEMEN—Bronchiectasis in its worst form is one of the most troublesome affections the physician has to deal with, and the subjoined is instructive as indicating some of the difficulties.

Charles R—, aged forty, a baker, was admitted into Brompton Hospital on April 28th, 1882, under my care, with the following history. There was no consumption in the family; he was chilled twelve months ago, and had cough and expectoration ever since, with some pain in the chest and tightness, for which he became an inmate of the Bath United Hospital, and remained so till April, 1882. During this period he had night-sweats and more or less pyrexia, the temperature rising to 103° F., but being generally from 99° to 100° in the mornings, and 100° to 101° in the evenings.

On admission the cough was very harassing, inducing vomiting; expectoration abundant, purulent, and so fetid that the patient had to be isolated from the other patients. It contained no lung-tissue. Breath very foul. Pulse 106; temperature 99.4°; respiration somewhat hurried; weight eight stone four pounds and a half. Physical signs: Right side anteriorly hyper-resonant to upper border of the fourth rib; below marked dullness, and intercostal spaces retract on inspiration; bronchophony audible over the whole front, also coarse crepitation, replaced in certain spots by gurgle and cavernous breathing, these spots being situated in the second and third intercostal spaces, near the shoulder, and in the fourth and fifth interspaces between the nipple and shoulder. In the latter position the gurgle was audible over a spot of two inches diameter. Posteriorly, marked resonance from above to the angle of the scapula, below which was dullness with retracting intercostal spaces, as in front; crepitation audible over the whole surface, with spots of gurgling and cavernous sounds between the ninth and tenth

ribs, immediately below the lower angle of the scapula, and again in another spot at the same level, two inches nearer the spine. Left side: Crepitation with wheezing sound heard over the lower half of the posterior surface. The diagnosis was chronic pneumonia of both lungs, accompanied in the case of the right by extensive bronchiectasis and adhesion of pleura. The fetor of breath and expectoration were treated by the patient wearing a Roberts' respirator containing a mixture of creasote and carbolic acid, the air of the ward was diffused with vapor of thymol or eucalyptol, the expectoration was duly deodorized by terebene, and stimulant expectorants administered, in addition to two ounces of brandy daily. Notwithstanding these measures, the cough continued sufficiently violent to cause vomiting, the expectoration was so fetid as to greatly distress the patient, and, in spite of all precautions, the smell reached the gallery and penetrated into some of the adjacent wards. After consultation with Drs. Douglas Powell and Tatham, I decided to ask Professor Marshall to make an opening into the largest bronchiectasis, and thus to secure efficient drainage.

On May 22nd Mr. Marshall made a vertical incision along a line drawn by myself, from the fourth to the sixth ribs, about two inches to the right of the right nipple. He divided the skin and laid bare two intercostal spaces, the object being to puncture the upper space, and in case of our thus failing to reach the bronchus to try the lower space without a fresh incision. Mr. Marshall then plunged a special trocar and cannula, with director attached, to the depth of four inches towards the root of the lung. Air hissed through the opening, followed by a large quantity of fetid matter, which was ejected with considerable force. Mr. Marshall then extended the opening by means of his knife and finger, and more fetid mucus, this time mixed with sloughs and shreddy lymph, appeared; some blood also flowed. A piece of French catheter-tubing was fastened in, through which the discharge passed into antiseptic dressings.—23rd: Slept well; a fair amount of discharge runs through the tube; expectoration diminished, hardly fetid; wound looks well. Temperature 99.8°; pulse 100.—24th: Dr. Hicks found the tube to be slightly movable; discharge free and not offensive; expectoration thirteen ounces, devoid of smell, and breath tolerably pure. Two days later, the expectoration and discharge remaining about the same, the patient had diarrhoea, lasting two days,

arising, it was supposed, from swallowing sputum; urine 1020, no albumen.

June 1st: The tube was changed, and the patient was allowed to walk in the grounds of the hospital. He remained fairly well; the expectoration about seven ounces daily, and the discharge tolerably sweet, till June 8th, when the discharge increased; there was a slight rise of temperature to 100°.—4th: The patient complained of headache.—12th: The sputum slightly fetid. Still headache. Discharge increased.—17th: Patient has had severe frontal headache and vomiting with much flatus since 4 A.M. Wound the same; discharge more fetid. Temperature 101.6°. Ordered a calomel and podophyllin purge. This produced a number of motions, but no relief to the headache, which increased, and appeared to correspond with a diminution of the sputum, the quantity falling from six ounces to one ounce and a half on the 20th, and on the 24th he became drowsy, with more headache. Movement was impaired on the left side. No expectoration.—26th: Headache diminished; left pupil large. Breath very offensive. No sputum.—29th: Very drowsy. Passes motions under him. Wound the same.

July 1st: Complete hemiplegia of the left side of the body. The patient was drowsy and nearly unconscious. He died five days later, the sputum being altogether retained. The autopsy was performed on the following day. The subjoined is an abstract of Dr. Ewart's, the pathologist, and Mr. H. Williams', my clinical assistant, notes. A fistulous opening was seen in the right side of the chest between the fourth and fifth ribs, two inches to the right of the nipple line. The right pleura was universally adherent, rather closely so, by means of a strong fibrous tissue. The right lung was deeply congested and practically devoid of air; the tissue was collapsed, sodden, congested, and infiltrated with pus. A more or less uniform dilatation of all the small bronchi was noticeable on close inspection. Sacular dilatations as large as peas or almonds existed in the thickness of the basic fringe from sternum to vertebrae, but the main disease was situated in the lower part of the upper lobe anteriorly; and in the anterior portion of the lower lobe. The greater part of the sternal portion of the upper lobe was converted into a baggy multilocular sacculatation with thin but very tough fibrous walls, and containing some fetid fluid. This cavity, which was typically bronchiectatic, was also of the size of an orange, and communicated by an artificial channel with the fistulous opening on the chest wall, showing that the principal dilatation had been successfully tapped. In the sternal portion of the lower lobe the sacculations were much smaller, but very numerous and separated by a tissue thoroughly soaked in purulent fluid. The posterior parts of the lung were comparatively free from disease with the exception of two inches and a half above the diaphragm in the interscapular region, where a series of small sacculations about the size of a walnut was found. The left lung had no pleural adhesions, and was crepitant throughout, and tolerably healthy. No bronchiectasies were detected in it. The bronchial glands beneath the bifurcation of the trachea were enlarged, pigmented, and soft. No tubercular or caseous deposits were found in either lung. The brain weighed fifty-five ounces, and in the right hemisphere was discovered a cyst as large as a Tangerine orange with walls varying in thickness from one-eighth to one-sixth of an inch containing pus. No abscesses were discovered in the other organs, which were carefully examined and found quite normal.

This case exemplifies some of the difficulties we have to encounter in the treatment of bronchiectasis.

The diagnosis was based on the position of the physical signs, especially of the spots of gurgle, which are generally peculiar to bronchiectasis, and on the character of the expectoration; and it has been proved by the autopsy to have been fairly correct. It must be admitted that much aid was derived from the fact of the cavernous sounds being very localized and apparently superficial. We had not to deal with a labyrinthine series of dilatations, as in a case communicated by me to the Clinical Society in 1879, where cavernous sounds were audible over a far larger surface than the size of the cavity, owing to its peculiar form. The entire failure of antiseptic inhalations, the knowledge of an adherent pleura, and the certainty of speedy death from septicæmia, induced me to have recourse to the operation, with the immediate results of which I was quite satisfied. I would specially draw attention to the advantage of making an incision, as Mr. Marshall did, over two intercostal spaces in cases where the area of gurgle extends as far; so that, if puncture in the first space fails, we can try the one below or above, as the case may be, without fresh incisions. Another point is using Dr. Hicks' admirable combination of trocar, cannula, and director,* so that the channel into the cavity may not be lost through accident—a by no means infrequent occurrence—but gradually enlarged with the knife, and a large drainage-tube introduced. The wonderful improvement in the cough, the diminution of the expectoration, and disappearance of fetor, indicated in this case, as in Dr. Douglas Powell's case recorded in the 63rd volume of the *Medico-Chirurgical Transactions*, that much of the expectoration was due to the irritation set up in the bronchi by the passage of fetid secretion; and the marked amelioration made us hope that we were getting over our difficulties. But the return of fetor, the diminution of the expectoration, and, lastly, the pain in the head, followed by hemiplegia, showed clearly that absorption of matter and pyæmia had set in. The presence of an abscess in the brain and the total absence of any other abscesses in other organs were remarkable, and made one doubt at first if the brain abscess were pyæmic, but the curious relation between the diminution of expectoration and the increase of pain in the head certainly pointed to a pyæmic origin. The expediency of operating at all in these cases must be judged of by considering their probable termination. Some patients appear to gain expectorating power by using antiseptic expectorants in the form of medicines as inhalations, and are enabled to empty their bronchi sufficiently to prevent large and fetid accumulations. In others one of four events happens: (1) Either some of the fetid secretion passes during the movements of respiration into adjoining bronchi, or into the main bronchus of the opposite lung, and gives rise to septic pneumonia and death; (2) or the fetid products are absorbed by the lymphatics and bloodvessels, and give rise to pyæmic abscesses in some part of the body, as in the present case; (3) or, again, the bronchiectasis may burst into the pleura and cause pneumothorax; (4) or, lastly, the patient may die of suffocative bronchitis from the secretion penetrating into all or the greater part of the alveoli. All these four terminations are fatal in a shorter or longer period, and it is to obviate them that operations are undertaken. Taking the forms of bronchiectasis into account, of the two cylindrical and globular, the globular form of dilatation of the bronchi is the worst to treat, because all tonicity of the walls appears to have been entirely lost, and although we may tap and relieve one of

* Lately exhibited at the Medical Society of London.

these collections of fetid pus, we never can be quite sure that another one does not exist in another part of the lung, so that not one but many operations are required, and it looks sometimes as if there was more probability of our reaching the end of the patient's life than of the end of the operations. In the three other cases of bronchiectasis on which I have had operations performed, in all more than one operation was performed. In one six openings, in another three, were made, and this last patient stood the operations well, and is still living, a year and a half after. In the present case we were fortunate enough to hit the largest of the bronchiectases, and I hoped, as it was the lowest, that it would carry out sufficient drainage of a large portion of the bronchial tree. The question may be asked why I did not have another operation performed, but we had no indications. The opening was not blocked, but patent, and the septic symptoms came on too rapidly to allow of more apertures being made.

Clinical Lecture.

ON

CALCULUS IN THE FEMALE BLADDER.

*Delivered in University College Hospital,
Oct. 23rd, 1882,*

By CHRISTOPHER HEATH, F.R.C.S.,
Holme Professor of Clinical Surgery.

GENTLEMEN—You saw me last week remove from the bladder of a woman aged thirty-three the mass of calculous material which I show you in this bottle, and which weighs, now that it is dry, just one ounce. The patient is a married woman, and had been confined six weeks when she presented herself in the out-patient department, complaining of pain about the bladder and frequent micturition. For this she was sent upstairs to see me, and I had no difficulty in detecting a large mass of stone in the bladder. When placed upon the table in the lithotomy position, you saw that I proceeded to dilate the urethra with a pair of polypus forceps, and then introduced my little finger and subsequently my forefinger without difficulty. In this rapid dilatation there is of course some laceration, and it is usually upwards under the pubes, and does no harm. My finger enabled me to feel a very irregular mass of phosphatic stone, which I proceeded to break down with small lithotomy forceps, and I was able with these, with a scoop, and by washing out through a vulcanite speculum, to remove the debris which we have in the bottle. After clearing out all the fragments, I found that the bladder was in part encrusted with phosphates, and this mortar-like material I scraped away with the nail of the forefinger and a lithotomy scoop, until I was satisfied, by compressing the bladder with the other hand so as to sweep the finger over the whole interior of the viscus, that the mucous membrane was clear. Then, lastly, through the little vulcanite speculum, I applied a solution of nitrate of silver (a drachm to the ounce) over the whole surface of the interior of the bladder, and sent the patient to bed with a half-grain of morphia suppository in the rectum. I expected that there would have been more or less complete incontinence for a day or two, after which the patient would have recovered perfect control; but this was not the case. She was able to hold her water completely on the day of the operation, and passed from the first acid urine, instead of the

abominably offensive ammoniacal urine which had been present before. Now, this I find the invariable result of mopping out the bladder with a strong solution of nitrate of silver; and some of you may remember a man in whom the same thing was seen after lithotomy. The woman is now taking her food well, and is fairly convalescent, so much so that I have allowed her baby to be put to her breast again.

The symptoms of stone in the female closely resemble those in the male, except that, from the close propinquity of the bladder to the uterus they may be referred to the latter organ. Frequent micturition, pain especially after emptying the bladder, with "bearing down," should direct attention to the bladder and the condition of urine, which last is probably thick, and may occasionally contain blood. The detection of a stone with the sound is comparatively easy, for the urethra is short, and there is no prostate behind which a small stone can lie hid, whilst the ease with which the fundus of the bladder can be simultaneously examined with the finger in the vagina makes the diagnosis simple enough.

Calculus in the female may be of renal or vesical origin, or both, just as in the male; but there is the peculiarity about stone in the female that it may occasionally have for its nucleus some foreign body introduced by the patient herself. If the foreign body is small, such as a piece of cork, and is completely enveloped by the calculous matter, it in no way complicates the treatment; but cases are not very uncommon in which a hairpin or some other implement has been introduced into the bladder, and having escaped the patient's grasp, has been left there to form the nucleus of a concretion which is certain to form. In these cases the foreign body projects from the stone, and may not improbably have pierced the bladder, and given rise to serious complications.

Stone is not nearly so common in the female as in the male, the proportion between the two sexes being, according to Mr. Poland, one in the female to twenty or twenty-three in the male; and the same author remarks that "statistics respecting stone in the female, the operation and its consequences, and the mortality after operation, are incomplete and unsatisfactory." I am inclined to think, from what I have seen, that stone is more common in the female than is here stated, or than is generally supposed, because in all the cases I have had under my care the disease had not been recognized until shortly before I saw them, although the symptoms had long been present, and had been for the most part referred to uterine disorders. Irritability of the bladder is so common an accompaniment of uterine disease that it is easy to understand how both patient and doctor may be deceived by the symptoms produced by stone; but I would warn you, in all cases of uterine complaint, not to be satisfied without making both a rectal and a vesical examination if the symptoms are at all obscure or do not yield readily to appropriate treatment. When a vaginal examination is being made, it is so easy to pass the finger into the rectum and to slip the uterine sound (if no more convenient instrument is at hand) into the bladder, that there really is little excuse for overlooking disorders of any of the pelvic viscera.

The treatment of stone in the bladder of the female has been simplified almost as much as that of calculus in the male by the "one-sitting" method of lithotripsy introduced by Bigelow. In former years I should have hesitated to break up a stone weighing an ounce and have probably had recourse to vaginal lithotomy, of which I shall speak presently. Of course lithotripsy for small stones has been often performed in the female, and

I ventured some years ago thus to break up a small mulberry calculus, the fragments of which may be seen to be covered with phosphates. The ordinary lithotrite, or a shorter one made for the purpose, may be readily employed, or where, as in the great majority of cases, the stone is soft and friable, recourse may be had to simple lithotomy forceps and the crushing power of the hands. Bigelow's, Thompson's, or Clover's evacuator may be employed in the female as in the male, but I think I saved time in my case by using simply a vulcanite urethral speculum and washing out the fragments with an ordinary Higginson's syringe.

Extraction of small stones per urethram with polypus-forceps or a scoop is readily performed if the urethra is rapidly dilated in the way I have described; but it is never worth while to drag out large calculi at the risk of producing incontinence, when they can be so easily reduced in size by crushing. The method is, however, very satisfactory for the removal of the foreign bodies which occasionally find their way into the female bladder. Various ingenious instruments have been contrived for catching, doubling up, and extracting such articles as hairpins; but I have found practically that with the finger introduced through the urethra there is no difficulty in guiding a pair of polypus-forceps, and extracting a hairpin or other similar body without the risk inseparable from a supra-pubic lithotomy, which has been performed in similar cases.

The operation of lithotomy in the female resolves itself into a very simple proceeding—viz., cutting through the vaginal and vesical walls where they are in contact, and is hence called vaginal lithotomy. Let me remind you that the peritoneum does not touch the anterior wall of the vagina, which may therefore be divided quite up to the os uteri without risk to that membrane, whereas the pouch of Douglas lies between the upper part of the posterior vaginal wall and the rectum, and is liable to injury by obstetric instruments, etc. Vaginal lithotomy is no new operation, for it has been long known to surgeons, but the great modern improvement in it is the practice of closing the wound immediately by wire sutures so as to obviate the formation of a vesico-vaginal fistula. I show you three large stones which I removed from different women by this proceeding some years back. The first stone weighs one ounce and a half, and is remarkable, as you may see in the section, for having consisted originally of three angular calculi, which had become fused together in a mass of carbonate and phosphate of lime, measuring 2 inches by $1\frac{1}{2}$, and being 1 inch thick. This I extracted from a woman aged forty-nine, in whose bladder I detected a very distinct pouch, in which no doubt the stone had originally lain. I closed the wound with tin wire sutures introduced through the whole thickness of the bladder and vagina, and the patient made a perfect recovery. The second stone is nearly circular in shape, its long diameter being $2\frac{1}{4}$ in. and its short diameter $2\frac{3}{4}$ in., and its greatest thickness $1\frac{1}{2}$ in. It weighed two ounces, and I extracted it from a woman aged forty who had long suffered from pain supposed to be uterine. In this case the closure of the wound was not entirely successful, and she had slight incontinence when in the upright position, but declined further interference. The third stone consists of one large mass and a quantity of débris, weighing altogether three ounces and a half, which I extracted from a woman aged fifty, who made a perfect recovery.

You will thus see that there is no difficulty in extracting very large calculi from the female bladder entire, but it is in some sense a reproach to

our art that stones should be allowed to attain such a size. Early detection is as desirable in the female as in the male, and the great majority of such cases can be best treated by lithotripsy at one sitting.

Clinical Remarks

ON

BILATERAL FACIAL PALSY.

By J. S. BRISTOWE, M.D., F.R.S.,

Senior Physician to St. Thomas's Hospital.

BETWEEN three and four years ago I was consulted in a case of injury to the head; attended, or rather perhaps followed, by symptoms which interested me a good deal at that time.

A young man, twenty-one years of age, was alighting one morning (five months previous to the date of my interview with him) from a train which had overshot the Deptford station on the London and Greenwich line, when, mistaking in the dark the low wall which flanks the railway for the platform, he stepped on to it, and the next moment was precipitated head-over-heels into the road beneath. The main facts which I learnt concerning his subsequent history were as follows: that he was carried insensible to the *Dreadnought* Hospital, where no local signs of injury to the head were detected beyond the fact that blood was oozing from the ears and nose, and where also some of the ribs on the left side were ascertained to be broken; that he remained absolutely unconscious for about four-and-twenty hours, and partly unconscious for two days more; that during this time it was observed that he was paralyzed on the left side of the body and on both sides of the face, that he squinted and was deaf, and that owing to a wound of the lung pneumothorax was developed on the corresponding side; that after his recovery of consciousness he remained feeble in mind, with impaired memory and tendency to delirium and emotional disturbance; but that (with the exception that the squint disappeared from the eye first affected and then attacked the other) gradual improvement had taken place, chiefly in his general health and the condition of his chest, but to some extent also as regards his cerebral symptoms.

He was a spare but well-nourished man, with a curiously vacant expression of countenance. He had almost complete paralysis of both seventh nerves. His face was smooth and void of wrinkles. He could not close his eyes, or whistle or blow out a candle, or retain fluids in the anterior part of the mouth, or bring his lips into actual contact. Neither could he pronounce the labial letters *b*, *p*, *m*, *v*, *f*, or *w*; but he could pronounce all others, and in conversation invariably replaced the labials by their corresponding linguals—*b* by *d*, *p* by *t*, *m* by *n*, and *v* and *f* by *th*. His hearing was impaired on both sides, more especially on the right; but he could hear. The external rectus of the left eye was paralyzed, so that he presented an internal squint. The left upper extremity was partially paralyzed, a little contracted, and slightly but generally wasted. Moreover, there was slight impairment of sensation, especially in the little and ring fingers. The left leg also appeared a little wasted, but he seemed to use it almost as well as the other. He was, so far as I could judge, quite sensible; but it was said that his memory was still defective, that he was incapable of application, and that now and then he would give way to anger, which formerly he never did. No other abnormal phenomena referable to the nervous sys-

tem were observable. His sight was good, he could distinguish colors, his pupils were equal and acted naturally, and there was no paralytic condition of any of the cerebral nerves but those which have been specified. There was impaired immobility of the left side of the chest, with some contraction of it, displacement of the heart to the left, and dulness at the base. No signs, however, of progressive disease were detected.

There was no evidence as to what part of the head was struck in this case, or indeed that the head itself received any direct injury. But it was quite clear that damage had been inflicted on the soft parts within the skull. There was doubtless some bruising of the brain; but where exactly it was, under the circumstances, it is idle to speculate. So much, however, was clear—namely, that some bruising or laceration had occurred in the neighborhood of the pons Varolii, and that there had been more or less implication of both acoustic and both facial nerves and of the sixth nerve on the right side. And the opinion I formed was to the effect that he had had a fracture of the base of the skull; that the several nerves above named had been damaged, either by being themselves bruised or by being pressed upon by blood extravasated beneath the dura mater; and that the hemiplegia might have resulted from damage to the motor tract in the immediate vicinity. The probability that he had fracture of the base was enhanced by the bleeding that took place from both ears at the time of the accident. I may here state that I have recently learnt from Dr. Kavanagh, under whose care the patient was, and who still sees him from time to time, that he has so far recovered as to be able to earn a livelihood, but that his paralytic symptoms and his peculiarities of speech remain much as they were.

I was chiefly interested in this case because of the existence of double facial paralysis—a condition which is very rare, and which I have seldom seen—and of the association with it of a phenomenon which, on theoretical grounds, might be expected to be present in such cases, but which I had never hitherto observed—namely, absolute inability to utter any labial letter. I need scarcely say that in paralysis of the portio dura of one side defective articulation is not generally noticeable, and that the patient can pronounce the labials without difficulty. My interest in the case was revived about a year ago by the fact of another patient coming under my care, who (also as the consequence of injury to the head) suffered from double facial paralysis, but who presented additional symptoms of a remarkable character; and in whom the opportunity was afforded of investigating post mortem the causes of the phenomena observed during life. The following are the particulars of the case:—

A man, formerly a soldier, forty years of age, came under my care on Sept. 21st, 1881. Exactly two months previously he had fallen down some area steps, and struck the back of his head, and had been carried insensible to one of the London hospitals. A deep cut was found in the occipital region, but no sign of fracture was detected, and he remained more or less insensible for a fortnight. At the end of a month he left the hospital presumably well. But I have since learnt that indications of paralysis of the facial nerves had been observed. During the ensuing month he remained at home, and it was noticed that he was much more irritable and fidgety than he had previously been, that he was inclined to be drowsy, and that his speech was thick and indistinct. Moreover, his appetite failed, he had a constant and painful desire to go to stool, the bowels being relieved with difficulty two or three times a day of a few small

hard scybala, and he lost flesh and strength. There was no impairment of memory, however, no vomiting, no loss of control over his bladder. On admission into St. Thomas's Hospital it was noted that he was a short, feeble, emaciated man, very bald, with sunken eyes, and an immobile, melancholy-looking face. There was a recent scar about two inches long in the occipital region. On closer investigation it was discovered that he had imperfect paralysis of both facial nerves; his forehead was smooth, he could not close his eyes, the nasolabial furrows were ill-defined, and if he attempted to laugh only a very slight movement was discoverable in the lower part of the cheeks and about the mouth. He could, however, close his lips, and had no difficulty in keeping fluids in his mouth. His want of variability of expression was clearly due to the paresis of his facial muscles, and the prevalent melancholy look was dependent partly on the same cause, but partly on the subsidence of the eyes into their sockets. There was no other obvious nervous default in connection with the head and neck. The muscles of the eyeballs acted properly, the pupils were equal, and acted to light and accommodation, his sight was good, and the fundus of the eyes showed no pathological change. There was a little deafness on both sides, but this was said to be of old date. His tongue was protruded straight and without difficulty; there was no defect of mastication or deglutition, and pronation remained unaffected. His speech, however, was, as it had been said to be, thick and indistinct. He could enunciate all the individual labial sounds, and even the linguals, but when uttering them in combination they were imperfectly articulated and slurred. His speech, in fact, was exactly such as is observed in cases of early glosso-labio-laryngeal palsy. It is right to say, however, that he always asserted that his speech was naturally indistinct, and that he did not admit it had deteriorated lately. The arms, especially the forearms, were much shrunk; the legs also were extremely thin. There was no wasting or paralysis of particular muscles or group of muscles; there were no tremors; but there was extreme general muscular debility. Sensation was unimpaired; the superficial reflexes were little marked; the tendon reflexes were present, but perhaps a little sluggish. He appeared to be low-spirited and apathetic, and complained of pain at the back of the head, and in the umbilical and epigastric regions. The chest expanded imperfectly, but all the thoracic viscera appeared to be healthy. The respirations were normal as to frequency, and the pulse feeble, but otherwise natural. The abdomen was shrunken and its walls flaccid; no tenderness or tumour could be detected. Tongue thickly coated, appetite bad, no sickness; he complained of persistent uneasiness about the rectum, and a constant desire to defecate, but there was no evidence of piles or other disease in the rectum or anus; there were not, and there had never been any discharge of pus or mucus, and the motions, which were passed with extreme difficulty and much straining, were voided only occasionally and in small quantities; they were healthy in character. The urine was normal in amount, slightly alkaline, and containing amorphous phosphates, but no albumen or sugar; its specific gravity was 1025. His temperature was normal; his weight eight stones and half a pound.

There was no very great change in the patient's symptoms during the remainder of his illness, excepting that he gradually became thinner and weaker, and more apathetic.

He was always quiet, reserved, and disinclined to speak; for the most part indifferent as to what was going on around him, yet sometimes becoming irritable and worried about trivial things. His ap-

petite was bad, but he complained neither of sickness nor of thirst; and his bowels continued almost to the end to be a source of great discomfort and misery to him. There was never discovered any sign of local mischief, and the motions were always normal in character, or perhaps a little hard; but he suffered from almost constant tenesmus, which was only momentarily relieved by the occasional passage of small lumps of fecal matter. It may be added that there was no discernible undue accumulation of feces in the rectum, and that on the average a sufficient amount was passed daily. At times, and more especially latterly, this symptom was kept in abeyance by the use of morphia suppositories. His paralytic symptoms remained without change. His temperature was generally about the normal, occasionally rising a little above, but more commonly falling a little below. He had at all times a great inclination to remain in bed; and for the last three or four weeks of his life remained in bed almost constantly, lying huddled up on his side, with his head buried beneath the bedclothes, and though quite sensible, or at any rate understanding all that was said to him, seldom vouchsafing any answer to those who questioned him. He seemed also to be getting more and more imbecile. About a week before his death his weight was ascertained to be only 6 st. 4 lb., so that he had lost nearly two stones from the time he was received into the hospital. During the last week of his life he vomited occasionally.

About noon on Dec. 23rd, two months after admission, he was discovered insensible, with head thrown back, and mouth open, sweating profusely, breathing at the rate of four respirations in the minute; his pulse very feeble, irregular, and about 90; his pupils contracted and equal; and his temperature 96° 7". He continued in this state (his temperature, however, falling to 95°) until his death, which took place shortly before five the same evening.

The points of particular interest in this case were; the presence of double facial palsy; the curious combination of irritability, apathy, and drowsiness, and apparently progressive enfeeblement of mind; the rapid general wasting of the tissues, and more especially of the muscles without paralysis; and the constant and painful desire to defecate, apart from the presence of any local conditions to explain it. To what were these symptoms attributable? That there was damage to the soft parts within the skull was certain; and that there was fracture of the base of the skull was probable, at least I thought so. It is true that no fracture was detected at the time of the accident, that there had been no bleeding or discharge of watery fluid from the ears, and that a blow on the back of the head is less likely to be attended with fracture at the base than blows in several other situations. But, on the other hand, a blow here not infrequently causes a linear fracture of the occipital bone which fails to be recognized during life; and such a fracture might easily run up to the suture between the occipital and temporal bones, and might lead to the separation of the edges of these bones, and then become connected with a fissure running across the base of the skull. Besides which we had in this case just that kind of paralysis which might be expected to result from a basal fracture, which seemed best explained by such an accident, and which in the case first narrated was almost certainly due to that cause.

One can never predict with certainty either the amount or the situation of the injuries which after death will be found to have been inflicted on the brain even by accidents in which the bones of

the skull are unbroken. Not unfrequently there is injury of the part corresponding to the blow; sometimes there is laceration either in the substance of the brain or of some of the delicate laminae or processes which extend between adjoining parts; almost always there is more or less serious bruising by contrecoup of those regions of the surface of the brain which abut on bone opposite to the seat of injury. On the whole, however, considering that the patient had not fallen very far, and that there was no depression of skull at the point which had been struck, I was inclined to think the chief, if not the sole, injury to the brain was from contrecoup. I shall best explain my views, perhaps, by narrating a case that occurred to me some years ago.

A man, walking over London-bridge, was seen by a policeman to stagger and fall violently on the back of his head. He had probably slipped on a piece of orange-peel. He was picked up insensible, and brought to St. Thomas's Hospital, where in a very short time he died. There was some bruising and laceration of the integument over the occiput; but no fracture was discovered. At the post-mortem examination, however, a linear fracture of the occipital bone was found, extending from an inch above the tuberosity into the foramen magnum, and situated to the left of the median line. There was much effusion of blood into the cavity of the arachnoid and into the subarachnoid tissue; and there was considerable bruising, with laceration, of the anterior portions of each cerebral hemisphere, and of those portions of the middle cerebral lobes which were in relation with the greater sphenoidal wings. There was no other injury.

Now in this case there was just such a fracture as I supposed might have occurred in the case under consideration, but its direction was somewhat different; and the mischief within the skull, excepting that there was no damage to the facial nerves, was precisely that which usually results from contrecoup, and which I expected to find on the present occasion. I hoped, however, to find something more.

A careful autopsy was made, at which I was present. The scar on the occiput was very distinct; but there was no further affection of the soft parts outside the skull. There was no trace of injury to the skull itself; clearly there had been no fracture of the base. The front and under part of each anterior cerebral hemisphere were softened and of a yellow-ochre tint. The same conditions were observed in the anterior and under part of each middle lobe; and a few yellowish spots were observed about the flocculi and neighboring part of the cerebellum. In the first two situations the softening and discoloration involved the whole thickness of the grey matter; but the subjacent white matter appeared to be unaffected. In the last situation the change was extremely slight and wholly superficial. Indeed, it seemed probable that the brain substance itself was not involved, and that the pigmentary deposit was limited to the pia mater. With these exceptions the brain was perfectly healthy; and there was no visible damage either to the seventh or to any other of the cerebral nerves. The medulla oblongata and the cord were healthy, and presented no traces of secondary degeneration. The thoracic and abdominal viscera, including the rectum, were sound.

The results (shall I confess it?) were somewhat disappointing to me. But it is by the cases that thus disappoint us that we learn, or are made to think. It is such cases too that ought especially to be stored up in the memory, in order that when other obscure or exceptional, or apparently mis-

leading, cases come under observation, they may serve to illustrate or explain them, or to correct the inferences we are disposed to draw from them. Now, although there was no fracture at the base of the skull, or visible injury to any of the cerebral nerves, it is not very difficult I think, to understand how some damage may, nevertheless, have been inflicted on the facial nerves within the skull sufficient to have induced the permanent but incomplete paralysis from which the patient suffered. The effects of contre Coup in this case were observable in all those parts of the surface of the brain, which were antipodean, so to speak, to the part of the skull struck; or, in other words, in those parts of the nervous centres which were in contact with the anterior bony boundaries of the anterior, middle, and posterior fossæ of the skull severally; and the portio dura is so situated within the skull as, perhaps, to be more amenable to damage under these circumstances than any other cerebral nerve. The failure to discover any pathological change does not, of course, prove that no damage had been sustained.

Further, I do not think it need be assumed from the conditions found in this case that the double facial palsy observed in the first case was not due to fracture across the base of the skull, though they prove clearly enough that a blow on the head may cause such paralysis apart from fracture. But the chief interest of the case, after all, lay elsewhere—namely, in the presence of the group of non-paralytic clinical phenomena, to which nothing similar existed in the first case, and in their explanation. What caused the patient's irritable apathy and apparent enfeeblement of mind? What caused his persistent mental misery? What caused his progressive and rapid emaciation and muscular enfeeblement? To these questions, I am sorry to say, I can give no satisfactory answer. All the perceptible damage to the surface of the brain was well removed from the generally recognized motor and sensory areas; a fact which goes to explain the absence of cerebral paralysis and of impairment of the special sensory functions. Cases have been adduced to show that disease of the front part of the anterior cerebral lobes involves a profound alteration of the moral character of the patient and enfeeblement of his intellect.

On the other hand, many cases of injury of this part have been met with, in which no special symptoms of importance have ensued. "Dr. Crichton Brown, however," (I quote from Ross), "has drawn attention to the fact that during the early stage of general paralysis of the insane, when the convulsions of the frontal lobe are particularly apt to manifest degenerative changes, the characteristic symptoms consist of 'general restlessness and unsteadiness of mind, with impairment of attention, alternating with *apathy* and *drowsiness*.'" These symptoms are identical with some of the special symptoms presented by my own patient; and on the whole, perhaps, are such as in the present state of our knowledge might be thought likely to follow on such lesions as were found. The gradual wasting and debility, and the rectal trouble, however, seem to me at present inexplicable.

I may add that in the tenth volume of the *Pathological Transactions* I recorded a case pathologically identical with this; but in which the only history obtainable was that the man had been earning his livelihood subsequent to the accident (of which there was no record) which caused the superficial cerebral hæmorrhage; and that after a bout of drinking he was attacked with epileptiform convulsions, of which he died.

THE
"Bradshawe" Lecture
 ON
SOME RARE AND NEW DISEASES.

*Delivered at the Royal College of Surgeons of England
 on December 13th, 1882,*

By SIR JAMES PAGET, F.R.S.

MR. PRESIDENT AND GENTLEMEN—It is my first duty, in delivering the first Bradshawe Lecture in our College, to offer a tribute of respectful thanks to the generous lady by whom it was founded, the widow of Mr. William Wood Bradshawe, a Fellow of this College, who practiced at Andover and at Reading, and died in 1866. He was a home-loving and studious man, who diligently cultivated his mind in both literature and science, and his widow, who survived him fourteen years, being desirous to testify her gratitude for the happiness which she owed to him, bequeathed a thousand pounds to this College, and as much to the Royal College of Physicians, on the condition that each should institute a lecture, to be given annually and to bear his name. She desired that the lecture should be on some subject connected with medicine or surgery, and that the choice of the lecturer should rest with the President of each College for the time being. She made no stringent regulations, and seems to have wished only to maintain her husband's name in good repute by associating it with the advancement of the science which he loved.

In my endeavor to fulfil her exemplary wish, I have chosen the subject of Some Rare and New Diseases. I hope to be able, in speaking of them, to illustrate a part of the natural history of disease which I think is too little studied—that part, namely, which relates to the variations and the combinations of diseases in hereditary transmission. Besides, both in the choice of its subject and in the whole enterprise of giving this lecture, I have looked for an opportunity of promoting pathology by promoting pathological museums, a motive which I am sure will be pardoned, though I am conscious of its being in some measure personal, for I have spent so much time and thought in museums, that I feel as if, in their greater utility, I should myself become more useful.

Now, first, respecting rare diseases, there may seem no want of opportunities of studying them. Our journals and the proceedings of our societies are full of the records of rare cases; many collections of such cases have been published, and there are many rare specimens in every museum. All these have that kind of attraction which belongs to everything that excites our wonder, but we too seldom let the wonder have its proper consequence; we too seldom let it provoke our curiosity so far as to make us search for the meaning and reason of the rarity. There is a question which we should often ask ourselves, Why is any disease rare? at least, why is any rare which does not depend on some accident or some rarely occurring external cause? I shall try to suggest answers which may be, in some instances, sufficient; but I fear that, in more instances, if I can be useful at all, it can only be by suggesting how answers may be found.

First, there is a difference, though it may often seem only a verbal one, between rare cases and rare diseases. A case may be called rare when, though it is evidently one of a common disease, it differs from the usual type or standard of that disease in some one or two features. Thus it is a

rare case when a common disease is found in an unusual place; as an epithelial cancer on the upper lip, or this fatty tumour on a finger; or in unusual quantity, as in this large cartilaginous tumour on a femur; or, again, a case may be rare in respect of the time of its occurrence. For instance, I have lately seen cancer of the rectum ending fatally in a lad of eighteen, and scrofulous abscess in a man of eighty; and many of us must have seen instances, though they are rare (and these are very important in the history of diseases), in which manifestations of syphilitic inheritance, usually evident in infancy, have not appeared till the time of youth or even of adult age; or cases may be very rare in respect of accidental complications or of the absence of some usual symptom. But of all these and other rare cases the number and variety are so great that it would be impossible to deal generally with them, except as with mere story-telling. It would be very useful if someone would collect hundreds or thousands of them, and arrange them, even though it were only under such headings as I have just indicated. But even as they are singly and in disorder, let me say that we ought not to set them aside with idle thoughts or idle words about "curiosities" or "chances." Not one of them is without a meaning; not one but might be the beginning of excellent knowledge, if only we could answer the question, Why is this rare? or, being rare, why did it in this instance happen?

But, because of their number and variety, I must pass by rare case and will speak only of some rare diseases—that is, of some diseases which are rarely seen and yet occur in a sufficient number of cases, and with sufficient uniformity, and sufficient difference from other diseases, to permit of their being described in general terms, and to justify their being called by distinctive names. And of these again, for they are numerous and various, I shall select only that group which seems most attractive; the group of those, namely, of which there seems reason enough for believing: First, that they were, lately, new diseases and have become more frequent; and, secondly, that they are due mainly to morbid conditions changing and combining in transmission from parents to offspring. I say due mainly. It is certain that changes in the external conditions of our life have influence on even those morbid conditions which are most personal; but this influence is very hard or impossible to trace in the cases which I have in mind, and it may to-day be neglected though not forgotten. For, in all these cases, the personal factors and those of which alone I have to speak are more potent than the conditional, the inner than the outer. We call these diseases constitutional, diathetic, or by similar names; but the chief fact in them is that they, or the necessary previous states or predispositions to them, are in-born and inbred.

Let me first show that there is reason enough for believing that some rare diseases of this kind were recently—say within the last century—new; and that more recently, though still rare, they have become more frequent. There is, I know, a general unwillingness among pathologists to admit that there are new diseases of this kind; and this unwillingness is often just, for many diseases that may seem new have probably existed long and been overlooked; they may be new to knowledge, but not new in fact. Bright's disease and Addison's disease were new in the sense of having first been well observed and described by those whose names they bear; but no one would venture to say of diseases so difficult to detect, as these used to be, that they did not exist long before they were well observed. We could as well believe that em-

bolism never occurred till just before it was found out, or that right-side hemiplegia used not to be associated with aphasia. These things were old before they seemed to be new; but how long they had existed neither records nor museums can tell. It would be, indeed, very interesting if we could tell the time and manner of first appearing in the case of many diseases which are now common; but it is scarcely ever possible. And yet, if you will allow me a digression, let me show what in some instances museums may supply, and what I hope they will in the future supply much more largely. Here are specimens of typhoid ulcers of the intestines preserved by Hunter. Few things have been more important in the knowledge of fevers than the clear proofs of the distinction between typhus and typhoid given by Sir William Jenner in 1850. It was one of the best life-saving discoveries of this century; before it both diseases were at least partially misunderstood, and neither was so well treated as now. Since the distinction between them was discovered it has been possible to trace in old recorded cases probable instances of both; but there is nowhere so clear evidence of the occurrence of typhoid a century or more ago as is given in these specimens of Hunter's preserved without name or history; not unobserved, and yet not in any fair sense understood. Now in this, as in many things, Hunter set us a good example. He did not think those things unimportant which he did not understand. He was a thorough naturalist, and kept specimens of everything in his field of study which, though not yet, might become useful.

But, however much of what seems to be new we may justly ascribe to our previous oversight of what was old, there yet seems to be evidence enough that new diseases are in progress of evolution, and that, as I have said, some of the rare diseases of which I have to speak are the earliest instances of the new. Good evidence of this kind is to be found, I believe, in the peculiar joint-disease discovered by M. Charcot in association with locomotor ataxy, and in the disease of bones to which I have given the name of osteitis deformans. Neither of these, I believe, was described till within the last few years. They may have been overlooked, but to believe this we must believe what is very improbable. We must believe that all the most acute and observant practitioners before our time overlooked, not merely obscure and transient diseases, difficult to study, but cases which lasted for many years and gave constant great distress, and were manifested in signs so plain that they could be recognized in the shape and gait, in the posture and whole aspect of the patients, in strangely large heads and curved limbs. And, further, we must believe that the morbid anatomists before ourselves overlooked changes of structure of the largest, most obvious, and most striking kind. It is, surely, very unlikely that they who studied and recorded such cases as those of extreme rickets and mollities ossium, and even called it rachitis adutorum, should have left unnoticed the cases of these two equally and somewhat similarly disfiguring and damaging diseases. This great improbability is strengthened by that which I believe to be a fact—that we have none but recently collected specimens of either of these diseases in our museums; not even among the crowds of bones and joints collected by our predecessors.

In twenty-six years I have seen twelve well-marked cases of the osteitis deformans, and about as many in which it was only partially evident. In the last six of these years I have seen seven of these cases, and others have been published, and yet I cannot find evidence that the disease was ever seen by any of those who had practice like

my own; Brodie and Stanley, who saw as many cases of diseased bones as any surgeons of the last generation, had seen no case but that which I showed them more than twenty-five years ago in the patient from whom these specimens were taken. Moreover, I cannot find an old specimen in our museums, or a representation of one in any book of plates, or a description of one in any catalogue. This might not seem very strange in the case of specimens troublesome or expensive to keep, or in such as are said to "show nothing." But these are very striking deviations from health, very plainly to be seen, and dry bones are neither costly nor troublesome to keep. We have large numbers of them collected by Hunter, Howship, Langstaff, Liston, Cooper, Stanley, and others, who collected not merely illustrations of diseases well known to them, but whatever was curious, whether it were understood or not. They would have looked on these bones as gems.

I might repeat this statement in nearly every particular concerning M. Charcot's disease. I believe there is not an old specimen in our museums. There is not one in the Musée Dupuytren; I cannot find a notice or an illustration of one. And yet this disease is now so far from being very rare that Dr. Buzzard has had nine cases under his eye at one time, and several have in recent years been shown in our societies.

Let me adduce one more instance of what I believe to have been new diseases within this century, though the museum evidence is not so strong as in those of which I have been speaking. Many believe, and, I think, quite rightly, that instances of typical gout, such as gained for it the name "podagra," have lately become comparatively rare, and that a large number of less acute diseases, regarded as forms of incomplete or suppressed gout, are much more frequent. It may be that some or many of these lesser forms were always as common as they are now, but were overlooked or were not distinguished from other similar ailments. But here is a specimen of the effects of phlebitis of the femoral and external iliac veins, which, with its history, may tell that gouty inflammation of the veins was, fifty years ago, if not a new disease, yet a much rarer one than it is now. Sir Henry Halford saw as much of gout, I suppose, as any man that ever lived; for he was for many years, during a very luxurious period, in the largest practice among the richest people in this town. He gave an account in 1832 of what he called phlegmasia dolens in the male. The disease so-called was common and well-known in women after parturition; so that, to justify his essay as a record of cases hitherto unobserved, it was enough for him to speak of phlegmasia dolens as occurring in men. He speaks of it as having been not long before regarded as "immediately occasioned by a deposit of milk;" but that "being tested by a more exact pathology," it was now attributed to "an inflammation of the veins of the pelvis." And he says, "he was much mistaken if he had not seen three instances of it" in men "within the last few years." He then relates the case of the nobleman from whom, several years afterwards, this specimen was taken by Sir Astley Cooper—an admirable example of phlebitis, which we may be nearly sure was gouty, showing the changes in the blood-clots and in the walls of the veins during many years.

At the present time, phlebitis of this kind in the male can scarcely be called a very rare disease. There are few, I imagine, in large practice who have not seen many more than three cases within the last few years. So, we may believe, I think, that the disease has become more frequent in the last fifty years; and may suspect that not long before Sir Henry Halford's time it may have been a

really new disease. It is hard to believe that it could have been overlooked. Its characters are strongly marked and evident to both eye and touch; it is a very painful, disabling, long enduring disease, often recurring, sometimes observed in several members of the same family, and commonly leaving the affected limb large, heavy, and clumsy for many years. Could this have been overlooked when similar limbs, in consequence of an allied, though not the same disease, were known and described in women, and while, as it happened, the subject of phlebitis, in its traumatic and pyæmic forms, was being very carefully studied? For there was a form of phlebitis much more common in the last century than in this; the phlebitis that occurred after bleeding. Hunter had studied this very carefully, had written on it, and shown it in these specimens; and after him, both this and the phlebitis after amputation were well known. Especially after the beginning of this century the phlebitis after amputation was thoroughly worked at. It was only three years before the publication of Sir Henry Halford's essay that Mr. Arnott's renowned paper on inflammation of the veins was published in the *Medico Chirurgical Transactions*. In the same volume are the chief papers by Dr. Robert Lee on phlegmasia dolens; and he describes cases of phlebitis associated with pelvic cancer; but not one spontaneous phlebitis is mentioned by either of them.

Now, I think that in all these facts there is enough, not, indeed, to prove, but to justify the belief that we have here examples of diseases which have appeared in this country for the first time within the last century, and which have since become sufficiently frequent, and acquired sufficiently constant and distinctive characters to be described in general terms and called by new names. Let me repeat; these are not diseases hard to be discerned. They are so well marked, so distressing, so long enduring, and both during life and after death so large and distinct in all their characters that it seems impossible that, unless they were very much rarer than they are now, they could have been overlooked.

I think it probable that there are other examples of the like kind; but I do not know them, and would rather go on to the second part of my subject—namely, to show the probability, or, at least, to justify the hypothesis, that these diseases are among the instances of the results of morbid conditions, changing and combining in transmission from parents to offspring.

It should hardly be necessary to argue that changes of type in inherited diseases—changes which may be compared with the variations of species or of varieties in natural history—do take place. Yet I venture to think that many of us are prone to think too little of these variations; to regard them as rather unmeaning exceptions, or as the results of some unusual external conditions diverting diseases from their customary course.

It will be better for us if we study, in pathology as in natural history, varieties as much as species; changes as well as more stable forms. Types of disease there are, standard forms, and the tenacity with which they are maintained—some, even, from pre-historic times—in all the varieties of the conditions of our lives is one of the most remarkable facts in all pathology. But they are not unalterable. Types vary in diseases, as in species; even in the diseases which depend least upon external conditions, and most on the qualities which are transmitted by inheritance.

Let me give some reasons why this must be.

1st. An exact likeness is never transmitted by inheritance; neither an exact likeness of either parent, nor an exact composite of both. This is

evident enough in features, size, weight, and all that we can observe in external things. If we could be exactly endoscopic we should observe equal variation within; the same want of exact likeness in liver and lung, and, I venture to say, in blood and lymph and plasma, and whatever goes to make up the whole person, healthy or diseased. The inheritance of likeness in disease, or liability to disease is, indeed, clear evidence of the transmission of likeness in the very minutest structure and composition. But the likeness is never perfect; it may in different persons deviate this way or that; it may vary towards disease or back again towards the healthy type; but it is never perfect, and in successive generations its degree of unlikeness may increase to a great width of difference.

2nd. The certainty and probable extent of this variation must seem the greater if we consider the mingling of diatheses, and of all dispositions and liabilities to diseases in transmission from and through both parents. Consider the difficulty of maintaining the "breed" in any of the varieties of the species domesticated or cultivated by us, in horses or dogs, in pigeons or in seedling plants; the care that both parents should be of the same blood, or the same race, and that their produce should be raised in all due conditions; and then consider how numerous, and wide, in spite of all this care, are the deflections from the type. With these facts before us we cannot imagine that diseased conditions should often be transmitted singly and unchanged; it is, surely, not likely that disease should be transmitted with more fixed conformity to type than normal compositions are. Hybrids and mongrels must be even more common among diseases than among species and varieties.

3rd. And, in thinking of the variation of diseases by combining or convergence of inherited qualities, we may not limit our thoughts to a single generation. It is reasonable to believe that instances occur of reversion, in which diseases or tendencies to disease may appear after a lapse of many generations. Such, I expect, are some of the cases in which leprosy has been seen, even of late years, in this country in persons never exposed to any of its external causes; and to the like of this we may refer, I think, some of the rare cases which defy all efforts to refer them to any combination of types of disease now prevalent.

Now, I half wish that I could escape from the necessity of testing my doctrine by my facts; but as I have often asked myself, so others may ask, how can the cases of rare diseases of which I have been speaking, be explained as the results of morbid conditions changing and combining in transmission from parents to offspring. In the phlebitis we may often trace a variation from the customary type or standard of the very old and heritable disease, gout. In many cases its relations to typical gout are clear. The patients are members of gouty families, and in many of them other signs of gout are evident, either coincidentally with the phlebitis or at other times; it has, in short, all the evidences of being one of the many forms of what is called "incomplete gout." But, for a reason why this variety of gout settles (if I may so speak) in veins, especially in those of the lower extremities, I can only guess at a convergence of inherited dispositions both to a modified form of gout, and to some condition of veins rendering them, among all the structures, the most sensitive to the gouty process. Certainly it is not accident which determines the disease to the veins, for this disease "runs in families." I know of its occurrence in two brothers and three of their cousins; and I have heard Sir Charles Locock tell of four sisters

who had phlegmasia dolens and whose father had crural phlebitis.

I am conscious that this is little more than guessing, and for the osteitis I must guess still further; or, rather, let me say that, to the furthest bounds of propriety, I must exercise that use of the imagination which may happily discern a way towards the truth. I imagine, then, that a likeness of the osteitis deformans to several other diseases may indicate a combination, in definite proportions, of transmitted dispositions to those diseases; a combination which has become possible by changes of the type of one or more of them. First, it shows some relationship to mollities ossium and rickets, for, though it is an inflammatory disease, which they are not, yet the softening which permits of the curving of the bones is distinctive, and hardly occurs in any other form of inflammation of bone in middle or later life. And, again, the relation of the osteitis to rickets and mollities ossium is notably indicated in the porous thickening of the skull, which is found in some instances of them all, and which is well marked in our specimens of genuine rickets from erroneous diet in young lions and young monkeys. Further, there appears some relation to gout, for some of the cases have known inheritance of gout, and instances are sometimes seen, in typically gouty persons, of a single bone having all the characters of the osteitis, though all the other bones appear healthy. Such a one is this femur, for the opportunity of showing which I am indebted to Mr. Bowly of St. Bartholomew's. There is a likeness, also, it may be said, to the osteo-arthritis and other forms of rheumatic gout in the remarkable maintenance of good general health during even many years of a painful and crippling inflammatory disease; and, further, there appears some relationship to cancer in the singular frequency with which cancer or sarcoma occurs in the healthy bones or other parts of those who have suffered for many previous years with osteitis deformans.

Thus, I imagine, by inherited dispositions, accumulating and combining or converging in definite proportions, this disease may be produced. I would try to imagine the genealogy of M. Charcot's disease, but that I have too little clinical knowledge of it. I can only suggest a combination of osteo-arthritis with syphilis chiefly localized in some spinal nerve centre; but I believe far better suggestions may be made by those who, suspecting a combination of diseases rather than many radiating from one source, will carefully study the essays of Professor Charcot and Dr. Buzzard's admirable clinical lectures on Diseases of the Nervous System. Besides, I may seem to have guessed already more than enough. Let me, therefore, say that even if my guesses are wrong, my error cannot weaken the probability of the belief that these and other rare diseases of like kind are instances of settled varieties of diseases, severally due to variations and convergence of morbid conditions in hereditary transmission. And if this be in any measure true, or even not more than a reasonable hypothesis, then it must be of great importance that we should know much more than we yet do of the variations which, in progress of time, diseases, or certain examples of them, may undergo; of their deviations in a gradually increasing number of instances from typical or standard forms; their acquirement in those instances of other comparatively fixed and long-abiding characters; of the occasional disappearance of old forms of disease, and the evolution of new ones. Such variations in diseases should be studied as Darwin studied the variations of species. Let me be clear in saying, as Darwin studied; for in the pursuit of new knowledge he may be a

model to all, as he has been to me so far as I could imitate him. He, as I know, would have studied these things, not by deduction, as from a law exactly formulated and from which he could trace the course of every change, but by a most careful collection of facts, facts to be seen in specimens and read in full records, and stored in museums, and by a study as complete for every case as if no law of evolution had ever been discovered.

Let me add that the study of these variations of diseases is not one of mere pathological curiosities. It may be of great practical utility; let me show how, if only that I may provoke some to pursue it vigorously to whom mere pathology is not attractive. We hear much, and often, of the uncertainty of medicines; of disappointments in the use of this or that supposed remedy; and substances which have long been in good repute for the treatment of this or that disease are spoken of with disrespect. It need not be questioned that in many cases the belief in the utility of a medicine has been maintained by completely erroneous observations. Such was the belief in the utility of infinitesimally small doses of anything ever yet swallowed. And other beliefs less evidently absurd may have been nearly as ill-founded. But there are many of which this is not to be said. It cannot be doubted that bromide of potassium is often very useful in epilepsy; yet sometimes, as we say, it fails; or that guaiacum is useful in some cases of chronic rheumatic arthritis, and is in others very disappointing; or that arsenic sometimes does and sometimes does not do good in cases of lymphadenoma. I suppose there is not a medicine in the pharmacopoeia which does not sometimes disappoint him who gives it hopefully; not one which is not, therefore, spoken of with contempt or blame, as if it were a responsible agent convicted of default. But here is an unfair imputation. It is not these medicines which are in fault but ourselves. That which some call the fallacy of therapeutics is generally the fallacy of diagnosis. To state the facts roughly, we suppose cases to be alike which are really different; and, very naturally, the medicine that does good in some of them is useless in others. For example, in the group of cases which I chiefly have in view, we do not always discern when a disease has varied so far from its usual type that it is no longer amenable to its usual remedies. A better diagnosis must precede a better therapeutics. We need not only the diagnosis between diseases essentially different, but that between the different and varying forms of each of those which we call by a generic name; and beyond this, we need a more exact power of what may be called analytic diagnosis; for there are few simple cases, and in those which are not simple we need to be able to discern all the components, and the proportions in which they are mingled or combined. Better treatment will follow better diagnosis, and better diagnosis will certainly follow a more exact pathology.

Let me illustrate this with an instance which is besides of some interest in the study of the variations of transmissible diseases and of the utility of museums. Questions are often asked as to changes which syphilis may, in course of time, have undergone; and, especially, whether internal organs were always, as they are now, liable to its attacks. It is hard to answer such questions on the evidence of any existing records; indeed, I might cite the whole history of syphilis as an instance of the insufficiency of records for the tracing of the natural history of diseases. But here is something suggesting what museums may do: a portion of muscle preserved by Hunter, and at least a century old, in which are morbid changes which may be safely referred to syphilitic gumma. Probably

similar evidence may be found in other museums; and there are other facts significant of the existence long ago of these internal syphilitic diseases, as well as of the improved treatment following better diagnosis. Fifty years ago, at the beginning of my professional studies, it was the custom, as it long had been, to give mercury not only in all recognized syphilitic cases and in most acute inflammations, but in a large number of cases of which one could scarcely say more than that they were all chronic and all obscure. Especially there were many such cases of what were considered chronic inflammation of the eyes, and of the brain and spinal marrow, the liver, and the testicle. To all of these cases it was customary to give mercury till, as one said, "the mouth was touched," and thus some were cured, and some uncured, and some harmed. The cures were enough to keep the mercury in such good repute that it was given more and more generally; and then the disappointments, as they were called, became too many, and the mercury was blamed, and was almost disused for chronic inflammations. But, meantime, a more exact pathology, a pathology more exact both in its morbid anatomy and in its clinical studies, was discovering the previously unsuspected syphilitic diseases of internal organs; and with this better pathology there came a better diagnosis, and with the better diagnosis a more judicious use of mercury, and good reason to believe that the chronic and obscure cases which mercury used to cure were those of syphilis overlooked. The case is an exemplary one of the relations between the true pathology and the right treatment of diseases, exemplary not only for encouragement, but for method of study; for the study was both clinical and anatomical, in the living and in the dead, with records and with specimens. Such must be our study of all the cases which I have chosen to speak of—the cases in which diseases deviate from their usual type, or combine in various proportions, after the manner of hybrids and mongrels or new chemical compounds. But there are some rules in study which are especially applicable to these cases.

1. We should very carefully study all cases which are not according to an admitted type. We should study all exceptions to rules; never thinking of them as unmeaning or accidental. Especially we should never use, in its popular, but wrong translation, the expression "exceptio probat regulam;" as if an exception to a rule could be evidence that the rule is right. If we use it, let this be in its real meaning; translating it, as surgeons should, that an exception probes a rule, tests it, searches it—as the Bible says we should "prove all things"—to its very boundary. In this true meaning the words may be an excellent motto for the study of all diseases that deviate from types.

2. We should look for indications of the existence in the same person of two or more morbid conditions or dispositions such as may be derived from both parents or from several ancestors. For, as in plants and animals there are hybrids and mongrels, or, as in chemistry, many compounds and mixtures, so are there in diseases. We see them in the multifarious varieties of what we have to call rheumatic gout; in gout crossed with scrofula, and syphilis crossed or mingled with scrofula or with gout. It is often not difficult to discern some of these combinations among our cases, and I know few things in practice more useful than to be able, even in some instances, to adjust our treatment to the proportion of each disease in the compound. But we may be sure that there is much more to be learned in this direction; and it is best to believe that we rarely have to do with a

simple and unmixed morbid constitution. There are few worse habits in practice than that of commonly saying of our case "It is all gout," and of another it is all scrofula, or all syphilis. We might as well say of any Englishman that he is all Norman, or all Anglo-Saxon, or all Celt. We may, indeed, sometimes see persons who appear to be as types of races unchanged in many centuries, but in practice we had better study every man as, for better for worse, a composite of many ancestors.

3. We should have for all these cases a much more complete and exact study of all the personal conditions of disease than is now usual. Of course this should include all that can be learned of each patient's family history; though there are few parts of medical inquiry more fallacious than this often is; and at the best it will need, besides, the exactest study of the patient's self. Perhaps the brilliant success which has been achieved by the recent studies of disease-producing organisms or other materials acting on us from without—a success not equalled in any other field of medical inquiry—has made some think too little of those changes within ourselves which occur in such ordinary conditions of life that they may be called spontaneous. Yet these are not less important in the production of diseases, and these must be studied; just as in agriculture soils must be studied as well as seeds. This is true even in respect of those diseases whose essential causes are most evidently external, even of those which are due to specific contagia; their germs or seeds, if I may so speak, will not germinate in an unfit soil. I suppose there is not a day in which most of us do not inhale or come in contact with the germs of some frequent or contagious disease; but they do not germinate in us any more than do the seeds of tropical flowers in our streets or in the fields to which the wind scatters them; we do not offer the fitting soil. And even among those in whom they do germinate, the product varies according to the soil. And the study of this soil, this living soil, is yet more necessary in respect of diseases which come, in part or wholly, by inheritance; for it is in each as personal and distinct as any other constituent of personal character, and the study of it must be intimately personal, with an exact analysis of every disposition to disease. The aim of pathologists in this direction should be for knowledge like that of the keen family practitioner, who, as he says, knows the constitution of every member of a family.

All this is equivalent to saying that these variations in diseases must be studied both in practice and in scientific pathology. It is hopeless that either a practitioner who thinks lightly of pathology, or a pathologist who thinks lightly of observant practice, should do more in the study of these questions than attain to that measure of partial truth which is often as deceptive as error. Each must be tested by the other. The living and the dead must be alike and equally studied; and the dead must be studied in exact observations, with accurate records, and especially with museums.

I need not dwell on the value of good records, good descriptions, and good photographs, or other representations of diseases; but they never have been and, probably never will be, enough. We need, with them, museums in which changes of structure may be preserved for repeated and revising study and comparison. For instance, in regard to the group of diseases of which I have been speaking, we ought to have in our museums specimens in which we might study all the gradations of change of structure from type to type, all the changes due to mingling of forms, all varieties of diseases, all hybrid forms. We need to be able to

study all these things, as the naturalist or the comparative anatomist needs his specimens; not only for teaching what is already known, but for continued re-examination and continued addition to his own knowledge.

And for complete study we must have large museums showing the coarse naked-eye characters of diseased structures. I am sure no one will think me likely to depreciate the microscope; it has added, and will continue to add, more than can be told to our knowledge; but it has not diminished the value of other evidence; and in pathological anatomy, as in all our sciences, there are many instances in which the naked eye sees facts with more meaning than the microscopic one can.

This is, especially, true in the case of morbid structures resulting from nearly allied diseases, and, therefore, especially true for those of which I wish to urge the study. In morbid structures as in species the nearer the alliance the less are the differences to be found in minute structures, and the more must we depend for distinctions on the study of visible shapes, and sizes, and constructions. I suppose that we could not with the microscope distinguish the human skeleton from that of the monkey; certainly we could not distinguish one skull from another in all these varieties of national form which are collected in our museum. And so it is in many instances of morbid bone formation. I doubt whether microscopic examination could detect characteristic differences in each of this group of specimens. With the naked eye it is sure that this is a syphilitic node on a tibia, and this a growth beneath a chronic ulcer over the shin, and this a pedicled exostosis, or ossified cartilaginous outgrowth from the shaft of a long bone, and this an instance of osteo-arthritis, and this a portion of the skeleton of an osteo-sarcoma or osteoid cancer.

Moreover, it is to be observed that in morbid structures, as in those that are natural, in the same proportion as the aggregated elements of embryonic structures acquire their complete and final form, so do the bodies composed of them acquire distinctive shapes and methods of construction plain to the unaided senses. The ova of many species may seem alike both in outer shape and in their component elemental structures. But in proportion as these structures are differentiated, and developed into their higher and abiding forms, as into nerve fibre, and muscular fibre, and the rest, so the larger characters of even the nearly allied species—the characters of shape, and size, and appropriate construction of the whole body, and of each part of it—become more and more different; and these constitute the real distinctive characters of each species.

And so it is in morbid products. The acquirement of distinctive shapes and methods of construction coincides with the development of elemental forms. For example, in these sarcomata are only the lowest elemental structures, round cells, spindle cells, and shapeless plasma; and the masses thus combined are shapeless, featureless, decisive by negation. But in these fatty and fibrous and cartilaginous and bony tumours, in which the elemental structures have advanced to higher forms, the masses which they severally compose are almost as characteristic and distinct in visible shape and construction as are the several normal organs of the body.

In every case, then, both the largest and the smallest characters should be studied. The naked eye can discern one set of facts, the aided eye another; both are essential to complete knowledge; no one should be content with either, for neither is alone sufficient. So we must have large specimens as well as small ones, and certainly large

ones for the study of the gradual variations of diseases as they deviate from typical forms, and become variously mingled.

And now, as I come near to my term of time, let me, as is customary in certain other places, conclude with an earnest appeal to your liberality. We want liberal contributions, not of money, but of specimens to our museum. We want specimens of many kinds; of course we want whatever is rare, but not these alone; we want some to complete our series of typical specimens; and, to keep to the chief subject of my lecture, we want the opportunity of choosing among many of what are called "bad specimens." We are all too ready to collect what are called good specimens as being well-marked instances of the standard characters of diseases, and to put aside as "bad" those which deviate from those characters, just as, clinically, we speak of good and bad cases of a disease. Of course, good specimens, typical specimens, must be at hand for the teaching of pupils who have to study illustrations of the accepted descriptions of diseases; but it is among bad specimens, even as it may be among exceptional cases, that those who are past pupilage, though they have not ceased to be students, may study the variations of disease. I ask the more boldly for contributions to the pathological collection because of its present satisfactory condition and the activity of work in it. You will soon see it in the repaired and renovated building. Looking at the number and value of the specimens and the wide range of pathology which they illustrate; looking at the interest of the history of our science which is told in many of them; at the memorials of Hunter and Matthew Baillie, of Astley Cooper, Liston, Howship, Lawrence, Hammick, Fergusson, Hilton and many more; looking forward to what the museum will tell of the researches and skill of those who are still with us, and among whose names I venture to feel sure, Mr. President, that none will take precedence of your own, while men study the specimens with which your skill and just audacity in operating have enriched the series of diseases of the ovaries and uterus: looking at all these things, and then at the perfect order and condition in which the specimens are preserved, I feel that the collection is one which all we members of the College may feel personal pride in calling our own, and should feel a personal duty to enrich. And its utility is being constantly more appreciated. I have been often made happy by the contrast which I have seen while working at the new edition of the catalogue. While I was writing the last edition, between thirty and forty years ago, scarcely a student ever entered the museum. Hour after hour I sat alone; I seemed to be working for no one but myself, or for nothing but the general propriety that a museum ought to have a catalogue, though no one might ever care to study with it. Now, and for some years past, a day rarely passes without many pupils and others being at work in every part of the museum.

All this is good; but much more is to be done. Our museum should be, even more than it is, the centre in which all pathologists may find help in searches after that which is not yet known; in such searches, for example, as may lead to a complete knowledge of the variations of diseases. For many years, even from the beginning, the anatomical and physiological departments of our museum have been not only a noble collection of specimens, but, through the renown and learning of its conservators, a great centre of teaching. Scientific men, especially comparative anatomists and anthropologists, have known that here, if anywhere, they could find whatever help a museum and a master in those sciences could give. A fort-

night ago the President of the Royal Society, presenting one of the royal medals to Prof. Flower, said: "Professor Flower has been for more than twenty years conservator of the museum of the Royal College of Surgeons; and it is very largely due to his incessant and well-directed labors that the museum at present contains the most complete, the best ordered, and the most accessible collection of materials for the study of vertebrate structures extant."

It is not for me to praise the pathological collection with similar words. But great as may have been its utility hitherto, we may be confident that it will henceforth be more useful than ever. In the vast increase of the biological sciences it became impossible that one man should be nearly complete in the knowledge of both natural and pathological anatomy. I say impossible. I believe there is not such a one living; if there could have been one it might have been Mr. Flower. Now, we may hope that labors as "incessant and well-directed" as his will be devoted especially to the pathological collection.

It is known to many of you that Sir Erasmus Wilson, in his usual liberality, gave the College £5,000, of which the interest should be spent in the promotion of pathology; and he agreed that this would best be done by helping to the appointment of a curator of the pathological department of the museum; and we have an admirable one. Mr. Eve is a worthy colleague and helper of Mr. Flower, excellent like him not only in knowledge, but in that which is even more rare, the love of museums, and of all that belongs to their maintenance and illustration, even to the making of catalogues. In all these good qualities he has distinguished himself at St. Bartholomew's. I believe that we may rely on him for making so good use of the museum, and of all that can be brought to it, that the College shall be the chief centre for the study of pathology, even to the furthest point at which it can be studied in specimens of diseased structure. I beg your help that he may be so; and if I shall have helped to-day to this good result, the first Bradshawe lecture in our College will have well fulfilled the purpose of its founder.

Original Papers.

ON TRANSFUSION.

By J. F. LE PAGE, L.R.C.P.E.

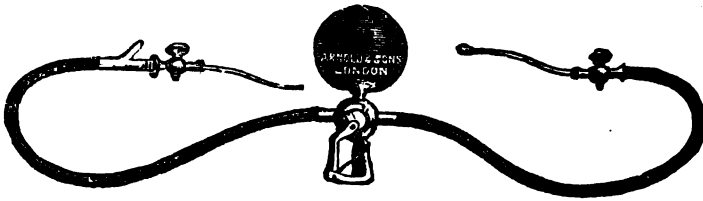
CONVINCED that in the conservative practice of the future transfusion will hold a place of no little importance, and will be more and more extensively resorted to, and seeing that the means at present at our disposal for the performance of the operation are not altogether satisfactory, I have devised an apparatus in which there is an endeavor to combine absolute safety with great facility in use.

Of the transfusers which have been at our service that of Dr. Aveling is, perhaps, all things considered, the most serviceable; but it has the disadvantage of requiring very complex manipulation. To put it concisely, each of them requires in its use for the surgeon to be aided by skilled assistance, whilst at the same time there is no safeguard against the injection of a minute quantity of air, however careful and adept the operator may be; an accident which, in all probability, would prove fatal to the patient.

The accompanying illustration shows how these disadvantages are overcome. One hand alone is needed to operate the transfuser, and the other

hand is at liberty to attend to the efferent tube; whilst the attention of the surgeon may be divided between the recipient and the donor of the blood. If any portion of air should at first remain adherent, and, of course, unseen, on the inner surfaces of the tubes, and, during the passage of the blood, be carried along with the stream, their course is with certainty arrested by the glass air receiver, into which they must rise. As to the *modus operandi*: The case contains the apparatus, knife, forceps, and a small bottle, which latter is intended to hold a compound powder composed, say, as follows: Carbonate of soda, ten grains; phosphate of soda, two grains; chloride of sodium, thirty grains. One-fourth of the powder should be dissolved in about two ounces and a half of water at a temperature of 100° F. A few drops of alcohol may be added, and the vessel containing the solution placed in another vessel partly filled with water at a temperature somewhat higher. Then, having attached the receiving and delivering tubes, the two extremities of the instrument must be placed in the inner vessel with the air chamber downwards. Now press the lever, press the elastic ball, release the lever, release the elastic ball, and, after repeating that process once or twice, turn both taps. It is now ready for use. Raise the patient's arm to the horizontal position, so as to

where a main artery has been divided. With its aid life may at least be prolonged, where the stomach and rectum refuse to retain nutriment in the exhaustion from marasmic disease. It may also be resorted to in the asphyxia of new-born infants, the injection being made through the umbilical vein, having previously allowed a little blood to escape from the umbilical artery. For this purpose a small quantity of blood taken from the placenta and defibrinated will answer very well. In chronic as well as in acute anæmia we may transfuse, for where the whole blood is altered by toxic or pathological causes it is manifestly advantageous to improve its quality by the admixture of healthy blood. It may also appear indicated after hæmorrhages from the stomach and intestines, hæmoptysis, and some surgical operations. I would go so far as to suggest, on physiological grounds, its occasional indication in hæmorrhagic fever. In the young who are robust, absorption and nutrition will soon replace the normal quantity of fluid, although for a time it will be inferior in quality to that which was lost, containing less than the due proportion of oxygen carriers, the red corpuscles. In those previously suffering from anæmia, and in the aged whose blood is very slowly reproduced, it appears to me that the operation may, with very great promise, be repeated



facilitate the transmission of the blood to the heart, and, having inserted both tubes, one into the supplying vein, and the other into the receiving vein—the right median basilic is, perhaps, the best—turn the taps, and, in the same order, press the lever, press the ball, release the lever, release the ball, and so on. Precisely one quarter of an ounce passes out each time. It is expedient, having commenced the transmission of blood, to complete the process without arrest, lest coagula should form. The apparatus is made by Messrs. Arnold & Sons, and their name is quite sufficient guarantee for excellence of workmanship. I must, however, say that my thanks are due to them for so faithfully, so well, and with such precision and care elaborating from my drawings an instrument of some elegance.

A word as to the cases in which transfusion is indicated. My special intention is that of supplying the obstetrician with a safe and facile means of transfusing blood after post-partum hæmorrhage, where the diastolic system is practically dead, and the heart is dynamically incapable of action in consequence of the absence of fluid to act upon. But transfusion is indicated in many other cases than that of uterine hæmorrhage leading to this condition. For instance, when, after excessive hæmorrhage, the vital fluid is not reproduced, and the nutritive process is so impaired that the persistent anæmia would be the forerunner of phthisis or other grave disease did we not supply red corpuscles to carry oxygen with which to re-establish those functions which are essential factors in the formation of hæmoglobin. And it is certainly indicated in some cases of hæmorrhage from the bursting of an aneurism, or

even more than once, at intervals of a few days. In cases of poisoning, when the nature of the poison is unknown, or when an antidote would not be effective, or in pyohæmia, might not occasionally a life be saved by alternate depletions and injections of pure blood? In epilepsy it has been used with marked success. And, as in puerperal eclampsia we may presume an excess of carbonic acid and a deficiency of oxygen, may we not here also find it of no little service? I should remark that Dr. Schäfer has most conclusively shown that the action on the blood-corpuscles of beef peptones, milk, and some other fluids, when used in lieu of blood, is most injurious.

It has been urged in disparagement of the operation that during transfusion very painful symptoms are experienced, followed, after its performance, by alarming prostration and hæmorrhagic fever. This we may admit to be, in some cases, substantially correct. But what is the cause of all this, but that the vital powers are so stimulated to reassert themselves that the heart and arteries, certainly with intermissions, are making very violent efforts to drive along the small quantity of blood which the system contains? The inference is clear that this most valuable operation has not been so frequently performed as it should have been, and that many invaluable lives have been lost which might have been saved by the immediate restoration of the failing powers of the heart and nervous system which it most strikingly effects.

Durham.

— A PROJECT of law making vaccination compulsory has been rejected by the vote of the Swiss people.

THE PATHOLOGY OF THE BLOOD IN INFLAMMATION.

By JAMES T. R. DAVISON, M.D. Edin.,

Senior House-Surgeon, Royal Southern Hospital, Liverpool;
Late Resident Physician, Royal Infirmary, Edinburgh.

THE results obtained from the examination of some hundreds of specimens of pathological blood justify me in enunciating, as a pathological law, that "during the active period of inflammation the leucocytes of the blood are increased in numbers." The behavior of the leucocytes under the inflammatory influence constitutes a most important help towards finding out the existence of inflammatory lesions. I need only mention those cases of obscure internal abscesses and the first stages of pneumonia as examples of conditions where occasionally it is next to impossible to recognize them with certainty, and where the examination of the blood may lead us a good way on towards arriving at a certain diagnosis. This alteration of the blood is, for practical purposes, more important than the "hæmatoblastic crisis" described by M. Hayem, for while the latter comes into play at or about the time of the crisis of acute disorders, the former exhibits itself from the very first, even within a few hours from the commencement of the inflammatory process. Thus while the "hæmatoblastic crisis" may for prognostic purposes be interesting, as indicating a favorable course of the disease, it possesses no diagnostic value; but the increase of leucocytes, by indicating the existence of an inflammatory process, and that from the very first, has a great diagnostic value, while it also is an element in prognosis, for the subsidence of the inflammation will be followed by a decrease of leucocytes.

It is well known that the leucocytes are found in greater numbers in the blood during the digestive process. How is this brought about? There is no necessity to assume that this increase is due to a more active formation of leucocytes in the spleen and other blood-forming organs. Recent pathology would favor the view that the increase of leucocytes in the blood is brought about reflexly by increased contraction of the splenic muscle and probably also of the lymphatic muscles, the point of origin of the reflex action being the gastro-intestinal canal. It has long been known that the spleen was capable of muscular contraction, and it has been left to Dr. Roy recently to discover that this contraction is rhythmical in time, and the directions through which nerve force influences this contraction. Dr. Roy believes that the spleen contains a nervous mechanism which regulates its contraction, but he has shown that this contraction is also affected by nerve influence from without—for example, stimulation of the peripheral end of a cut vagus causes contraction of the organ.¹ It is therefore probable that the contraction of the gastric muscle during digestion stimulates the pneumogastric; that a nerve force is then carried to the medulla oblongata (Dr. Roy showed that stimulation of the vaso-motor centre in the medulla brought about contraction of the spleen), and thence is reflected through the vagi and splanchnics to the spleen, giving rise to increased contraction of its muscle, and thus to a discharge of leucocytes into the circulation. These leucocytes having performed their function, whatever that may be, probably return into the spleen and lymphatic glands, as they are no longer found in excess in the blood after the digestive process is ended.

Once admitting that the spleen can be made to discharge its leucocytes into the blood by a reflex

action originating in the gastro-intestinal canal, and knowing the intricate and complicated connections which exist in the sympathetic system, it will not be difficult to understand that the spleen can likewise be made to contract reflexly by a force originating in the arterioles and capillaries of any part of the body. In the inflammatory area a force—whether it be chemical, resulting from altered nutrition of the tissue cells, or nervous, reflected from a distant part—paralyzes the vaso-motor nerves of the arterioles. Either this same force, or one originating in the walls of the arterioles—the result of distension caused by increase of blood-pressure in the inflammatory area—is carried to the medulla, and thence reflected to the spleen, and thus the spleen is advised that migration of leucocytes is taking place, and a call is made upon it to supply the demand made upon the blood. In inflammation there is therefore a loss of leucocytes from the blood, and an effort of nature to replace them, but, as in the case of hyperpyrexia, nature overdoes what is required of it; so here the supply from the spleen and lymphatic glands is greater than the demand, and therefore it is that during the active period of inflammation we find the leucocytes in the blood in such increased numbers.

The simplest form of inflammation that can be selected for examination of the changes in the blood is an abscess, for here there can be no suspicion of other influences being at work other than the inflammatory. If the abscess be acute and large the leucocytes are found in great abundance in the blood; but if the abscess be chronic, although it may be large in size, the leucocytes are not increased to such an extent. In the one case there is an active migration of leucocytes from the capillaries, and a consequent active demand upon the spleen and lymphatic glands; in the other case the migration is passive and small in quantity, and therefore the blood-forming organs are not called upon to supply a large amount of leucocytes. Small abscesses may also give rise to an abundant increase of leucocytes, and at other times to a slight increase only. Probably this difference depends upon the amount of tension and inflammatory fever present. In a case of abscess of the finger which had lasted for nine days, a small quantity of pus being present, but where the patient had passed sleepless nights, I found more leucocytes in the blood than in another case where a chronic abscess containing several ounces of pus had lasted for some months. After abscesses are opened the leucocytes in the blood begin to disappear, but sometimes the defervescence of these cells is interrupted by a secondary increase. When an abscess is opened tension is relieved, and the inflammatory process subdued, and the defervescence which then takes place is in accordance with the principle stated above, the demand for leucocytes being no longer present. The occasional secondary increase of these cells can easily be accounted for by an exacerbation of the inflammatory action. Next in importance to abscesses are scalds and burns, for in these we have an acute inflammation with visible effusion, which develops itself in a very short time, and thus we have an opportunity of examining the blood almost at the commencement of the inflammation. The leucocytes are always increased, and this increase I have noticed as early as two and a half hours from the application of the irritant, clearly proving that the blood-forming organs have acted reflexly and emptied themselves of part of their contents, for in such a short time as two and a half hours the spleen and lymphatics could not have formed all the extra leucocytes found in the blood. In cases of severe scalds and burns the excess of leucocytes

¹ Journal of Physiology, vol. iii., No. 3.

may last for a long time, as a pus-secreting surface is left, and hence the migration of leucocytes continues. The same conditions exist in old discharging extensive surfaces, and the same excess of leucocytes is found in the blood. Again, the same principle is manifested in inflammation of serous membranes. In pleurisy the leucocytes may be present in very large numbers, diminishing with the lowering of the temperature. In pleurisy, as in other inflammations, a return of the temperature to normal is not immediately followed by a sudden and rapid decrease of the leucocytes. It is easier for the white corpuscles to enter the circulation than to leave it. Doubtless the lowering of the blood-pressure which takes place at the crisis of an acute inflammation favors the return of the leucocytes from the blood, for the consequent retardation of the peripheral circulation is the nearest physiological approach to pathological stasis, and thus the leucocytes are placed under the best possible circumstances to attach themselves to the capillary walls, and eventually to regain the lymphatic system. Still this cannot take place in a short time, and it is, therefore, that the inflammatory crisis is not immediately followed by a sudden and rapid decrease of the leucocytes. In peritonitis and acute bursitis I found the white corpuscles in excess. In a case of double effusion into the knee-joints four days old, with a temperature of 100.4°, I did not find an increase of the white corpuscles, and here I may state that my examinations hitherto have been made without the aid of the hæmacytometer, so that what I have observed was what was obvious to any eye educated to estimate the normal amount of leucocytes by glancing over different parts of the field, and thus when the increase of leucocytes was very slight, it would have been unappreciable to the eye; and in this way I must account for the apparent absence of the excess of leucocytes in this case, bearing in mind at the same time that a small migration of leucocytes, apart from tension and inflammatory fever, will call for a small supply from the blood-forming organs, and as the effusion subsided in this case, the amount of white cells it contained must have been small. Somewhat similar to this case are those of chronic synovitis of the knee and hip, and of chronic swelling of rheumatic joints. In all these instances the serous membrane is inflamed, but the inflammation is passive, the migration of leucocytes small, and hence in the blood we find the white corpuscles either normal in quantity or only very slightly increased. In acute rheumatism the white cells are always increased; sometimes the increase is very slight, and sometimes very abundant, and it appears that the greater the number of joints swollen, provided the swelling is accompanied by pain, the greater is the increase of leucocytes—that is, the increase of the cells keeps pace with the extent of the inflammatory serous surface. Once more, in inflammation of the mucous membrane the same principle is manifested. In acute bronchitis the excess of leucocytes subsides with lowering of the temperature and decrease of expectoration (if purulent); but if the temperature comes down and the expectoration remains of the same quantity the excess of leucocytes is not affected. It appears, too, that the leucocytes increase more when the expectoration is green than when it is of other kinds. The same increase is found in inflammation of other mucous membranes—in diarrhoea, dysentery, acute laryngitis, and cystitis. The results obtained from the examination of the blood of phthisical patients have been very interesting. The leucocytes are sometimes very abundant. I found that whenever high temperature, green expectoration, and auscultatory accompaniments were present together, the

increase of leucocytes was well marked. On the other hand, if there were no accompaniments on auscultation and the expectoration was not green, even if the temperature was a little above normal and profuse night sweats were present, the increase of leucocytes was very slight. This clearly proves that the increase of these cells in phthisis is not the result of the cachexia, but is determined by an inflammatory action, or by the activity of pus-secreting surfaces of cavities, this latter action being practically inflammatory as regards the migration of leucocytes. In pneumonia the excess of leucocytes is generally very marked, and is thus of great diagnostic value. Lastly, in acute inflammation of other organs the same excess is noticed—for example, in tonsillitis, orchitis, eczema—and even in the inflammation excited at the seat of fractures of long bones.

The morphological origin of fibrin formation has been established by Dr. Norris. Of this he has afforded both positive and negative evidence; for he has photographed the invisible corpuscles in the act of becoming fibrin,¹ and he has also found that a pure filtrate of blood, containing no morphological elements, does not undergo coagulation.² According to Dr. Norris, the cells which become fibrin are the primary lymph cells, the invisible corpuscles (nuclei of the former), and the faintly visible undeveloped red corpuscles (a further development of the second.) Partial confirmation of this origin of fibrin formation is adduced by Bizzozero, who ascribes the formation of fibrin to his blood-plates (primary lymph-corpuscle of Norris), and by M. Hayem, who ascribes the same formation to his so-called hæmatoblasts. But both these observers look upon their respective elements rather as determining centres of fibrin formation. That fibrin is present in the inflammatory exudation has been shown by Dr. Burdon-Sanderson, who states that in inflammation of the mesentery the fibrin can be seen on the surface of the membrane.³ It being established, then, that fibrin is present in inflammatory exudation, and that fibrin is a rearrangement of cells and nuclei of the blood, it follows that in inflammation these fibrin-forming cells and nuclei migrate from the capillaries as well as the leucocytes, and this migration of fibrin-forming elements must be accompanied by an increase of their number in the blood on the same principle that a migration of leucocytes determines an increase of leucocytes in the blood. The question arises, How are we to know that the fibrin-forming elements are in excess in the blood? Now, there can be little doubt that the hæmatoblasts described by M. Hayem are the granules caused by the disintegration of the undeveloped red corpuscles.⁴ No one has seen these granules in the circulating blood, but they have always been observed in shed blood. Dr. Norris has shown that human blood examined on the cold stage of the microscope is free from these granules, while it contains them when examined under the ordinary temperature. This is pretty clear evidence that the granules can be formed after the blood is shed. But Dr. Norris has given positive evidence of their formation, for he has photographed the undeveloped red cells in the act of becoming disintegrated. The evidence afforded by micro-photography cannot be gainsaid. What cannot be discerned by the unaided microscope can be brought out by photography; there-

¹ The Physiology and Pathology of the Blood (Norris), plate xi.

² On the Invisible Corpuscles of Mammalian and Oviparous Blood, etc. THE LANCET, 1882.

³ Lumleian Lectures on Inflammation, 1882. Lecture I.

⁴ The Physiology and Pathology of the Blood (Norris), section iv.

fore this kind of evidence is superior not only in that it reveals objects just as they really exist, but in that it discloses more of them. The fact that these granules are formed after the blood has been shed does not exclude the possibility that they may also be formed in the circulation under pathological conditions; indeed it seems very probable that this does actually take place sometimes, as evidenced by the enormous quantities of granules present in certain states. Whether, however, these granules be found in or out of the circulation, or, as is more probable, under both conditions, it is evident that they are formed from the undeveloped red corpuscles; hence we may fairly take the number of granules as an index of the number of undeveloped red cells, and, as these latter cells constitute one of the fibrin-forming group of cells, we may roughly estimate the number of fibrin-forming elements in the blood by the number of granules present on the microscopical slide.

In acute large abscesses I have sometimes found the granules present in great abundance; at other times, though in excess of the normal, this excess has not been marked. I found in some cases, of acute abscesses, where the excess of granules was marked, that after the abscess was opened the granules diminished in quantity, and after a time again increased. This fact is very interesting, as showing that the increase of the granules in inflammation is determined by two principles. In the first instance the determining cause is the same as that which obtained in the case of leucocytes—namely, a migration of fibrin-forming elements from the capillaries, and a consequent demand by the blood for more of these elements. It may be objected that as no fibrin is seen in pus, therefore there can be no migration of the above elements. Certainly if we examine pus from an abscess we do not find any fibrin in it, but then what about the pyogenic membrane? What is the pyogenic membrane? In the first place it may be remembered that Dr. Burdon-Sanderson has shown that inflammation is not "altered nutrition," as was once supposed, but that it is an "arrest of nutrition;" that it is not a constructive, but a destructive process.⁴ This fact would seem to disprove the idea that the pyogenic membrane is a connective tissue formed during, and as a result of, the inflammatory action; and even supposing that it were a connective tissue, its expansion as the abscess increased in size could not be accounted for, as ordinary connective tissue is incapable of the expansion that would take place in a large increasing abscess. Moreover, if the pyogenic membrane were connective tissue, an abscess could not enlarge, for this tissue would prove an effectual barrier to the migration of leucocytes. The explanation must therefore be that the pyogenic membrane is formed by the fibrin-forming elements which have migrated from the blood-vessels, and become conglomerated together on the surface of the abscess; that it is, in fact, the analogue of the layer of fibrin seen on the inflamed mesenteric surface. In the same manner must be explained the formation of membrane on the inflamed pleura and pericardium. The fact that these membranes often become organized does not destroy the assumption that they are formed from altered elements which have migrated from the blood, for the organization may be effected in the same way as Professor Hamilton describes the organization of a sponge inserted in a wound—viz., by the bloodvessels of the serous membrane being pushed into the substance of the fibrin. Thus we can account for the increase of granules seen

in the blood during the active period of abscess formation. When the abscess is opened tension is relieved, and migration is at least partially arrested, hence the decrease of granules in the blood at this stage. But the granules increase again, and this second increase I believe accords with the hæmatoblastic crisis of M. Hayem. M. Hayem has found (and his observations have been confirmed by M. Reyne) that about the time of the crisis of acute diseases these granules are increased in the blood, and their excess is ascribed to an effort of nature to repair the blood after the decrease is over.⁵ The state of the system after the healing of an acute abscess is somewhat similar to its condition at the crisis of an acute disease. In either case there has been tissue destruction owing to the high temperature, and therefore in either case a reparation of the blood would be profitable. The reparation of the blood would naturally be effected by an increased discharge of blood elements into the circulation, and as these blood elements would consist of undeveloped red cells, and as moreover one of the stages of the undeveloped red cell disintegrates into granules after the blood is shed, therefore we can easily account for the increase of granules seen in the blood at this period. But the first increase of granules I hold to be determined by a different cause altogether—viz., by the migration of fibrin-forming elements, for this increase takes place during the active period of the inflammatory process, and therefore before the repairing influence comes into force. At the beginning of pneumonia, pleurisy, peritonitis, cystitis, laryngitis, and bronchitis I have found an increase of the granule, generally a slight one, and a larger increase I have noticed about the time of the subsidence of the disease. These two increases, running into one another and apparently one, I believe to be as distinct from each other as they are in the cases of acute large abscesses. The reason why the two increases appear to be only one is that the first is generally slight, and a decrease of it would not be easily noticed, and this holds good also for some cases of acute large abscess. But in those cases of acute large abscesses where the first increase is very marked after the knife has been inserted and tension relieved, the decrease of the granules becomes obvious, as does also the secondary increase which takes place later on. There appears to be thus two waves of increase of granules in the blood in acute inflammation—the first being the manifestation of the supply of fibrin-forming elements of the spleen and probably lymphatic glands consequent upon the demand made by the migration of these elements; the second a manifestation of the supply of blood-cells by the same organs consequent upon the demand made by the system to repair the blood after the disease is over.

In conclusion, I do not mean to infer that the leucocytes of the blood are only increased during the active period of inflammation. It is well known that they are increased in leucocythæmia and after severe hæmorrhage, and I have found them increased in yet other conditions. What these other conditions are have yet to be ascertained. I have not a sufficient number of cases to justify me in making any generalization with regard to them, but I claim for the principle enunciated above an important place as an element in the diagnosis of inflammatory lesions, nor do I wish to state that the granules are only increased during the inflammatory process and at the crisis of acute diseases. I have elsewhere endeavored to show that causes which interfere with the development of the red

⁴ Laminar Lectures, 1882. Lecture I.

⁵ Archives Générales, de Médecine, Janvier, 1880, p. 123, Janvier, 1882, p. 104.

cells give rise to an increase of the granules in the blood, the increase in these instances being due, not to an extra supply of cells by the blood-forming organs, but to an arrest of development, whereby a good many cells do not become fully hæmoglobinized red cells, and as a good many of these disintegrate into granules, therefore under these conditions we find the granules in the blood increased in quantity.

LARGE ASYLUMS FOR THE INSANE.

By H. RAYNER, M.D.,

Superintendent of the Male Department of the Hanwell County Asylum.

It appears to be desirable to draw attention to a danger which threatens the welfare of the insane poor of England and Wales. This danger arises from the conversion of asylums of a size that is efficient and economic, into larger asylums that are less economic, and I fear less efficient. Moreover, valuable opportunities are being lost by the building of large, cheap asylums for the detention of lunatics, in place of efficient hospitals for their treatment and cure. These errors are being committed from the prevalent belief that large asylums are the cheapest.

The subjoined figures abstracted from reports prepared for other objects will, I hope, tend to correct this mistake, and prevent further mischievous consequences. The thirty-sixth Report of the

ment; and the two other divisions being made only to show the increase of cost with the increase of size.

The first table shows, as might be expected, that those asylums are dearest which are not sufficiently large to justify the necessarily complex and expensive staff of such institutions; and it also shows that beyond this is a class much more economic, and, if judged by the proportion of medical attendance supplied, much more efficient than the larger asylums.

A Parliamentary return for the year 1877 yields the statistics found in the second table.

This report includes all the county asylums of which the returns were available, and shows that the asylums of from 450 to 600 beds are the most economic in construction, larger asylums being dearer in proportion to their size; even Banstead, constructed in the simplest manner, with a special view to cheapness, being more costly.

A second Parliamentary return for the year 1877 shows that in—

Asylums of	The average cost of repairs of building per bed per annum.
Not more than 450 beds.....	£1.74
450 to 600.....	1.85
600 to 800.....	2.48
Upwards of 800.....	2.91

In this respect the cost would seem to bear a direct relation to the increase of size.

Statistics are proverbially unreliable, and I have

<i>Names of Asylums.</i>	<i>Number of beds.</i>	<i>Average weekly cost per patient.</i>	<i>Number of patients to each medical officer.</i>
Northumberland, Notts, Derby, Cumberland, Berks, Bucks, Cambridge, East Riding, Hereford, Denbigh, Suffolk. }	Less than 450 beds. }	<i>s. d.</i> 9 7½ }	181
Dorset, Oxford, Salop, West Riding, Cornwall, Wilts, Chester, Monmouth, Burntwood, Leicester, Carmarthen, Glamorgan, Northampton. }	450 to 600 beds. }	8 10½ }	228
Lincoln, Norfolk, Sussex, Parkside, Warwick, Hants, Stafford, Rainhill, Devon, Gloucester, Chatham, Somerset, Worcester. }	600 to 800 beds. }	9 3½ }	265
Beds, Durham, Whittingham, Essex, Wandsworth, Brookwood, Lancaster, Wadsley, Prestwich, Wakefield, Banstead, Hanwell, Colney Hatch, Barming Heath. }	Upwards of 800 beds. }	9 5½ }	345

<i>Names of Asylums.</i>	<i>Size.</i>	<i>Total number beds.</i>	<i>Total cost.</i>	<i>Average cost per bed.</i>
Northumberland, Notts, Derby, Cumberland, Oxford, Berks, East Riding, Suffolk, Denbigh, Cambridge, Carmarthen, Hereford. }	Not more than 450 beds }	4580 }	£ 785,570	£ 171.5
Northampton, Burntwood, Bucks, Glamorgan, Cornwall, Dorset, Monmouth, Stafford, Salop, North Riding, Chester, Wilts. }	450 to 600 beds. }	6307 }	963,122	152.7
Gloucester, Hants, Devon, Worcester, Beds, Essex, Lincoln, Parkside, Rainhill, Somerset. }	600 to 800 beds. }	7090 }	1,303,166	183.5
Barming Heath, Wandsworth, Hanwell, Colney Hatch, Lancaster, Durham, Whittingham, Brookwood, Wadsley, Prestwich, Wakefield, Banstead. }	800 beds and upwards. }	16428 }	3,215,717	196.9
Banstead (Asylum for Chronic Cases).	—	1700	276,422	162.9

Commissioners in Lunacy for the year 1881 yields the following statistics in regard to the English county asylums. (The borough asylums are excluded as being under different conditions.) The asylums I have divided according to their number of inmates into four groups: the first, in which there are less than 450, being considered too small; the second, above 450 and under 600, being taken as the most favorable size for economy and treat-

considered these carefully, from other points than the one given here, with the result that, making all due allowances, I consider the above figures to approximate closely to the truth. Assuming that they do so, we may make the following summary of results, in comparing the moderate-sized asylums (450 to 600 beds) with the large asylums (of 800 beds and upwards). In the large asylums a patient costs 6½d. more per week, and each bed

costs £44.7 more in construction and £1.06 annually in repairs. This is equivalent to saying that if 40,000 patients (and the number for England is close upon this) were lodged in large asylums, they would cost £1,760,000 in construction of buildings, £40,000 annually in repairs, and nearly £60,000 annually in maintenance, more than the same number in asylums of the size I advocate.

The current economy is of small importance compared with the question of efficiency, and this depends to a very great extent on the personal influence of the medical superintendent, an influence which I believe cannot be delegated to a junior officer, however efficient and zealous.

The primary importance of the personal influence of the physician was emphatically expressed by W. Tuke in 1792, and was fully recognized by the Commissioners in Lunacy in their report for 1857, in which they point out "the evils of very large buildings on account of the loss of individual and responsible supervision, the loss of the patient's individuality and the tendency of the rate of maintenance to run higher." I could quote many other authorities in support of this opinion, but that I might appear to be proving a truism.

Then arises the question, Over what number of patients can an average superintendent exercise the maximum of personal influence, and at the same time exert such a general control over the asylum that every detail of management may be used to the greatest advantage for treatment and economy? I answer that the number should be not more than 600, and that the balance of advantage lies in a somewhat smaller number than this.

I do not doubt that efficiency may be and is obtained in the larger asylums, but, as the preceding figures show, at a much greater cost, which must be still further increased if the number of medical supervisors in them is to be made proportionate to that in the medium-sized asylums.

Believing as I do that the curability of insanity is in an almost direct ratio to the care bestowed on it, I cannot help expressing an emphatic protest against the enlargement of asylums of useful size, or the building of large dementia repositories in place of lunatic hospitals.

Haawell.

CASE OF FEIGNED SKIN DISEASE.

By T. COLCOTT FOX, M.B. Lond.

A. S—, aged nearly sixteen years, a furtive-looking general servant in London, presented herself at the Skin Department of the North-West London Hospital on the 28th of November, 1882. The catamenia commenced at the age of thirteen, but had since been irregular, and for the past year absent. She was fairly well nourished, but pasty-looking, and her finger-nails were markedly grooved. She applied on account of three excoriated patches which appeared on Nov. 21st, close together on the front of her left leg, and had, she stated, given her great pain, and caused her to lie awake sobbing at night, so that her mistress had no longer the heart to keep her at work. The suggestion had been made that the sores were caused by the dye from her black stockings, and the girl said that she had dressed the places with "Moore's ointment." One sore was perfectly oval, another nearly heart-shaped, and the third triangular, with a horn at each angle at the base. The patches measured about $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. to 2 in., and the long axis was in the direction of the limb; they were simple uniform weeping excoriations, with hardly any attendant inflammation. Sus-

pecting the nature of the lesion, I ordered a simple dressing and a saline aperient, and talked of admitting the girl into the hospital if more sores appeared. On Dec. 5th she returned with a transversely oval sore just above each mamma, a very characteristic site in feigned cases, but not quite symmetrically situated. There were two others above the left ankle-joint, and one on the outside of the right calf, all longitudinally oval simple excoriations, with a well-defined border, except on one sore, where the abrasion was not complete at one end, and only papulation existed, suggesting a cantharides application. There was a dark-brown blood scab on some. She was admitted to the wards. On Dec. 6th a transversely oval patch appeared just below the left mamma; and another, longitudinally oval, covered with a slight scab, on the right hip. The girl from time to time, for twenty-four hours after admission, had prolonged fits of hysterical sobbing. On the 12th a sore appeared on the right shin near the ankle, and another on the right mamma, between the site of a former excoriation and the areola. There was a remarkable uniformity in the size of the patches throughout. As to the agency at work, I never could detect any evidence of the formation of a bulla, and the patches were too superficial for causation by an acid; moreover, repeated examination of the clothes, bedding, etc., at convenient times and unbeknown to the patient, failed to furnish any clue. On the 16th, no more excoriations having appeared, I taxed the girl with producing the eruption artificially, and, after prolonged denials, she confessed that she had done so, partly by her nails, but mostly by continued rubbing with the tops of her fingers. Probably the malingering was not altogether motiveless, and she desired a rest from her household labors. She proved to be very troublesome and disobedient in the ward, and I learnt from her father that she was an incorrigibly bad girl and a constant source of worry. The case is of interest as establishing an agency which has hitherto only been suspected as possible. Whether the skin in these cases is peculiarly sensitive to injury is a point for further investigation.

Harley-street.

TWO CASES OF INTRA-VENOUS INJECTION OF FLUIDS FOR SEVERE HÆMORRHAGE.

By WM. COATES, M.R.C.S.,

Resident Accoucheur, Late House-Physician, London Hospital.

PROMINENCE having lately been given in THE LANCET to the subject of intra-venous injections for the purpose of combating the effects of severe hæmorrhage, in connection with which Mr. Jennings has contrived a new instrument, I wish to supplement what has already been written by the history of two cases in which I have performed this operation, both of them cases also interesting in these particulars, that the hæmorrhage necessitating the operation occurred a long time after delivery without any definite cause, and that they were the first occasions on which Mr. Jennings' syphon has been employed.

The first case is that of Emily C—, aged twenty-six, a patient of the London Hospital Maternity Charity. She is a married woman, has had five children, but has always been delicate. Has had heart disease for some years, having had rheumatic fever when young. On October 16th she was taken in labour early in the morning, and at 1 p.m. I was summoned to the case. The patient was feeble, pulse rapid and intermittent, and she had stenosis and incompetence of the mitral valve.

The head was low in the pelvis, in the second position, but as the pains were few and there had been no further descent during the last three hours, delivery was effected with Barnes' long forceps, and the placenta easily expressed. About twenty minutes after delivery violent hæmorrhage occurred. Manipulation, hypodermic injection of sclerotic acid, cold affusions, ice internally and externally, the intra-uterine injection of hot water, were all resorted to; but these measures failing to produce more than temporary uterine contraction, ten ounces of a solution of perchloride of iron (one in five) were injected into the uterus. The hæmorrhage ceased, and after the lapse of a little time the uterus contracted moderately. The patient progressed favorably, and seemed in a fair way towards recovery, when, contrary to instructions, she sat up for an hour on November 1st, and again began to flood. She was found in an anæmic weak state, but the hæmorrhage was easily arrested. Two days afterwards the bleeding returned, and the friends did not summon assistance until she had been "losing" for eight hours. When seen the bed was saturated with blood, and the patient appeared almost moribund. Pulse was only just perceptible at the wrist, and very frequent; skin and mucous membranes were almost bloodless, extremities and nose were icy cold, vision was dim, she did not recognize any one about her, and was seemingly unconscious. Although now quite still, her friends stated that she had been tossing violently. My colleague, Dr. Basil Walker, agreeing with me as to the necessity for immediate action, and the husband being unwilling to supply blood, Jennings' syphon was procured, and the saline alcoholic solution recommended by him in *THE LANCET*, and which is almost identical with that suggested by Mr. Little in the *London Hospital Reports* (1866), was allowed to flow into the radial vein, this being the only visible one and of fair size. The result was marvellous. Sight and consciousness returned, the pulse gradually but steadily improved, the patient expressed herself as feeling "beautiful," and soon was able to retain stimulants, which were freely administered. She had a good night, seemed better in the morning though extremely anæmic and weak, and the possibility of another outburst of hæmorrhage being entertained, she was brought into the hospital. With the exception that symptoms of acute mania appeared on November 17th her progress has been most favorable, and recovery is probably not very remote. To give some idea of the intensity of the anæmia it may be stated that retinal hæmorrhages have been observed in both fundi.

The next case is that of Mary C., aged twenty-seven, a patient of the same Charity. On November 10th she was confined of a healthy child after an easy labour. Her convalescence apparently proceeded rapidly. She sat up on the fifth day and performed household duties in a week. On the 19th, soon after straining at stool, she became faint, and then flooded alarmingly. At 1 p.m., half an hour after the onset of the hæmorrhage, the appearance of the patient betokened severe loss of blood, which was found in large quantity upon the floor and bed. The uterus was relaxed, and blood was flowing in gushes from the vagina. The os just admitted a finger, and the uterus was full of clots. Sclerotic acid, ice, kneading, etc., failing to arrest the hæmorrhage, the vagina was plugged, and patient brought to the hospital. When seen soon after arrival—2.30 p.m.—she appeared much worse, was vomiting, and complaining of abdominal pain. A large tumour was felt, reaching almost to the ensiform cartilage, which proved to be the uterus distended with blood, the constricted os evidently preventing its free exit. A digital ex-

ploration of the uterine cavity was now made—the large uterus and small os rendering this incomplete; but nothing abnormal, except a little roughening of the anterior wall, could be detected. Failing to check the bleeding, and wishing to ascertain its origin, the os was somewhat rapidly dilated with Barnes' hydrostatic bags. By this time, however, the state of the patient had become most critical. She said her sight was dim, and that she must die. The pulse was almost imperceptible; respiration was irregular; extremities cold; and there was jactitation. Mr. Unsworth, house-surgeon, concurring with me that there was no time to be lost, and no vein being visible, an incision was made over the situation of the median cephalic, and that vein exposed, into which about twenty-two ounces of simply warm water, at a temperature of about 100° F., were injected with the aid of Jennings' syphon. The result was no less striking than in the preceding case. The pulse became regular, ceased to intermit, and its volume increased; respiration improved; sight returned; and the uterus slowly but distinctly contracted; she at the same time expressing herself as feeling better. At about 4.30 p.m. Dr. Herman saw the patient, and, the os being now fairly dilated, the interior of the uterus was examined, but nothing further was discovered to explain the flooding. As there was still considerable bleeding, the uterus was swabbed out with a saturated solution of perchloride of iron, diluted with about equal bulk of water, and the patient was removed to bed. An enema of beef-tea and three ounces of brandy was administered; but in a short time she could swallow, and stimulants were freely exhibited. The patient is now progressing uninterruptedly towards convalescence, not having had a bad symptom, except a slight elevation of temperature (102° F.) the first few days.

I have pleasure in bearing testimony to the general efficiency of Mr. Jennings' instrument, and although on these occasions I was materially assisted by my colleagues mentioned and Mr. C. J. Dabbs, I believe the operation could have been accomplished single handed. One merit of the instrument seems to me to be that although the tube is very long, the fear of introducing air is reduced to a minimum by the situation of the hole in the cannula and by the arrangement of the stopcock and glass-interrupter. The fault that was noticed in it on these occasions—but this is one that can easily be remedied—was the sharp point of the cannula. As at present constructed, unless the greatest care were observed, not only would the point injure the wall of the vein, but it would penetrate through the whole thickness of the skin. It is needless to say that Jennings' syphon is altogether unsuitable for the injection of blood, and I believe it is not intended for that purpose, for although the blood be most carefully whipped, its passage through so long a tube would be almost certain to ensure the formation of coagula. As Mr. Jennings' elaborate instrument is not in the hands of every practitioner, it may be as well to point out that the same result might be attained by the use of an ordinary irrigating can, or even a piece of drainage-tube might be utilized to serve the same purpose—i.e., if a suitable cannula were first obtained to introduce into the vein, and this could be prepared out of a piece of narrow glass tubing.

It may appear strange that in the second case simply warm water was injected with a view of reviving the patient, but thinking that the great factor in bringing about reaction in these cases of collapse was by the introduction of some fluid into the circulatory system upon which the heart could contract, I determined to give water a trial. The

result speaks for itself. The resuscitation was no less marked in this case than in the one where alcohol and saline salts were employed in addition to the water. The omission of the saline salts in no way interfered with the success, and so a fluid of a different specific gravity, and one which is supposed physiologically to swell up the red globules and cause them to yield their pigment, was injected into the blood, and with a beneficial result. It may incidentally be mentioned that when microscopically examined, twenty-four hours afterwards, there was no obvious alteration in the appearance of the corpuscles. I am prepared to admit that if the fluid injected, in addition to increasing "the dynamic force of the circulation," combined with this the property of cardiac stimulation, it must be superior, but I am inclined to attribute the good effects of the injection far more to the former than to the latter cause; and with the return of consciousness and the renewal of the circulation, stimulants may be freely exhibited which previously are either unable to be retained or else, on account of the feeble circulation, cannot be assimilated.

The outburst of secondary hæmorrhage so long after delivery adds to these cases an especial interest, which is enhanced by the obscurity of its origin. If, as I am under the impression, having seen certain suspicious looking sloughs about the os whilst plugging the vagina, the hæmorrhage in the first case was the consequence of the separation of a slough formed after the use of the iron injection, in addition to the dangers which are attributed to the intratracheal injection of perchloride of iron, we are confronted by one which I fail to find alluded to in the ordinary text-books, and one which, though more ulterior in its appearance, is certainly not less fatal in its consequences. And naturally the question arises, Would the intra-venous injection have made the uterus contract as effectually as the perchloride of iron if it had been employed in the first instance? If it could be proved that such a performance would sufficiently reanimate the patient to bring about uterine contraction, then that course ought to be adopted; because, now that intra-venous injection has been reduced to a practical operation, the dangers of the latter appear diminished when compared with the former. But the issue of the second case shows that although the uterus does contract after intra-venous injection, it does not always do so sufficiently to arrest all hæmorrhage, as the perchloride had subsequently to be applied to completely arrest the flow. It may be thought that the hæmorrhage was the result of polypus, retained placenta, or other cause; but, although carefully sought for, no evidence of such was found. Getting up too soon was the probable cause of the hæmorrhage in the other case.

I am aware that final conclusions cannot be drawn from what may be called two isolated cases; but one thing, at least, appears to have been established—viz., that the operation of intra-venous injection is a practicable one.

In conclusion, I would thank Dr. Herman for his courtesy in allowing me to publish these cases: London Hospital.

ON SPINA BIFIDA.

By G. B. BARRON, M.D., M.R.C.S.

THE subject of spina bifida has been discussed of late in the columns of *THE LANCET*, and an unusual amount of interest has been evinced in its radical cure by the recognized methods of treatment. How far all cases may be found to be amen-

able to any treatment, or how far it is always justifiable to attempt so dangerous an experiment as that of injecting a cyst of this character, is yet beyond the domains of our knowledge. The cases of successful procedure are too limited to warrant any inconsiderate rashness in such a bold and heroic step as rushing in with some badly defined hope of success to stop the gap Nature in her fickle freak has omitted to close. The following case is a fitting one to record as illustrating how tolerant the nerve centres may be of unnatural processes, and how nerve functions may remain unaffected, contrary to our preconceived ideas of their integrity. The literature of hydrorachis is unsatisfactory, as authors, in treating of the subject, pass it over in a brief and rather off-hand manner. The best article on the disease is to be found in Cooper's *Surgical Dictionary*. Cooper relates some interesting cases, but anything like scientific lines of treatment whereon to act with confidence are even here wanting. I apprehend our best surgeons are divided in their opinions as to the most reliable method of dealing with it, and none yet dare issue a dictum of probable successful operation. Cooper relates one case which was cured by repeatedappings and pressure, but states in other cases these measures failed and death ensued. He also says, "We must regard all attempts to cure the disorder by making any kind of opening as exceedingly perilous, and generally fatal." Bryant writes in doubt. He says, "Almost all these cases prove fatal. Many of the subjects are ill-developed, and die within a few days of birth; some die in convulsions, and this mode of death is very usual when the sac bursts and its fluid contents escape." Then, as to treatment, he goes on to say: "Palliative treatment is all that can be followed in the majority of cases, although in exceptional instances operative interference promises to be of use." Holmes somewhat favors injection of the cyst, but this practice is almost only adapted to small pedunculated cases. Erichsen relates a case with an enormously large base, which was successfully treated by tapping. Probably the case he relates has no parallel in surgical literature; but he concludes, "We shall probably best consult the welfare of the child by abstaining from all operative interference." He does not even allude to injection.

The cases related at the Clinical Society, and the consequent discussion, prompt the inference that surgeons are at present most disposed to rely upon injection of the cyst. Still, the meagre success and the paucity of cases so treated scarcely justify reliance upon that method. Here is a void which surgical science requires to deal with without delay.

Three years ago, being on a visit in Worcestershire, I was requested to see the child of a farm laborer living in the adjacent village. The child, well nourished and healthy-looking, was six weeks old, and was the subject of a spina bifida, situated between the fourth and fifth lumbar vertebræ. It was the size of a small hen's egg. Mr. Woodward, of Pershore, had attended the case, and was present at the time I saw it. The skin looked shiny and red, and appeared ready to give way. I advised aspiration or tapping, and the latter procedure was adopted by a large hypodermic syringe needle, which was left in the sac for a few hours to drain. About eight drachms of fluid were withdrawn. A compress of cotton-wool was applied to protect the part, and the mother was cautioned not to handle the child roughly, and to avoid undue pressure on the swelling.

By the courtesy of Mr. Woodward, in August last I had an opportunity afforded me of seeing the child again. My notes of its condition, taken at

the time, run as follows. The child is fairly well nourished, and is about the height and weight of a three-year-old child, and has the appearance of full health. It can walk, but its gait is a little hesitating and slightly "straddling," with its feet rather more apart than natural, as though it had a difficulty to secure its equilibrium; the lower extremities are thin, but by no means emaciated, and sensation is perfect, the patellar reflex being intact, and plantar titillation immediately evokes the usual muscular jerk. There is perfect control over the sphincters, and the urine is voided in a full stream. There is no lack of intelligence, the eyes are full of expression, the head of normal size and shape, with no sign of hydrocephalus. Pressure on the tumour produces no symptom of distress, nor does it alter materially the size or shape. It has a very broad base, and the edges of the spinal aperture can be felt, the finger-tip detecting a large irregular ovoid opening communicating with the spinal cavity. The size of its base indicates its non-pedunculated character. The measurement in circumference at base is seventeen inches, and across from side to side eleven inches. It is as transparent as a hydrocele. The case, when first seen, did not encourage the idea of attempting a cure by injection, and I may mention that it has been tapped frequently, but has rapidly refilled each time.

The curious and interesting points about this case of hydrorachis seem to me to be these: the size of the sac; the full development of the lower extremities; the power of progression; the absence of pressure on the spinal cord, and thus the sphincter integrity. While the size of the opening would point to the possible pressure on the cord. If broad based tumours are more likely to press upon the cord than pedunculated ones, how is it there is no evidence of pressure here? Suppose the nerve structures are carried forward in front of the fluid, I think we might reasonably on physiological grounds expect to find evidence of nerve pressure, or malnutrition from nerve stretching, or from nerve atrophy. There is no talipes in this case. We are told not to puncture the front part of these tumours so as not to injure the nerves. But is there any evidence that the puncture of nerve structure in this part of the body by a fine needle has been productive of permanent mischief? This case seems to me, if not unique, at least curious, and prompts the following considerations. If the subarachnoid fluid both of the brain and spinal canal normally does not exceed two ounces, how is it that this tumour is so large? We know the fluid is reproduced rapidly when withdrawn, and the withdrawal when complete produces symptoms analogous to plethora of the bloodvessels, and when it is in excess it also produces convulsions and other evidences of pressure. There being direct communication between the spinal subarachnoid channel, and the cerebral ventricles, how it that when the fluid was all drawn away in this case no convulsions ensued? and this procedure has been observed several times without mishap. Does this part of the enveloping sac membrane from its large area alone secrete the fluid, or does the whole arachnoidal surface contribute its proportion? and if so why in such excess above normality? The question may also be prompted, Why is there usually talipes in these cases? Is that condition purely accidental or is it due to defective tissue growth dependent upon the spinal abnormality cutting off nerve-supply to a given set of muscles? I confess my inability to suggest any better method of treating, radically, hydrorachis; but, except in the matter of injection, we have made no advance in our knowledge of it during the last fifty years. This

is a reproach to our modern surgery, which boasts, and with perfect justice, of feats so brilliant that they become almost incredible as compared with the surgery of the past half century. Of this I am quite convinced, that something will dawn upon the intellect, as a more certain and effective means of dealing with this disease. An interest has sprung up which will eventuate in some satisfactory operation. Can we in any way imitate sloughing which produces spontaneous cure? To say that hydrorachis is an incurable disease would be considered unsurgical, but I am by no means convinced that some better method may not yet be discovered than we at present adopt. The old plan of a seton must be condemned, so I think must tapping and pressure, experience teaching that no reliable good ensues from these measures. It is to be hoped every successful case of cure by injection, no matter what the agent used may be, will be published, so that tabulated results may lay the foundation of something like a sound basis whereon to act, and which will inspire confidence in dealing with this *bête noire* of surgery.

Southport.

A CASE OF ANEURISM OF THE AORTA RUPTURING INTO THE PERICARDIUM.

By H. C. GUINNESS, Surgeon-Major, A.M.D.,

In Medical Charge, Station Hospital, Western Heights, Dover.

CORPORAL A. D—, Royal Irish Rifles (83rd), age twenty-three, service five years (no history of syphilis, alcoholism, or rheumatism), was admitted into Station Hospital, Western Heights, Dover, on October 24th last, with inflammation of external meatus. In spite of the treatment employed the pus became very fetid, showing its neighborhood to bone, and there was considerable constitutional disturbance with high temperature, etc. He became low and weak, requiring stimulants, etc., but no delirium or head symptoms occurred. During his life he had no symptom to direct attention to the heart or great vessels, and there was no suspicion of the existence of an aneurism. On November 12th, about 2 P.M., after his ear was syringed, he fell back in bed and expired almost immediately. As will be seen by the post-mortem report, the case is one of exceptional interest, owing to the mischief caused by the aural inflammation, the plugging of the lateral sinus and jugular vein, and the probability of this being the cause of the rupture of the aneurism by the increased pressure on its coats, also by the very small size of the aneurism. The post-mortem report I send in full, as furnished by Surgeon Skinner, Army Medical Department.

Necropsy.—Body pale and emaciated, rigor mortis well marked. On removing the skull-cap, the dura mater was found to be unusually adherent to the structures beneath, just above the torcular herophilli. The left lateral, petrosal, and cavernous sinuses were filled with ante-mortem clot; also the jugular vein in the jugular fossa, and for about an inch below that point. The brain substance was firm, but presented nothing unusual on examination beyond general emptiness of the veins. The left auditory meatus contained pus; it communicated with the jugular fossa by a perforation. On opening the chest, the pericardium was observed to be distended to its fullest extent by a dark substance. On opening it, some reddish fluid—in amount about two ounces—escaped, and the heart was found surrounded by a firm dark-colored clot, which on removal weighed ten ounces. This clot was found to be especially adherent to

the anterior surface of the first portion of the aorta; on removing it from this situation, a small aneurism was found rather larger than a hazel nut, with a perforation in its centre admitting a medium-sized bristle. The heart had a considerable quantity of fat externally and was firmly contracted. Its muscular structure was pale on section. The valves were healthy, but all the orifices were rather small. The aorta presented commencing atheroma in small quantity throughout its whole thoracic portion. The mouth of the aneurism was small, with a ragged margin, and blood-stained for about one-eighth of an inch round; it was a quarter of an inch in its transverse, and a little more than one-eighth of an inch in its vertical measurement. The aneurism contained some laminated fibrinous clot. The external coat was thickened in this situation, except just at the point of perforation, which, from the inner aspect, presented a funneled appearance. The lungs were collapsed and somewhat congested, especially at the base of the left. The liver was slightly enlarged and congested. The kidneys were apparently normal, also the spleen.

Remarks.—The post-mortem appearances suggest the opinion that the rupture of the aneurism was immediately due to the increased pressure caused by the blocking of the veins on the left side of the brain.

ON MANGANESE IN THE TREATMENT OF AMENORRHOEA.

By SYDNEY RINGER, M.D., F.R.C.P.,

Lecturer on Medicine in University College, Physician to University College Hospital;

AND

WILLIAM MURRELL, M.D., M.R.C.P.,

Lecturer on Materia Medica at the Westminster Hospital, Physician to the North-West London Hospital.

We are desirous of calling attention to the value of a very simple remedy in a very common complaint. For some time past we have used permanganate of potash with much success in the treatment of certain forms of amenorrhoea, and are satisfied of its value. Our observations have extended over a period of thirteen months, and we have now notes of sixty-nine cases. The majority occurred in hospital practice, but some were private patients. A small number remained under observation for a few weeks only, but the majority continued to attend for a much longer period; so that in some instances we have a complete record of the menstrual history for a year or more. In some cases the amenorrhoea was the cause of the patient seeking advice; in others its existence was mentioned incidentally, the patient suffering from some other complaint. Our cases are such as come under the care of the general as distinguished from the obstetric physician, and do not include those requiring operative interference. As a rule we refrained from making a vaginal examination, but with this exception our notes are complete. We have used the permanganate in two forms, first the pharmacopoeial solution, and secondly the permanganate made into pills, each containing either one or two grains. Generally we begin with a grain three times, and then gradually increase the dose to two grains four times a day. Our most striking results have been obtained with the larger doses; a large dose sometimes succeeding admirably after the failure of a small one. Before commencing treatment we inquire carefully into the menstrual history of the patient, and as a rule give the remedy only for the three or four days im-

mediately preceding the expected period, but should it fail to produce the desired effect we direct the patient to continue steadily taking it, and in some cases it has been taken continuously for nearly three months. In our experimental observations we have given the one drug only and have done nothing in the way of accessory treatment. Our most striking results have been obtained in young women between the ages of eighteen and twenty-five, who, from some accidental or trivial cause, such as catching cold or getting wet, have "missed" once or twice after having been regular. The administration of one or two grains of permanganate of potash in pill three or four times a day for a few days before the time of the expected period will bring on the flow almost to a certainty. In some instances the periods were brought on after the patient had ceased menstruating for over a year. In the case of country girls who have "seen nothing" for a month or two after coming to town the treatment has answered admirably. Often enough patients do not consult their doctor until they are "overdue," until the time of the expected period has passed by for some days. Even then the prompt administration of the permanganate will often bring on the flow at once, but should it fail to do so the treatment ought to be continued, and the patient will probably menstruate normally at the next monthly time. Generally our efforts are not crowned with success until the medicine has been taken for at least three or four days, but in some instances the permanganate acted with striking rapidity, the menstrual flow making its appearance after only two or three doses had been taken. It is not necessary to discontinue the treatment on the appearance of the menses; in fact we generally tell the patient to continue taking the pills three or four days longer, finding that it facilitates the flow. The permanganate often succeeds well after the failure of other remedies, such as iron, aloes, nux vomica, strychnia, pulsatilla, nitro-glycerine, and hot mustard baths. Sometimes, however, it is necessary to give it for six weeks or even longer before the desired result is obtained. In those cases where the patient has menstruated only once or twice, and has then entirely ceased for some months, our treatment answers well; the menstrual function is re-established, and thenceforth proceeds normally at every successive monthly period. In some cases there was no actual amenorrhoea, but the flow was scanty, lasting perhaps only a single day, or it may be only a few hours. Here the administration of the permanganate prolonged the flow, and even in some instances when it had ceased brought it on again.

In girls of about fifteen or sixteen, who have never menstruated at all, the permanganate, as might be expected, is not so certain in its action; but even here it not infrequently acts promptly, bringing on the flow at once. In some cases where the general health was bad, and the permanganate had failed, we suspended treatment for a time, and sent the patients into the country for a month. On their return we gave the permanganate a second trial, and it succeeded at once. We have, however, sometimes failed to bring on the menstrual flow even when the patient was in fairly good health, and when there were the usual indications of puberty.

It is not only in the case of young women that manganese is so useful; it succeeds almost equally well with women between thirty-five and forty, who, as the result of many pregnancies and much suckling, have ceased to be regular. Here, for example, is a typical case. A married woman came to us complaining that she was never regular. She had had nine children in as many years, and

rarely saw anything more than once between her pregnancies. She had been suckling for eight months, and had not been poorly for seventeen months—the nine months she had carried and the eight months she had suckled. She was not in the family-way, but said she expected she would be soon if she weaned the baby. She did not know when she ought to be poorly, and had given up all expectation of seeing anything. She was ordered two one-grain permanganate of potash pills four times a day, and came on poorly a fortnight after, the first time for seventeen months.

We need hardly say that before treating the amenorrhœa care should be taken to see that the patient is not pregnant, although we are satisfied that the permanganate given in the dose we recommend has no power to produce abortion either in the early or late stages of pregnancy. We find that manganese fails to induce the flow when the amenorrhœa is due to advanced phthisis. But in some cases of arrested phthisis the treatment was successful, and the patient, after a time, under the influence of the permanganate, menstruated freely and at regular intervals. In several instances patients informed us that the pills had proved of value in curing "whites" of long standing. As a rule the permanganate is taken without difficulty, but patients much prefer the pills to the solution. The solution is peculiarly disagreeable to take, and in some cases produces nausea and even vomiting. Patients frequently complained after taking the pills of a heavy persistent pain over the upper part of the sternum, "as if something had stuck there and would not go down." This was not due to the drug being given in the form of a pill, for the same complaint was made when the same dose was given in solution. One patient said the pain was of a burning character, and another said it was like heartburn. A girl of sixteen, to whom two two-grain permanganate of potash pills were given four times a day, said the pain, "like a lump at the chest," came on immediately after each dose, and was so intense that she had to go to bed for two hours.

That the effects we have described are due to the manganese, and not to the potash in the salt, is shown by the fact that manganate of soda and binocide of manganese are equally efficacious in the treatment of amenorrhœa. The manganate of soda was given in two-grain pills, two four times a day; and the binocide in four-grain pills, one four times a day. It may be thought that the manganese acts by improving the condition of the blood, but this is not the case. The treatment succeeds equally well in the plethoric and in the anæmic. Given in cases of chlorosis, the permanganate not infrequently brings on the period without in any way improving the anæmia.

A CASE OF ADDISON'S DISEASE,

WITHOUT TUBERCULOSIS OF THE SUPRA-RENAL BODIES
AND WITHOUT AFFECTION OF THE SEMILUNAR
GANGLIA.

By R. G. HEBB, M.A., M.D. Cantab.,

Pathologist and Curator of the Museum at the Westminster
Hospital.

THE present pathology of Addison's disease assigns its cause to be a "tubercular destruction of the supra-renal bodies," associated with "a general pigmentary deposition in the rete mucosum, and a remarkable form of progressive asthenia, which sooner or later ends in death." A similar explanation is given by Drs. Wilks and Moxon in

their "Pathological Anatomy," but here more stress is laid upon the connection of the caseous degeneration of the adrenals with tuberculous disease of the lungs. Again, Dr. Greenhow, in his monograph on Addison's Disease, p. 25, where he is discussing the morbid process which takes place in the supra-renal capsules, lays it down that it is always identical, and "consists primarily in their infiltration by an inflammatory exudation of low type, which destroys the normal structure of the organs, and finally itself undergoes caseous degeneration." And in his paper on Addison's disease read before the International Medical Congress, 1881, he refers "most of the more prominent symptoms of the disease to some morbid condition of the neighboring nerves," and further states that "it is almost certain that these symptoms are caused not by impairment of any special function of the supra-renal capsules themselves, but by injury to the important branches of nerves which pass into the capsules, and of the ganglia and plexuses in their immediate neighborhood." Hence it would seem that while some pathologists conceive that the inflammatory lesion suffices to develop the symptoms, others believe that, though the tubercular condition is always present, the symptoms are due to some affection of the neighboring nerves and ganglia. Yet the following case tends to show that, on the one hand, tuberculosis of the supra-renal bodies is not required to cause Addison's disease, and, on the other, that the symptoms of this malady may exist without any apparent lesion of the adjacent sympathetic ganglia. The case is especially noteworthy, because of (1) the complete absence of caseation and of tuberculosis; (2) the atrophic condition of the supra-renal bodies; (3) the correspondence of the smaller supra-renal body to the larger ganglion. And, I conclude, from a consideration of the morbid appearances, that the pathological element of this disease is to be sought in the central part of the supra-renal capsules themselves.

Mary A. C—, aged forty-eight, was admitted into the Westminster Hospital under the care of Dr. Fincham on March 31st, 1882. Her father's brother suffered from gout, one of her sisters died of phthisis. The patient is a married woman, and has had eight children. The menopause took place four years ago. She has had no previous bodily illness, but in 1880 had some great domestic trouble; has not suffered from exposure, privation, or injury. For the past year she has been complaining of weakness and has become much worse in the course of the last three months, during which period she has been losing flesh. Six weeks ago she began to suffer from headache, which has continued ever since. The darkness of the skin commenced to show itself about four weeks ago, or at least was not noticed before. The above symptoms became intensified in the beginning of March, and were accompanied by fainting fits, constipation, and nausea. During the two weeks previous to her admission the loss of strength and flesh was very rapid. She then began to vomit her food, and has retained very little nourishment ever since. The patient has been laid up in bed for one month. On admission it was found that she was very weak, and somewhat emaciated, with an anxious, drawn expression and sunken eyes. There was a general duskeness of tint over the face and the whole surface of the body. On the back and right side of the neck, and on both elbows, were a number of circular dark-brown patches; the areolæ were of a dark-chocolate color, and on the mucous membrane of the left cheek was an irregular dark patch about the size of a six-penny-piece. The pulse was small and weak, and the heart's action rapid but regular. There were

¹ Bristowe's Medicine, Fourth Edition.

no abnormal auscultatory signs in the thorax. Urine acid, sp. gr. 1020; no albumen. Weight 6 st. 12 lb. 10 oz. Patient constantly vomited. She was ordered liquor arsenicalis, five minims, after food. Between this and her death the patient vomited all nourishment taken by the mouth, and peptonized food was administered per rectum. She became rapidly weaker, and died April 7th. Her weight taken a few hours before death was 6 st. 3 lb. 10 oz.

Necropsy made by Dr. HERR, nine hours after death.—Body somewhat emaciated, but there was a considerable amount of adipose tissue within the abdominal cavity; slight rigor mortis; the viscera were quite warm; there was a subconjunctival hæmorrhage of the left eye. The blood was quite fluid, and contained an unusual quantity of free liquid fat. There was no staining by blood coloring matter of the serous or other tissues. There was not a trace of caseation in any part of the body. The skin generally was bronzed, but there were patches of deeper pigmentation in the following situations; around the nipples, in both armpits, in Scarpa's triangles, below both knees, over against the lower cervical region an irregularly oval area about six inches by four inches, and on the mucous membrane of the mouth and of the vulva. Brain weighed 50 oz.; membranes and nervous tissue normal. The pleuræ were quite smooth and shining. Both lungs were crepitant throughout. Heart weighed 6½ oz., the valves were competent; the aortic measured 2.75 in., the mitral 3.50 in.; the muscular tissue was firm but of a brownish color. The pericardium was normal. The liver weighed 50 oz., normal. Spleen 2½ oz., soft. Kidneys each 4½ oz., congested, otherwise normal. The supra-renal bodies weighed—right, 28 gr.; left, 19 gr.; they retained their shape, were of a reddish color, and of a softer consistence than usual; on section the internal pearly-white layer was found to be absent. The abdominal sympathetic ganglia, especially the left semilunar ganglion, seemed larger than usual. The stomach contained several ounces of a pul-taceous material of a malachite-green color. Both ovaries were shrunken, and from the os uteri poured a glairy white discharge, otherwise these viscera were normal.

Microscopical examination of the semilunar ganglia failed to discover any lesion of the sympathetic nerve cells, although comparison with several normal semilunar ganglia suggested that there might be increase of the connective tissue element. The bloodvessels were certainly larger and more numerous.

Torrington-square, W. C.

MEMBRANOUS POLYPUS OF THE CERVIX UTERI.

By CHARLES GIBSON, M.D.,

Lecturer on the Diseases of Women, etc., in the University of Durham College of Medicine, Newcastle-on-Tyne; Consulting Physician to the Newcastle Dispensary, etc.

In the body of the uterus there are principally two forms of benign polypus found—viz., the soft or mucous, and the fibrous or muscular, which may be regarded as an extension of the proper tissue of the uterus, covered by a corresponding extension of the lining membrane of the organ. In the neck of the uterus one other well-recognized form is superadded—viz., the glandular, principally constituted by enlarged glands of Naboth. In addition to these, however, several varieties are recognized: the fibrinous, either from a coagulum in utero, or from an aborted ovum; the

vascular, from varicosity of the submucous blood-vessels; the placental, which again results from detained and variously altered placenta; the fatty polypus may be regarded as a degenerated fibroid.

The polypus of which this paper takes special cognizance does not belong to any of these varieties. Yet it is strictly a benign polypus, springing from the internal surface of the cervix uteri. Some years ago I saw a patient who had been out of health for many months. Her age was about fifty. She was stout, but there was a sustained feeling of indisposition in the patient, and exertion with her soon produced fatigue. This lady was keenly susceptible to the influence of cold, and when acted upon by it, she commonly became affected with cervical uterine leucorrhœa. When this patient came under observation there was present aching of the lower part of the back, around the hips, and down the thighs; but there was no other localized complaint, excepting only slight tenesmus on defecation and micturition. The grand climacteric had been passed, but the later catamenial periods were marked by much discomfort, even by suffering, and by great irregularity in the character and in the quantity of the discharge. On examining the uterus per vaginam with the finger, the os uteri was found to be much dilated, and immediately within it a rounded body was reached by the examining finger. The cervical walls were soft and even. No blood issued on feely touching the intra-cervical foreign body. By the aid of the vaginal speculum the presenting tumour was seen to be evenly rounded in outline, and to fill completely the canal of the cervix uteri. Nothing like blood or pus covered it. On pressing the uterine probe upon this dark-colored body it became deeply indented, and by onward pressure it receded within the cervical canal. On withdrawing the probe the tumour resumed its former site and appearance. Laminaria tents were passed through the cervical canal, and free dilation of it was effected. And now, on making digital and ocular examination, the tumour was nowhere to be found, and no bearing down on the part of the patient and no pressure on the hypogastrium could force the growth again into view. The finger, indeed, could feel an uneven condition of the anterior wall of the cervical canal, but no other abnormality could be detected. The cervix was allowed to contract upon itself again, and on the fourth day after the examination just referred to the tumour was again found in the cervical canal. It was now carefully examined and found to have a broad attachment to the anterior cervical wall, and to be gradually lost in the surrounding parts. Excepting for the points of attachment the tumour did not appear to have, exactly, any of the characters of the polypus formed by enlarged Nabothian gland. It was concluded then that the abnormal growth was nothing but a rounded fold—a prolapse, in fact—of hypertrophied cervical mucous membrane. On this assumption a line of treatment was determined upon and carried out. The wall of the cervical canal, after dilatation, was freely swabbed with the stronger solution of perchloride of iron; and a dossil of lint, saturated with glycerine, was placed in the canal for twenty-four hours. This operation was repeated on three other occasions, after which neither probe nor finger could find a vestige of the tumour. On seeing this patient three weeks after the last application the cervical canal was found to be free from abnormal growths, and the discomfort and tenesmus formerly felt had quite disappeared.

About two years ago this patient again came under my observation with symptoms nearly identical with those already referred to. Some persistent leucorrhœa, however, was superadded.

On examination a tumour was found similar in many particulars to that which had been observed before. It was, however, much larger, and hung down from the uterine orifice into the vagina. It had the form of a pear, and was attached by its pedicle to the anterior wall of the cervix uteri. The growth was now summarily dealt with: a loop of fine wire, passed through a silver tube, was carried over the polypus, as nearly as possible to the points of its attachment to the cervical wall, and tightened; then, with a seesaw motion of the wire the attaching textures were cut through, and the tumour was removed. Although there was almost no bleeding, the stronger solution of perchloride of iron was freely applied to the cut surface as a matter of security. In two days the patient was well, and has continued so up to the present time. On examination of the tumour after maceration in a solution of common salt, it was found to be pear-shaped, as before removal, its walls enclosed, and were held together by a tolerably firm connective tissue, and yet by manipulation the envelope could be flattened out, a nodule only of the connective tissue, more dense than the rest, remaining on the surface of the envelope after the other portions had been unfolded.

In another case of like nature, the tumour was small but easily recognized, the cervical canal being large and the uterus itself very low in position. The patient was still menstruating, the periodic discharges, however, being long continued each time, and very profuse. In this case the stronger solution of perchloride of iron was repeatedly applied to the abnormal growth, and to the circumjacent mucous membrane. These applications were followed by the introduction of an intra-uterine stem pessary, and vaginal injections of cold water were employed. The pessary was worn for some months. The result of this treatment was entirely satisfactory.

This affection is produced, I think, by engorgement of the mucous membrane of the cervix uteri. It clearly has no connection with the dilatations and contractions of the cervix which belong to parturition, neither of the patients referred to having borne children. The mucous membrane, however, becomes relaxed by recurring catamenial plethora. The relaxed membrane folds upon itself, tenesmus is thence set up, as upon a foreign body in the cervical canal, and the loosened membrane is gradually forced downward. Then exalted nutrition of the mucous membrane and of the sub-mucous connective tissue follows upon the recurring plethora. The hypertrophied textures offend more and more as their growth increases, and the polypoid character of the tumour, as it extends beyond the uterine orifice, becomes marked more and more distinctly.

The literature of uterine affections does not present, so far as I am familiar with it, any well-marked cases of the kind now delineated. Doubtless such cases have often occurred before, and will often occur again. It is highly desirable, therefore, that these morbid outgrowths shall henceforward be recognized by gynecologists, and their etiology and pathology securely established.

NOTE ON AMPUTATION.

By WM. S. SAVORY, F.R.S.,
Surgeon to St. Bartholomew's Hospital.

PERHAPS in no case is the judgment of the surgeon more severely taxed than when he is called on to decide the question of amputation in an injury to a limb. The rules of surgery on this subject are necessarily very vague, and too often they

can be applied with but little force to the particular instance; for in any case, many considerations, each one largely affected by the rest, are involved. Of course when the injury is of such a nature, from the destruction of large vessels, nerves, or other important structures, that recovery is out of the question, there is no room for doubt. It is when the injury is of such degree and extent that although recovery is possible, it is yet improbable, involving very grave risks to life, that the surgeon's anxiety is raised and his way becomes difficult. Often in these cases one man forms a decided opinion on what appear to others to be very inadequate grounds. Even when to others his conclusion appears to be sound, he may fail in explanation to set forth sufficient evidence of it. If he has really reasoned on the subject, he cannot reproduce the argument for the guidance of another. He gets no farther than, "I think upon the whole," etc. He may be right, as right as a man who can express his thoughts and explain clearly the ground of his opinion; but it must be allowed that this kind of decision is neither instructive nor satisfactory.

In endeavoring to form a judgment in such cases it seems to me that one has to consider, first of all, whether the injury is greater than any operation for its removal. If the operation would not be the means of substituting a less injury for a greater—less for more risk in the future—it surely ought not at this time to be thought of. And deciding in favor of an operation on this ground, the question comes, Is the chance of recovery from the operation so much greater as to cover the risk from the second shock which the operation would necessarily cause? This last consideration oftentimes adds greatly to the difficulty of decision. Then further, assuming the injury not to be beyond all reasonable chance of repair, is it worth while, for the prospect of such future use in the limb that might remain to him, for a man to run, in order to preserve it, any additional risk of his life? and, if so, to what extent? With all this it has to be borne in mind that if an attempt is made to save the limb, in the event of failure there may be some chance in the future of removing it, and of still saving life. But the probability is that such secondary amputation will be forced on us under unfavorable conditions; in other words, that there will be but little choice of time.

The opinion of surgeons has of late years gradually changed respecting the comparative advantages and disadvantages of what is called primary and secondary amputation after injury. It was formerly held that less risk to life is incurred by operating immediately after an injury than at a remote period, and this view was, I believe, founded chiefly on the records of military surgery. This, however, has not been confirmed in recent years by the experience of civil practice, and I suppose that at the present time such a question would receive for the most part doubtful or contradictory answers. Does not this depend on the want of distinction which ought to be drawn between different cases of secondary amputation? When in an instance of severe injury an attempt is made to save a limb much local and some constitutional disturbance is sure to follow, and in unsuccessful cases the patient either dies directly from this, or the limb passes into a condition beyond prospect of recovery. Now, in the question of secondary amputation, if we can select our own time for the operation, when the fever or constitutional disturbance which has been provoked has subsided, and we operate to remove a useless or hopelessly damaged limb, such amputations are done, I believe, with better prospect of success than primary ones, and this chiefly because they remove a

source of great and perpetual irritation with comparatively little shock. But if, while much constitutional disturbance prevails, we are called on to choose between amputation and death, we operate under most adverse circumstances and with much greater risk, no doubt, than in primary amputation.

So, then, I should answer the question thus: Secondary amputations are more favorable than primary ones when there is a choice of time—that is, when we can afford to wait till the temperature and other signs of general disturbance have subsided; but secondary are less favorable than primary amputations if the operation is forced upon us at a period of the case when a high degree of fever still prevails. Herein, too, lies the difference in the prospect between secondary amputation after injury and amputation in disease, for in the latter case there is almost always choice of time.

FIBRINOUS COAGULA IN THE HEART AND PULMONARY ARTERY.

By SIR JOSEPH FAYRE, M.D., F.R.S.

MANY years ago, when in India, I called attention to the subject of thrombosis of the pulmonary artery, and the formation of decolorized fibrinous clots in the right cavities of the heart, extending into the ramifications of the pulmonary artery, as a cause of death after surgical operations or injuries, and also during the course of blood-poisoning and certain forms of disease. My views and experience in this subject are detailed in a work entitled "Pathological Observations in India," and I now revert to it as a subject which merits more consideration than it has hitherto received and is entitled to, as a serious and often fatal complication of cases, which otherwise might have terminated more favorably.

These decolorized fibrinous clots in the heart and pulmonary arteries have been attributed either to post-mortem coagulation or, when admitted to be of ante-mortem occurrence, they have been considered as merely one of several phenomena which attend the process of dying, and not as an immediate cause of death. This, I venture to contend, is not always the case; but, on the contrary, that such clot and plugging of the pulmonary artery or the right cavities themselves cause death not unfrequently in cases in which without them death could not have occurred. My experience of this subject has been acquired chiefly in India; but it has been confirmed by observation in this country, and I am under the impression that this is a more frequent cause of death, not only in the course of pyæmia, septicæmia, and certain diseases, but also after surgical operations, wounds, and injuries.

A malarious climate I believe to be an especially predisposing cause, and in the state of malarial cachexia which so frequently results from residence in such countries, even where there may have been no fever, and especially in cases where anæmia is splenic or hepatic incompetency is present, it is prone to happen. But it is by no means confined to persons so affected, for I have frequently seen it in individuals who presented no cachectic appearance nor in whom was there any obvious indication of visceral disease. Obstruction of the pulmonary artery and right cavities of the heart by coagula, causing death, may thus occur in persons not cachectic from malarial influences. Still, the disease is especially liable to affect persons laboring under that impaired state of

health; where the spleen is diseased it is very prone to happen and to prove rapidly fatal.

Hyperinosis, or excessive formation of fibrinous material in the blood, is the condition on which the thrombosis depends, whilst the condition which occurs in surgical fever, pyæmia, and in exhaustive diseases such as cholera, malarial fever and cachexia, diphtheria, scarlatina, puerperal and other diseases, leads to the hyperinosis. Thrombosis of the pulmonary artery kills by arresting the passage of blood through the lungs, whilst coagula in the left side of the heart and thrombosis of the arteries operate locally by causing gangrene of the part. There is, however, a strict analogy between the two forms of thrombosis; they arise from fibrinous material in the blood, and the predisposition to the formation of this is equally engendered by exposure to malarious influences, as it probably is by other diseased states.

The so-called abscesses which are so frequently found disseminated in the tissue of the liver, spleen, kidneys, lungs, and in the areolar tissue in persons who live in hot and malarial countries, are not primary abscesses, but originate in patches of parenchyma which have perished owing to the deposit of emboli in the small vessels at the spot. Around such dead patches, as around the core of a boil, pus is subsequently found, and so the local death is converted into an abscess; though in cases of blood-poisoning in India death frequently occurred before these suppurations took place, when the part was found simply as a piece of dead tissue surrounded by an areola of congestion or inflammation.

As to the mode in which the change in the blood is brought about I am ignorant, though it is not difficult to understand why it should be so when the spleen and other blood-elaborating organs are compromised. But of the fact and of its consequences I know there can be little doubt, as many cases within my own observation have convinced me. This subject has been recently attracting attention, hence these remarks, derived chiefly from experience in India, but probably applicable here.

Some of the most remarkable examples of this morbid condition have occurred as sequels, if not direct results, of injuries, wounds, or surgical operations, not only in cases where pyæmia had supervened, but in others, in which nothing indicated the approach of danger until the symptoms of obstructed pulmonic circulation had set in. It is my belief that climatic influences, by deteriorating the blood-elaborating organs and by interfering with the due action of the trophic and vaso-motor apparatus, may determine the occurrence of changes in the blood which render it prone to the formation of these coagula, and in climates like that of Bengal, where all are more or less exposed to malarial influences, its greater frequency than elsewhere may be thus accounted for. But thrombosis of the pulmonary artery and cardiac clot are neither confined to malarial climates nor to traumatic causes, for under certain conditions of disease and of septicæmia, whether traumatic or otherwise, it may occur everywhere, and not merely as a process of the act of dissolution, but as an independent cause of danger or death which, without it, would not have happened.

I am aware that Dr. Richardson and others have long ago pointed out the tendency of the blood to assume this dangerous condition in certain diseases; but it is to the analogous condition when determined by malarial and splenic cachexia or by other conditions which induce leucocythæmia, and to that which results from wounds, injuries, and operations (traumatism), that I now refer, and of which I express my belief that it is a more fre-

quent cause of death than is generally supposed, especially after wounds, operations, or injuries which involve removal of large parts of the body, or much loss of blood and great nervous disturbance; and I would, with much deference, suggest that some of the deaths which have been ascribed to what appear insufficient explanations may have been due to this cause.

Thirteen or fourteen years ago I wrote as follows in regard to a case where death had resulted from this cause after a comparatively trivial injury, a contusion, which had caused sloughing of a small portion of integument on the leg: "There was not sufficient in this case to account for death in an ordinary individual, but in a person suffering as he did from malarial poisoning and enlargement of the spleen, it was more than sufficient. Probably in no condition of disease is the formation of fibrinous coagula more likely to occur on the least disturbance than in splenic or malarial cachexia, in which the deteriorated condition of the blood-elaborating organs and the impoverished character of the blood are proved by the anæmia, and the tendency to disintegration and death of the tissues which is so often seen. The evil results of the hyperinosis are seen in the limbs or other parts of the body, which become gangrenous from embolism when it is in the arterial circulation, and cedematous or gangrenous when it occurs in the venous system; or, still worse, in the multiple deaths of portions of the viscera, which are so frequently observed after wounds or injuries.

But it is the formation of the fibrinous clots in the cardiac cavities themselves, and particularly on the pulmonic side of the circulation, which is so dangerous to life. I have repeatedly called attention to the subject as one of great importance, for it is not only in cases where an enlarged spleen renders almost any operation impossible, and which causes almost any wound to prove fatal, but in many others, whether of wound or injury, where there is no obvious disease of the spleen and no cachexia, and where all seemed to promise a favorable issue, that this condition may supervene and rapidly cause death. It is common enough in some diseases as one of the latest phenomena manifested by the moribund; but more than this, it may set in when there is no sign of exhaustion, when repair and nutrition are going on satisfactorily, and within a short time hurry off the patient, whose dead body presents no explanation of the cause of death beyond the presence of a firm, decolored, adherent clot in the right auricle or ventricle, perhaps extending into the ramification of, or it may be impacted in the entrance to, the pulmonary artery.

I have so far noticed the malady as it occurs in persons who are free from cardiac disease, but that it occurs in them is the more reason why it should happen to those in whom a fatty heart is superadded, especially in a hot, damp, and exhausting climate, or even when the heart, though not itself the subject of fatty degeneration, is loaded with fat, externally, or where there are dilatation weakened muscular cardiac fibre, and, perchance, pleuritic or pericardiac effusions. In such persons, indeed, the presence of fibrinous concretions may not be needed to determine a fatal issue. The temperature of a hot, damp night, in May or June (always the time of greatest vital depression), in Calcutta, and the shock or after-effects of an operation or the depression following an attack of malarial fever, may be sufficient, and the patient, after a short and painful struggle of breathlessness, perishes, notwithstanding every effort to save him. This is very distressing; especially when it occurs to a person who appeared to be recovering, and it becomes a subject of anxious inquiry not only as

to how it was caused, but how it may be prevented in others.

I propose to describe the symptoms of, and to illustrate them by, some typical cases in a future notice.

Wimpole-street, W.

BULLOUS ERUPTION OF A PECULIAR CHARACTER.

By RICHMOND LEIGH, M.R.C.S. Eng.,

Surgeon to the St. George's Hospital for Diseases of the Skin, Liverpool.

M. W—, aged thirty-three, very healthy, was affected by a peculiar eruption five days after parturition. It appeared as bullæ of irregular shape and size, varying from a quarter of an inch to about an inch in size. It was not preceded by redness, pain, or other sign or symptom. But for the absence of redness, the appearance was that of a blister, for which it was taken by a surgeon who saw the case early. As the bullæ burst, there was some slight rawness from the loss of epithelium, but not beyond the margin of the bullæ, and also some slight soreness and purulent discharge from the friction of the clothes, but no pain existed from other cause throughout the course of the disease. The height of the eruption was reached about three or four days from its commencement, and fresh bullæ appeared at intervals in its course for over a week. After the discharge of the contained fluid the bullæ dried up gradually with little reddening, rawness, or discharge, except where irritated by rubbing. Accompanying the eruption was an eczematous affection of the eyes and lips, which remained after the disappearance of the former. The trunk was the only part affected, and with the exception of a portion of the buttocks, only on the anterior aspect, which was irregularly covered by the eruption from the neck to the groins. The duration of the complaint was about fourteen days. It was probably of neurotic origin, the result of "cold," but no nerve region was specially marked out. There was no fever, and the general health was unaffected, except that there was some little debility more than usual. No history of syphilis was elicited, and the woman had had no abortions, or stillborn or premature children. She was married very early, soon after the age of fourteen, and had had eleven children before the present one. The milk appeared on the third day, without much febrile disturbance.

The treatment was general; iron and quinine on account of the debility, and vaseline locally.

Park-road, Liverpool.

PENETRATING WOUND OF THE ORBIT; BULLET LODGED IN THE BRAIN.

By A. EMBYS-JONES, M.D.,

Surgeon to the Royal Eye Hospital, Manchester.

ON Monday, Nov. 6th, I was summoned in a great hurry to see a case in consultation with my friend, Mr. W. Armstrong, of Harpurhey, who informed me that a boy, aged fourteen, a few hours previously had been handling a revolver, the contents of which had been discharged into the orbit, and most likely into the brain. The boy was evidently in pain, and it was deemed advisable to give him a few drops of chloroform before proceeding to make an examination; but just as he took the first few sniffs he struggled violently, and then fell into a state of collapse, and, in spite of all that could be done, he did not breathe again, al-

though the action of the heart kept up for some time.

On Nov. 8th we made a post-mortem examination, and found the following appearances:—The eyeball was extensively ruptured, and internally a large irregular opening, about half an inch in extent, at the junction of the ethmoid and sphenoid bones, and continuous with the opening a large hole extending through the cerebral convolutions to within an inch of the posterior boundary, where we found the bullet.

The track was filled with blood, and the débris of bone carried along with the bullet. There was extensive hæmorrhage into the adjacent parts and the ventricles. We found all the other organs healthy.

Manchester.

SUCCESSFUL EXTIRPATION OF THE LARYNX.

By WALTER WHITEHEAD, F.R.C.S.E., F.R.S. Edin.,

Surgeon to the Manchester Royal Infirmary.

LARYNGEAL surgery has of late attracted considerable attention, and as the profession is somewhat divided in opinion on the respective merits of extra and intralaryngeal operations in dealing with laryngeal growths, I wish to place on record the particulars of a case favorable to the former procedure.

W. G—, aged forty-six, blacksmith, was admitted into the Manchester Royal Infirmary on April 28th, 1882, on the recommendation of a medical friend, who suggested the desirability of removing a growth which he had discovered attached to the right vocal cord. The patient had suffered from extreme hoarseness, difficulty in breathing, distressing cough, and occasional paroxysms of dyspnoea, for three months before coming under observation. Laryngoscopic examination afforded a conjectural diagnosis that the growth, which overspread the right vocal cord, was of an epitheliomatous nature. The disease could only be inferred to extend beyond the range of vision by the knowledge that malignant neoplasms in that locality usually extend below the cords. Tracheotomy was performed as a preliminary measure on April 30th, the operation giving immediate, but only temporary, relief to the more pressing symptoms. A recurrence of ominous dyspnoea, which was afterwards discovered to have been produced by the imperfect manner in which the cannula had been reintroduced after having been removed for cleaning, hastened the decision to remove the disease.

On May 27th the thyroid cartilage was slit from below upwards and the two halves held apart, when it was seen that the new formation not only implicated the vocal cord, but extended, as was conjectured, downwards, and involved the upper part of the trachea. Before proceeding to excise the diseased structures, Trendelenburg's tampon was substituted for the tracheotomy cannula, and the insufficient protective influence of the tampon against blood finding its way down the air-passages was guarded against by packing the trachea above with a small sponge. The whole of the disease, the thyroid and cricoid cartilages, and the two upper rings of the trachea, were then removed by means of scissors. The epiglottis was left intact. The skin was brought together by a few silk sutures, and the wound dressed with dry lint.

On the following day Trendelenburg's tampon was replaced by a soft rubber tube which still remains *in situ*. A microscopic examination of the growth confirmed the diagnosis as to its being an epithelioma. The patient's voice was not immediately

lost; for several weeks after the operation he could express himself in monotone and could be distinctly heard at a distance of six feet; gradually the sound faded and eventually disappeared altogether. It can still be demonstrated, by means of a flame in front of the mouth, that air finds a channel in the track of the original air passages. The patient now breathes quite freely, takes his food without inconvenience, and enjoys life as fairly as can be expected under the circumstances. The absence of any local glandular enlargement or evidence of any recurrence of the disease affords a reasonable prospect that the patient may derive prolonged benefit from the operation. The idea of introducing the artificial vocal apparatus of either Gussenbauer or Foulis was entertained, but abandoned on the grounds that no real advantage had yet been established in favor of these instruments. The preference for thyrotomy was based on the opportunity it affords for a complete inspection of the entire larynx, and the facility it gives for extending or restricting the extent of the operation to any limit necessitated by the amount of the disease. The only difficulty met with during the operation was the separation of the deeper attachment.

Manchester.

ON VENESECTION.¹

By W. H. BROADBENT, M.D., F.R.C.P. Lond.,

Physician to St. Mary's Hospital, etc.

THE disuse of bloodletting as a remedy has so frequently been the subject of remark that observations respecting it, except by way of explanation, are unnecessary. We are often disposed to reproach ourselves when we contemplate the extreme and violent fluctuations which have taken place in the practice of medicine, both as regards the alternate employment and abandonment of particular drugs or lines of treatment, and as regards the principles of treatment generally; but while we have reason to be ashamed of the influence which mere fashion and love of novelty exercise, some of the changes which at first sight seem most inexcusable and unaccountable have really been the inevitable results of increasing knowledge and the steps of advancing science. I believe this will prove to have been the case with venesection. Bleeding was formerly employed with little discrimination; in some cases it did good, in others it must have done harm; in a still greater number it probably had no appreciable influence on the course of the disease, but did not injure the patient. The uselessness and danger of the practice were frequently shown, but doctrine or theory has with the mass of men far more influence than observation, and while the experience of one set of observers was simply set against that of another, recoveries without bleeding did not carry conviction to the minds of those who had seen recoveries after bleeding; and it was only when, by the evidence of the post-mortem room and the experimental study of inflammation and other morbid processes, a revolution in the general doctrines as to disease had been effected that the balance was turned, so that venesection was condemned and abandoned.

During some years there has been a gradual reaction. It has been shown, notably by Sir James Paget, that venesection is attended with very little risk either of immediate or remote injury, while on the other hand it is in suitable conditions a remedy of striking power. A return to indis-

¹ A paper read before the Harveian Society, Feb. 1880, with slight additions.

criminate bleeding would be a great evil, but of this there is really no danger. It is now better known what abstraction of blood can do and what it cannot. The indications for resorting to it can be more precisely defined, and sooner or later the teachings of physiology applied to the rectification of abnormal conditions present in disease will remove the stumbling-block for a time thrown in the way of this powerful therapeutic agency by morbid anatomy.

In the first place, general bleeding is not employed as a remedy for inflammation as such. We have in the writings of our predecessors a vivid description of the effects of venesection in *iritis*—the relief of pain, the diminution of vascularity, the arrest of destructive changes; but true as this undoubtedly is, such advantages, even were they constant, which is by no means the case, may be purchased too dearly, and there is no inflammation of an internal organ in which venesection is resorted to. Nor is it for the control of *pyrexia*, whether the result of a local inflammation or of one of the specific fevers. What we seek to do, and what we can effect by venesection, is to modify the distribution of the blood and the pressure within the arterial or venous system. The circumstances under which this may be required are various; some of them I shall enumerate, and, when I can do so, illustrate by recent experience of my own.

Perhaps the most simple and unmistakable indication for the necessity of reducing the blood-pressure within the arteries by bleeding is when an aneurism is giving rise to severe pain, or is threatening life by pressure upon a nerve or some important organ. I have repeatedly seen immediate and striking relief afforded by a small bleeding in the practice of the late Dr. Sibson, whose teaching and example I have followed. An opportunity occurred last year, when a patient, who had been some time under my care in St. Mary's Hospital suffering from a large aneurism of the arch of the aorta, was suddenly seized with violent dyspnoea during my visit to the wards. His face was purple and swollen, and he was evidently in agony, while it seemed as if he must die within a few minutes unless relief could be given. My resident medical officer, under my supervision, bled him to about eight ounces, and he was very soon in a comfortable sleep. In aneurism, however, bloodletting can only be palliative, and though it may relieve pain and prolong life for a time, it does not restore the sufferer to health. Much more than this is claimed for venesection in another class of cases, when it is practiced for the relief of over-distension of the right side of the heart. The circumstances under which this condition arises are various, but they are chiefly comprised under disease of the heart, or obstruction to the pulmonary circulation by disease of the lungs, especially pneumonia and bronchitis.

Pneumonia has been the great battle-ground of many therapeutic controversies, but especially of the question of bleeding and the use of stimulants. A more unsuitable field could not have been chosen. It is a disease which varies extremely as to the danger attending it at different times and places, and under different circumstances, quite irrespective of the treatment pursued, so that statistics are fallacious. Again, it runs a definite course and terminates by a very marked crisis, which allows an enthusiast or partisan to imagine that the remedy which coincides with the crisis has brought it about. The clinical history of pneumonia, uninfluenced by any but hygienic treatment, having been carefully followed and ascertained, it became possible to estimate the effects of bleeding, and it may be stated confidently that

in some cases it is most useful, preventing suffering and saving life, while in others it would only be injurious. The reason is that it is not the inflammation of the lung which is combated, but a particular complication—over-distension of the right side of the heart. The merit of making this clear and of enabling us to recognize the indication for bleeding in pneumonia is, I believe, due to Dr. Markham. In some cases, then, of pneumonia the rapid consolidation of a certain part of the lung with congestion of a still larger portion gives rise to a degree of obstruction in the pulmonary circulation which embarrasses the right ventricle; this no doubt, being enfeebled by the high temperature of the blood, induces dilatation, and eventually almost paralysis. The symptoms attending this condition, which may be established very early in the attack, are most distressing: the patient is pale or livid, instead of flushed, is gasping for breath, and probably unable to lie down; the *alae nasi* are working; he can scarcely speak, and the cough, if any be present, is a mere short hack, raising no expectoration; there may be a cold sweat on the face. On examining the heart, it is found to be beating violently, and a striking contrast is presented between the force of its impulse and the small and weak beat of the pulse, explained by the inadequate amount of blood which finds its way to the left ventricle, in consequence of the obstruction in the lungs and the enfeebled state of the right ventricle. However forcible the systole may be, it can have little effect on the pulse if there is only a scanty amount of blood in the ventricle to be driven into the arteries. The right auricle can generally be made out much beyond the right border of the sternum. It is under these circumstances that those striking effects of bleeding are obtained which have been so often described and which I have myself witnessed. As the blood flows the pulse improves, becomes fuller and stronger; the breathing becomes less frequent and shallow; the oppression is relieved; and not uncommonly the patient, finding to his astonishment that he can take a deep breath and cough without pain, expresses himself as feeling quite well. The pneumonia pursues its course under more favorably conditions, and recovery is usually the result. Cases of this kind are rare in the hospital practice of London, but I have met with a few. In the country they are more common.

Bronchitis frequently gives rise to over-distension of the right side of the heart, and I have seen venesection employed for its relief, but I have never ventured to practice it myself. In chronic bronchitis and emphysema, in which distension is always more or less present, the conditions which produced it persisting would certainly cause it to recur, and even acute capillary bronchitis is usually of such long duration that a single bleeding could not be looked upon as final. There are, however, no doubt cases in which we ought to give the patient the chance which venesection seems to offer in desperate circumstances, but I have hitherto preferred having recourse to an emetic, which will at the same time unload the air-passages and powerfully compress the heart, forcing the blood out of the right ventricle, and so far relieving the over-distension as to enable it to complete its systole, which is the end to be obtained.

In heart disease I have seen no case of aortic valvular affection, obstructive or regurgitant, in which venesection seemed to be called for, and in mitral regurgitation the good effects of digitalis can be relied upon with so much confidence that it claims the first trial. It is in mitral stenosis that bleeding is most frequently demanded. When the mitral orifice is narrowed there is a chronic condition of distension of the right ventricle, and

this is liable to dangerous increase under various circumstances, while digitalis is not to be implicitly trusted. The question whether bleeding should be employed or not then arises not unfrequently in mitral stenosis, and indeed the evidences of dilatation of the right ventricle, the occurrence of tricuspid regurgitation and distinct reflux of venous blood into the large vessels, are more common in this than in any other form of heart disease. But while venesection is at times as strikingly useful in mitral stenosis as in the cases of pneumonia alluded to, I have not often employed it. I may have lost opportunities through timidity or excess of caution, but I think it probable that the hypertrophy of the right ventricle, which is established during the gradual increase of pressure in the pulmonary vessels, makes the over-distension less dangerous. In deciding whether to bleed from the arm or not when there is mitral stenosis, account must be taken not only of the existing degree of distension and embarrassment of the right ventricle, but of the way in which it has been brought about. If it is the result of exposure to cold, or imprudent exertion, or emotional excitement in a patient previously manifesting little evidence of heart disease, then bleeding may be of the greatest service. In a lady to whom I was called when apparently in *extremis*, and who had been picked up on the stairs unconscious after emotion and exertion together, the action of the heart was so irregular, and the sounds so confused, that a diagnosis could only be arrived at by a process of exclusion. After eight ounces of blood had been taken she was greatly relieved. Next day the heart was acting more regularly, and a systolic tricuspid murmur was heard; a few days later the tricuspid regurgitation had ceased, and a presystolic mitral murmur was developed. With this change in the physical signs, which I have frequently noted, there was steady improvement, and the patient recovered, though she never regained her previous condition.

When, on the other hand, the distended state of the right heart under consideration comes on in mitral stenosis under the influence of the work and exposure of the daily life of the classes who come under our care in hospitals, the rest, warmth, food and care which they receive constitute such a difference in their favor that bleeding from the arm is rarely necessary; but I have often found six or eight leeches applied over the liver, enlarged and painful through venous congestion, of very great use. When, however, the venous stasis and failure of the right ventricle are the results of the valvular obstruction gradually developed in spite of favorable conditions of all kinds, bleeding, whether local or general, can be of little service. The last occasion on which I have employed general bleeding for the relief of over-distension of the right ventricle was in October, 1882. A man, aged about fifty, was admitted into St. Mary's Hospital with a vague history of some acute pulmonary attack. He was suffering from obvious painful respiratory distress, looked pale and haggard, and complained of severe pain in the loins. His temperature was high, the pulse frequent and large but short, and the skin perspiring. There were physical signs of bronchitis, but not sufficient to account for his dyspnoea. The heart was beating violently, the right auricle was distended, as was shown by dullness to the right of the lower sternum, and a systolic murmur was heard at the apex, but there was no evidence of mitral stenosis. His distress was so great and so clearly attributable to over-distension of the right side of the heart that it was determined to relieve this condition, although the cause which had given rise to it could not be satisfactorily made out. He was accordingly bled to

eight ounces by Mr. Spicer, my resident medical officer. This gave some relief, but it was not satisfactory, and was only temporary. After death, which took place two days later, it was found that a large thrombus had formed in the pulmonary veins, and having become detached had got entangled in the mitral valve; fragments had also been carried away in the circulation, and had lodged in various organs. This sufficiently explained the cardiac embarrassment and the failure of venesection to relieve it.

In another and very important class of cases the indication for bleeding is high arterial tension. It is not, of course, desirable to open a vein whenever the blood-pressure within the arteries is greater than normal, but only when this has reached a point at which it is attended with urgent danger. If no serious or threatening symptoms are present and time is allowed, the tension can be reduced by other means. The effects of unduly high arterial tension are characteristic, and the condition is as easily recognizable as an indication for venesection as is over-distension of the right side of the heart; the explanation, however, of the symptoms by the assumed cause and of the observed results of the treatment is not very easy.

The most striking illustration of the good effects of bleeding is met with in uræmic convulsions. No one who has tried venesection in these cases can, I think, fail to recognize its immediate efficacy and its favorable after-consequences. My own experience, at any rate, has convinced me of the value of such a mode of treatment. I may, by way of illustration, mention two cases which came under my care in St. Mary's Hospital within a week of each other, early in 1879. One was that of a boy of twelve, which was exceedingly interesting for several reasons. He was admitted for violent uræmic convulsions coming on in the course of scarlatinal albuminuria. One interesting point was that the convulsions were unilateral, illustrating the fact that one-sided convulsions may result from a condition affecting both sides of the brain. He was bled from the arm to eight ounces. The convulsions became less severe and soon ceased, but were succeeded by extraordinary maniacal excitement, not mere delirium; illustrating another fact with which I had previously become acquainted—viz., that a morbid condition which gives rise to convulsion may in a less degree give rise to maniacal excitement. This passed off in about twenty-four hours, and finally the albuminuria disappeared in less than a week. The other case was that of a little girl, also admitted for scarlatinal albuminuria and uræmic convulsions, who was bled, and, as in the boy, not only were the convulsions arrested, but within a week the albumen disappeared from the urine. She was readmitted on account of a relapse soon after her discharge, but again recovered.

It does not, however, necessarily follow that the *modus operandi* in the arrest of uræmic convulsions is by relief of arterial tension. This is, however, probable, as will be seen from the following considerations. The conditions present in uræmia, in addition to the high pressure within the arteries, which may possibly excite convulsions, are the contamination of the blood by urea or other urinary matters, a watery state of the blood, cerebral anæmia, and serous effusion. Now, abstraction of blood containing only its own proportion of urinous impurities cannot render that left behind more pure; it will indeed probably for the time be more impure, and will certainly be more watery from the absorption of fluid from the tissues to replace the blood lost. It can scarcely, therefore, be by any improvement in the quality of the blood, whether by removal of poisonous matters or by

correcting its dilution, that bleeding arrests the convulsions. The remaining conditions named, anæmia of the brain and serous effusion in the meninges, are possible effects of arterial tension, and their influence cannot be separately estimated. The same may be said of the minute capillary hæmorrhages supposed by Dr. Mahomed to be the immediate cause of the convulsions; if they are the proximate determining lesion, they are themselves the effect of extreme high pressure in the arteries. As regards the arterial tension, it is well known that it is raised in almost all diseases of the kidney; and it has always, according to my observation, become extremely high when uræmic convulsions are impending. Convulsions, moreover, are sometimes associated with inordinate arterial tension when there is no disease of the kidneys. Finally, in whatever way venesection acts as a remedy, it certainly lowers the pressure in the arteries. (I must here add, in order to avoid misunderstanding, that convulsions may occur when the arterial system is in the very opposite condition to that of tension, and that in epileptics the pulse is often—usually I should say—remarkably soft, short, and weak.)

But granting that extreme arterial tension is an invariable antecedent of uræmic convulsion, and therefore fulfilling the condition of a cause, this does not explain how the convulsions are produced. It is not yet definitely settled whether the obstruction to the passage of the contaminated blood has its primary seat in the capillaries or in the arterioles. If in the capillaries, then, notwithstanding the contraction of the arteries, which would on this hypothesis be protective, these minute vessels must be exposed to the distending influence of the high pressure in the arterial system, and capillary hæmorrhages or serous effusion will be a probable consequence. It has again been supposed that the forcible injection of the brain might so far expand it as to give rise to pressure on the venous sinuses and outlets, which would dam back the blood and cause a degree of stasis in the cerebral circulation. If, on the other hand, the stopcock theory of Dr. Johnson is true, and the primary obstruction is due to the contraction of the arteries, the supply of blood will be limited, and the pressure in the capillaries may be below that of the normal condition. The former hypothesis is, in my opinion, the more consistent with all the facts.

But it is time to describe the indication for venesection under consideration, and one more different from the flushed face and full bounding pulse, traditionally supposed to constitute this, could scarcely be imagined. The face is pale; when the fingers are placed lightly on the radial artery pulsation is hardly felt, and the vessel is usually small, though it may be large. The first impression is that the pulse is weak. When pressure, however, is made, so as to test the force of the current of blood, the pulsation is not easily extinguished, and the firmer the pressure the stronger the beat seems to be. At the same time the artery is full between the beats, and can be rolled under the finger like another tendon, or like a piece of whipcord. The heart will be usually found to be hypertrophied, and more or less dilated, and very commonly there is reduplication of the first sound over the inter-ventricular septum near the apex, due, as Dr. Sibson demonstrated, to want of synchronism in the systole of the two ventricles. When with these evidences of high arterial tension convulsions supervene, the most prompt and certain remedy is venesection.

Two cases have already been briefly related in which bleeding was of marked service in uræmic convulsions. The disease in both was acute scar-

latinal nephritis, and an illustration of its utility in chronic renal disease may be added. The patient was a lady, to whom I was called by Mr. Cripps Lawrence. She was, though comparatively young, the subject of contracted granular disease of the kidney, established apparently in previous pregnancies, and was again pregnant. She was suffering from vomiting, pain in the head, and confusion of the mental faculties, which had rapidly increased, and at the time of my visit she was in a state of stupor. The pulse was extremely small, long, and hard. It was evident that convulsions were impending, and Mr. Lawrence had already warned the husband of this. The warning was repeated; a nurse was set to watch the patient, and it was agreed to endeavor to avert the attack by purgatives and bromide, but that should convulsions come on venesection was to be performed at once, and then premature labour was to be induced. Within a few days the apprehended attack came on. The patient was bled, the convulsions were arrested, and a miscarriage was then brought about. The patient made a good recovery, and regained, and retained for some years, apparent health, under the judicious management of Mr. Lawrence. After various complications she ultimately died from cerebral hæmorrhage, and a post-mortem examination confirmed the diagnosis.

Whenever in kidney disease the symptoms of uræmic poisoning show themselves, vomiting, headache, confusion, stupor, muscular twitchings, etc., which experience has taught us lead up to convulsions, we almost always find the signs of undue arterial tension described, and we may confidently anticipate that venesection will at the same time diminish the pressure and relieve the symptoms. I have in several cases both of contracted granular and large white kidney, when cure was hopeless, diminished the suffering of the last few weeks of life, and changed the mode of death, by small bleedings, when the headache became intolerable and convulsions were impending. An example may be related in which bleeding was several times practiced.

The patient, a young man, aged twenty, was first admitted into St. Mary's Hospital in August, 1879, for a slight attack of diphtheria, which, however, set in with a convulsion. As he recovered it was found that he was the subject of chronic albuminuria, which explained the unusual mode of onset of the diphtheria. He recovered from the diphtheria and left the hospital, but returned on Nov. 16th, exhibiting all the marks of advanced renal disease and complaining of loss of sight. On ophthalmoscopic examination severe albuminuric retinitis was seen to be present, to which the impairment of vision, already serious, was due. The pulse exhibited all the characters of extreme arterial tension: it was long, hard, and incompressible, the artery being full between the beats, and feeling like a thick cord as it rolled under the finger. The boy was extremely pale and rather weak, but he was on the verge of uræmic complications; and on this account, and in the hope of saving the eyes from further damage, venesection was ordered to eight ounces on Nov. 19th. The form of disease affecting the kidneys was considered to be large white kidney from acute desquamative nephritis in process of contraction, and we were not altogether without hope that as bleeding is sometimes promptly curative in the early stage, it might be of service even then. The patient was relieved, and the eyes certainly did not seem to get worse as fast as before, if, indeed, they did not improve; the pulse became larger, softer, and shorter. There was no perceptible difference, however, in the state of the urine, and the symptoms gradually returned, in spite of the usual treatment. On De-

cember 17th he was apparently moribund, excessively pale, scarcely conscious, with headache, muscular twitchings, and all the signs of impending convulsions. The pulse was small and long, though not very strong as the heart was acting feebly, the artery was full between the beats and could be rolled under the finger. It seemed as if the loss of an ounce of blood would prove fatal, but as he was clearly about to die and no other treatment offered him a chance, he was bled to eight ounces. The effect was remarkable. He began at once to improve, and so far rallied as to get up daily and to go about the ward and to enjoy his food. The tension, however, which was markedly lowered, gradually increased, but we hesitated to take away more blood from a patient who was so extremely anæmic. As we declined the task copious epistaxis came to the patient's relief. On Feb. 11th, after premonitory symptoms for some days, convulsions again came on, for the relief of which my resident, Mr. Havell, at once bled to twelve ounces, and as uræmic symptoms were still very severe, and the arterial tension very high, on Feb. 14th he was further bled to eight ounces. After this the confusion and stupor disappeared, and the patient became quite clear in his mind; but he died on Feb. 16th, remaining rational to the last. On post-mortem examination the diagnosis of large white kidney becoming granular was confirmed.

But high intra-arterial pressure may exist independently of kidney disease, and may give rise to convulsions when it reaches a certain degree of intensity. In 1877 I reported to the Clinical Society a case illustrating this, in which venesection was attended with remarkable success. It may be reproduced here, and is as follows:—

The patient came to my consulting-room on Wednesday, July 25th, 1877, saying that on the previous Monday morning he had an apoplectic attack. All that he knew about it was that, on coming to himself, at about 6 A.M., he found the house had been roused and a medical friend, Dr. Gaven sent for. He pointed out a general discoloration on the forehead and chest, which was found to be due to innumerable minute capillary extravasations, and I inferred, what turned out to be the case on inquiry from his wife later, that there had been convulsions. He said he had had a little headache after the attack, but that he then felt perfectly well, and he laughed at the serious view taken of the case. While he was talking with me I observed several momentary suspensions of consciousness, during which he lost the thread of his conversation or ceased to hear what I was saying. I had seen this gentleman before, and knew the main facts of his medical history. He was about forty-two years of age, inclined to be stout, and slightly florid. He was of an excitable disposition, and intellectual in his pursuits. He had spent much time abroad; had lived freely and heedlessly, but had not been given to excesses; had had syphilis when young; had taken much mercury and iodide of potassium, and the last manifestation, which had been rupial ulceration, of which he bore many scars, had taken place eighteen years ago. Exactly twelve months before he had had a carriage accident, in which he received a very severe concussion of the brain, and was supposed to have sustained fracture of the base of the skull. He had been unfit for professional work for three months, and on his return to it did very little for some time, and was extremely careful in the matter of diet and drink. Little by little he had increased his work and thrown off the restraints imposed upon him, and resumed his old convivial habits. He acknowledged that he was more irritable than before the fall, but considered

that no other ill effect remained, except that he had lost the senses of smell and taste. After hearing the patient's account of the attack and making the observations mentioned I sent him home, ordering him aperient pills and small doses of bichloride of mercury.

Next morning I was called to him, and reached his bedside between 7 and 7.30 A.M. I found there Dr. Gaven, and learnt that our patient had had a succession of violent convulsions from about 3 A.M., at intervals of about fifteen minutes, and had been unconscious the whole of that time. He was lying on his back unconscious, tossing restlessly, throwing about his arms, and groaning loudly. The face was expressive of suffering, the eyes closed and held firmly shut when the attempt was made to open them, the pupils equal and of moderate size. It was noticed that the left arm was moved less than the right, but on careful watching it was apparent that the reason for this was some injury to the muscles about the shoulder-joint, and there was no evidence of hemiplegia or paralysis of any kind. The heart was beating violently, but the sounds were normal. The pulse was rather small and weak, but long, and the artery was full between the beats. When an attack of convulsions was coming on the groaning ceased, and the limbs were at rest. The eyes were then opened widely, their look and the expression of the face being for a moment almost natural, but the pupils quickly dilated, the cornea was turned up under the eyelid, the face became distorted, and there came a long and fearful groan, or almost scream, at the end of which the entire body and all the limbs, were convulsed with violent synchronous jerks. The face became livid, the pulse imperceptible, and the heart-beat weak, and it seemed as if life were extinct. This would, I think, really have been the case had it not been for Dr. Gaven, who at the critical moment of each attack got a spoon between the teeth, depressed the tongue, and started respiration artificially by pressure on the chest till the respiratory movements began to be re-established.

While we were discussing and deciding upon the line of treatment two attacks occurred, notwithstanding administration of chloroform. Mustard poultices had already been applied to the calves and to the nucha. A dose of calomel was placed on the tongue. An enema was ordered, and then bromide of ammonium, or potassium, with chloral, was to be injected into the rectum. Any effects to be hoped for from these measures, however, would require time, and every hour was full of peril. We consequently decided to bleed the patient. This was done by Dr. Gaven to at least thirty ounces. The pulse did not falter during the flow of blood, but became larger and softer. There was no other apparent effect at the moment. Another convulsion came on, the third I witnessed, almost before the bandage could be adjusted. It was as violent as any of the others, but it was the last. The convulsions from this time ceased entirely. In the afternoon the patient had regained consciousness, but could not speak. Next day he talked very well, but his ideas were rather scattered. In another day or two his intellect was quite clear, and except that he felt very stiff everywhere, and had pain in the left shoulder, to the muscles of which some injury had evidently been done by the convulsion, he declared himself to be quite well. Bromide of potassium was given, and Dr. Gaven carefully watched the progress of the case. For some time there was much jerking of the limbs during sleep, and once or twice some apprehension was excited by pain in the head, or excitement of manner, but there was gradual improvement, and very soon the patient was able to

do a little work. He recovered completely, and is now (Dec. 1882) perfectly well.

Another example of successful bleeding is worth relating, and the more so as the case did not come under my observation till afterwards. The patient was a young lady, aged about twenty, who was brought to London for my opinion in October, 1879, with a letter from Dr. A. Newington, of Wheatley, from which the following is abstracted:—She had enjoyed good health, but suffered from constipation and piles, took plenty of exercise, was abstemious in diet, and took no stimulants. The catamenia had been absent for some months, and while abroad during the summer she had suffered from fulness in the head and disinclination for society, and when she walked up hill her face became purple, and she felt as if about to have a fit. These sensations had increased to an extreme degree; the conjunctivæ were injected, and the pulse full and throbbing; the symptoms were so urgent that Dr. Newington at once bled her on Sept. 21st to thirty ounces. She lay down for an hour, had lunch, and felt so much better that she went to church. Slight discomfort in the head was all that remained, and for this bromide was given, aloe and myrrh at night and Friedrichshaller water in the morning being also ordered. In two or three days she seemed to be quite well; and she so remained till Oct. 14th, when Dr. Newington was again called to the patient on account of a similar but milder attack. Menstruation, however, now came to her relief. I saw this young lady at the end of October; and although she then considered herself perfectly well, there was still high tension in the pulse, and there could be no doubt that it had risen to the point of danger, when she had the fulness in the head and other symptoms. In my opinion, indeed, the bleeding averted a serious catastrophe.

The injurious effects of high pressure in the arterial system are not confined to the production of convulsions. These, indeed, are rare and exceptional, while innumerable lives are shortened by it in other ways. Even moderate excess of tension in the long run produces disease of the vessels, or of the heart, or of both; and it was in such a condition of the circulation which was accurately recognized by the more discriminating of our forefathers that the "spring and fall bleeding," which was so common, would really be of service. I venture, indeed, to affirm that many lives might be prolonged, and many attacks of paralysis averted, by a revival of this practice in certain cases, not that no other means are available, but because such patients would submit to an occasional periodical loss of blood, while they will not exercise the habitual self-restraint and abstinence required to carry out a plan of treatment which must extend over months and years.

I am particularly anxious that it should not be supposed that bleeding is indiscriminately recommended as a remedy for convulsions. Only when high arterial tension is present should it be employed. For this reason I relate the following case:

In November, 1881, a strong and previously healthy laboring man was brought into St. Mary's Hospital, who had for some hours passed from one convulsion into another with short intervals of complete unconsciousness. The convulsions were violent, but presented no special feature. There was no history of previous attacks of the kind, or of kidney affection, or of other disease. The temperature had gone up to 104°, and my resident, who had seen the good effects of venesection in uræmic convulsions, had already bled the patient to sixteen ounces before I saw him. The pulse, however, instead of being small, long, and hard, was very large, full, soft, and short; it was the

typical full and bounding pulse; the arteries dilated to the utmost, the blood rushing through them in full stream. There were features about the case which led me to anticipate a fatal result; the loss of blood had produced no effect, and as the amount taken, though considerable, was inadequate if any decided impression was to be made on such a case, he was again bled. There was still no apparent result. The temperature continued high, the unconsciousness persisted, the convulsions recurred, and the patient died. Nothing abnormal was found in the brain to account for the convulsions, nor was any morbid condition of importance discovered in any organ.

It was formerly the practice to bleed after severe injuries to the head, especially when symptoms of so-called cerebral irritation came on. I have no doubt there are cases in which it would be of very great service, but it is a matter in which I have no experience. It might seem at first sight that bleeding ought to be a valuable resource in cerebral hæmorrhage; but careful thought would lead to the conclusion that its operation could only be extremely limited, and this is what is found in practice. We should not be so liable now to take the effects of embolism and thrombosis for those of rupture of a vessel, and so do serious harm instead of good; but in a large proportion of cases of cerebral hæmorrhage the mischief is done before the patient comes under observation. In ingravescant apoplexy, however, the oozing of blood appears to continue for some time, and as this form of attack is almost invariably fatal, it would be well worth while to try what bleeding could do. I have seen only one case sufficiently early for such a trial, and in that a vein was opened first in one arm and then in the other, but no blood could be got to flow. Mr. Boon, now of St. Kitts, who was then resident medical officer, actually passed a probe upwards and downwards in one of the veins. We were about to open the jugular, but here we had difficulty in getting the vein to fill, and while we were engaged in the attempt the vomiting, which is one of the symptoms of ingravescant apoplexy, came on and compelled us to desist. The chance of doing good was now over, and the patient gradually became comatose and died. The enormous clot usual in these cases was found just outside the corpus striatum.

While bleeding comes too late when an artery has already burst in the brain, it might often avert such an event, and when the indications of excessive arterial tension have been well mastered, and are distinctly recognized in a patient who presents any of the premonitory symptoms of apoplexy, venesection ought to be fearlessly practiced. Almost every medical man will have seen cases in which epistaxis has at once brought relief from threatened apoplexy, and it is in our power to afford relief equally efficacious.

It is probable that there are other conditions in which bleeding would be of great service; but it is better to proceed with extreme caution in the reintroduction of this practice. There is a strong prejudice against it in the public mind, though not, in my experience, so strong that it will be forbidden when it is recommended by a medical man who has confidence in its power to do good; and this makes it important, in the interest of the medical man, that there should be no doubt as to its beneficial effects whenever it is tried. The great service, again, which venesection is capable of rendering in suitable cases is a weighty reason for desiring that its employment should not be retarded by resort to it in cases where its effects are doubtful. The ground gained should be made sure by experience before further advance is attempted.

Seymour-street, W.

NOTES ON A CASE OF HÆMATO-CHYLURIA.

By JOHN D. HILLIS, F.R.C.S., F.R.M.S.

On March 26th, 1882, a sample of urine was forwarded to me for examination, together with the following history.

W. E. B—, aged forty-two years, a colored Creole of Demerara, stout and florid, has been for the past two years suffering from intermittent hæmato-chyluria, previously to which he had always been a healthy man. The patient is not losing flesh, but complains of an aching pain in his loins. Normal quantity of urine is secreted daily; skin acting well; pulse and temperature normal. On cooling, the urine is said to become like blanc-mange. The specimen of urine was of the color of port-wine; reaction neutral; specific gravity 1025, and contained a quantity of albumen. Examined microscopically, the field was covered with well-defined red blood-corpuscles, the urine also contained vesical mucus and some crystals of triple phosphate. It was late in the evening and only a cursory examination could be made. On March 30th I examined another specimen which contained a quantity of fatty granules, crystals of triple phosphate, a few chyle, but no blood-corpuscles; and there were a few cells of bladder epithelium, but no flariæ could be discovered after a very careful examination. On April 5th another specimen of W. E. B—'s urine was examined with $\frac{3}{4}$ and $\frac{1}{2}$ objectives. There were fewer red corpuscles, but an adult flaria sanguinis hominis was discovered on the second slide examined. I advised the patient being placed on decoction of rhizophora racemosa, which I have found most useful in cases of chylous urine. Under this treatment the patient considerably improved, the blood has entirely disappeared, and the urine does not coagulate on cooling. He states that "occasionally his back aches, and then his water becomes a little cloudy." I have had no further opportunity of examining either blood or urine, as he lives in a neighboring county; but I can strongly recommend the mangrove bark in these cases.

British Guiana.

A CASE OF RECOVERY AFTER A BROKEN NECK.

By C. JORDISON, M.R.C.S.

On Oct. 26th, 1881, Mr. C. S. P—, aged thirty-eight, when out cub-hunting, was riding at a canter over a fence under the arm of an oak tree, when his horse jumped much higher than he expected, and the back of his neck came in violent contact with the concave surface of the branch. Mr. P— was leaning very forward over his horse's neck, and as the horse jumped almost perpendicularly upwards, the force of the blow was forwards and downwards. He was knocked off his horse, and lost consciousness for about two minutes. As soon as he could speak, he complained of intense pain up and down the neck and in his arms and legs. In less than ten minutes I was with him, when his first words were. "I am done for; my arms are paralyzed, and the paralysis is extending over my body and into my legs." I noticed the respiration was normal. We carried him on a gate to the nearest farmhouse, where, after examination, I came to the conclusion that there were fractures of the laminae of the fifth and sixth cervical vertebrae. At this time there was complete paralysis both of motion and sensation of the left upper extremity, and almost so, though to a less extent, of the right; impaired mobility of the left

leg, the right being unaffected, and a sense of tingling and numbness over the whole body; there was perfect consciousness, and great pain in the neck and shoulders. He was laid upon a hard and perfectly flat mattress, with the head on a level with the shoulders, and this was kept immovable by sandbags. On the following day Mr. Bickersteth, of Liverpool, saw the patient with me. He concurred with my diagnosis, and we agreed that the paralysis was from injury to the roots of the fifth and sixth spinal nerves, and that the numbness of the body and partial paralysis of the left leg were due to extravasated blood outside the sheath of the cord. There was of course paralysis of the bladder, and for a few days slight difficulty in swallowing. The temperature never rose above 101.4°. There was for a few days slight delirium and occasionally very great flushes, the whole head, neck, and face becoming of a deep-red color, and this was always succeeded by great restlessness and irritability. By the third day he had entirely recovered motion in the left leg, and there was only slight tingling as far as the knee.

The treatment was absolute rest, but on the ninth day it was essentially necessary to change the bed linen, etc.; and whilst this was being done crepitus was distinctly felt by the trained nurse, and heard by my assistant and myself. After this time the head was not moved again for many weeks. By the fourteenth day he had much greater power in the right arm, and he could just raise the left, but could hold nothing between the fingers; there were still numbness and tingling over nearly the whole body, also paralysis of bladder and spincter ani. Perfect power of motion in both legs. Temperature 98.2°, pulse 99, respiration natural. There was a large amount of extravasated blood under the skin as far as could be seen down the neck, and extending from the spine to the left shoulder-point. After this time the paralysis of the arms became gradually worse, until at the end of the fourth week there was then complete loss of power of motion over the left arm and hand, accompanied with intense hyperæsthesia; almost complete paralysis of the right arm and hand, but less hyperæsthesia. On the left side there was complete atrophy of the hand, arm, and shoulder, the two pectorals being the first to waste away; on the right side there was also some atrophy, but to a less extent.

This condition of utter helplessness continued without material change for about a week, when the power of emptying the bladder and of making an effort at defecation began very gradually to return, and slowly the power of moving the right arm was recovered so that by the eighth week he could hold an envelope or toothpick, but could not support a light book or even a newspaper. By the end of the eleventh week he could do as much with the left arm, the hyperæsthesia was gradually subsiding, but all the joints of the left arm and hand were very stiff and gave us much trouble. At this time he could slightly raise the head from the mattress and could rotate it freely. At the end of the thirteenth week I had my patient carried a distance of four miles on a stretcher to his own house, after which he began to make rapid strides towards recovery, and as the callus from around the fractured ends of the bones was absorbed, and the muscles again received their nerve supply, so he gradually recovered normal sensation in both arms and over the trunk and less rapidly the power of motion. At the end of the sixteenth week he was up and walking about; there was decided prominence over the seat of the injury, and the head was unnaturally tilted forward, but only to a slight extent, so slight that it would not be noticed by anyone who had not known Mr. P—

before the accident. The sensation and motion in the right arm were perfect, the sensation in the left nearly so, but there still existed great weakness, although there was no perceptible or measurable difference in the size of the two arms, the muscles having become developed more rapidly than they atrophied. At the end of the twenty-fifth week my patient was riding, driving, rowing, and swimming, having gone to Margate (by the advice of Mr. T. Bryant, who saw him about this time), and with the exception of a slight weakness in the left arm was perfectly well and strong.

Remarks.—I think undoubtedly we had here an injury to the spinal nerves by the broken fragments of the injured vertebrae, as the paralysis, numbness, etc., were instantaneous. The paralysis of the left leg came on after a few minutes, and was probably due to blood extravasated outside the sheath of the cord. I think the extreme paralysis about the fourth and fifth weeks was due to callus thrown out around the end of the broken fragments pressing upon the nerves as they emerge through their canals, and as this callus became absorbed so the power of motion, the sensation and the growth of the muscles were gradually recovered, and the now continuing weakness I attribute to there having been some slight laceration of the sheath of the nerve as it emerges from its canal, and the resulting thickening pressing upon and destroying some of the nerve fibres. I attribute the unusual and happy result primarily to there having been no interference with the respiratory tract, the injury having occurred just below the point of origin of the phrenic nerve, which possibly, in this case, did not receive a communicating branch from the fifth cervical; and, secondarily, to the great muscular development of my patient enabling him to withstand the ill effects of long-continued pressure without the usual consequences, and to the fact that although the spine was broken the spinal cord was not injured.

Malpas.

NOTES ON A CASE OF PRURIGO FEROX; TREATMENT AND RECOVERY.

By Surgeon SHIRLEY DEAKIN, F.R.C.S., Eng.,

Officiating Junior Civil Surgeon, Allahabad.

As cases of Hebra's prurigo, fortunately for the unhappy patients, are rare in England, the following notes of a case successfully treated may be of interest. Dr. Tilbury Fox states in the last edition of his valuable work on "Skin Diseases," p. 156, that he had only met with one case. The case under observation presented little in common with cases of Scabies ferox, or Malabar itch, which are fully described in Drs. Fox and Farquhar's "Skin and other Diseases of India and Hot Climates," pp. 65 and 267.

Constable N—, aged fifty-two, a Punjab Mussulman, was admitted to the Police Hospital on Oct. 26th, 1878, suffering from severe itching of the skin of the whole surface of the body, excepting the palms of the hands and the soles of the feet; the back of the hands and the front of the feet, however, being especially troublesome.

Previous history.—Has suffered much from periodic (so-called "malarial") fever in past years. States that twenty-two years ago, at Peshawar, the eating of *bhara*, a kind of sheep, used to give him fever constantly. He denies a syphilitic history.

Present history.—Six months since he first noticed a severe itching between the shoulders, and presented himself at the hospital a month later on. Then he had much heat in the skin, and perspired freely during the night. When I saw him first the

skin was but slightly thickened. Both lenses exhibited an advanced cataractous appearance, a condition very common at his age among natives of India. Bowels regular; tongue clean and firm; passes his urine slowly, but his febrile condition prohibited any attempt at exploring the urethra. He has a reducible right inguinal hernia, and there is a small swelling over the site of the left internal ring.

Present state.—The whole of the skin, excepting that over the scalp, chin, armpits, groins, and hernial sac, is much infiltrated and thickened. When uncovered the patient shivers greatly. He is terribly tormented with a constant itching, and scratches at his skin in a most distressing manner. His beard has fallen out, and the hair on his chest, which was abundant, has also disappeared, likewise the hair from the scalp; the moustache is firm. There were numerous slight abrasions all over the skin, caused by his nails; these rendered it difficult to decide whether the patient suffered from phthiriasis or not; repeated examination, however, did not reveal any parasite.

Treatment was first commenced with three hot air baths with sulphur, quinine and iron being given internally; and weak carbolio oil, one in forty, freely applied over the skin. Subsequently he took five minims of solution of arsenic three times a day, and applied sulphur ointment, and then linseed oil only. Potassium iodide in fifteen-grain doses twice a day, first alone, and afterwards with the addition of one-sixteenth of a grain of chloride of mercury, produced no effect; and on December 15th, after six weeks' treatment, he was sent to his home in the Punjab on two months' sick leave no better. He was readmitted to hospital on February 20th, 1879, on return from sick leave, no better for the change. His state is thus noted: skin much thickened, as before described, and though he is fairly nourished, he is much troubled by the itching. Ordered fifteen grains of powdered ergot twice a day. To have an alkaline bath: three ounces of bicarbonate of potash, two ounces of bicarbonate of soda, one ounce of borax, and one pound of bran, in thirty gallons of water. To use as a lotion: one drachm of hydrocyanic acid, two drachms of borax, one fluid ounce of solution of acetate of ammonia, in eight ounces of water. During his stay in hospital he had four baths as above, and took ergot for more than one month. He applied the lotion, using a bottle in eight days. Subsequently he took five minims of solution of arsenic three times a day. Small lumps appeared on the skin somewhat resembling mosquito bites, only often they were much larger, measuring an inch across. They were hard, raised and redder in color than the surrounding skin. Each remained for half an hour or so, and then died away. When at his worst, some fifty or sixty such tubercles appeared daily.

Under treatment his condition greatly improved, the thickening of the skin disappeared to a large extent, the inner surfaces of the thighs remaining the worst. On the 24th of June he was convalescent and discharged to duty, doing his duty well until, on the 5th of October, 1879, he came up for examination previous to his discharge on pension. His state was then as follows:—Infiltration has disappeared from the skin of the face, and the face, consequently, looks much smaller; he has lost the peculiar smile, which recalled the risus sardonius to one's mind, and which was due to excessive thickening in the region of the zygomatic and risorius muscles, and about the eyebrows. His beard has grown again thick and long; it is four inches in length, and the hair is quite black, as is also the hair on his chest, which has grown again luxuriantly. Before his illness the hair was nearly

white. The hair on his head and in his moustache is now abundant, and of a dark-grey color. He has not taken any medicine since he left hospital. Shortly after his discharge from hospital he came to the native doctor, Hospital Assistant Ram Lal Das, and asked him whether he had been given arsenic in hospital. His reason for doing so was that his friends had attributed the change in the color of his hair to the administration of arsenic. It appears that the effect of arsenic in causing hair to become black is well known to natives. I have consulted Neale's Digest, Ringer, Fox, and Bartholow, but cannot find any reference to this therapeutical effect of arsenic. There is still some slight itchininess of skin on the inner sides of the thighs, and slight thickening on the inner sides of the forearms. He is now free from the troublesome perspiration. The gums are slightly spongy; a scorbutic tendency, however, is generally prevalent among the poorer natives, owing to the scarcity of vegetables and high price of food stuffs now current in this district. The man is well satisfied with his changed condition. When first treated, Dover's powder, belladonna, and ether were given to check the perspiration, but without effect. Ether, for suggesting the use of which in checking perspiration I am indebted to Dr. Balthazar Foster, has generally been in my hands most successful in doses of from ten to twenty minims of spirits of ether. It, however, is very volatile, and any mixture containing it should be dispensed daily and kept in a glass-stoppered bottle.

Allahabad.

THE MICROSCOPE IN DIARRHOEA.

By KENNETH W. MILLIGAN, B.A. Cantab.

THE use of the microscope as a common aid to diagnosis and treatment must inevitably take a prominent place in the future; and the demonstration of the bacillus tuberculosis by Koch, and the subsequent and progressive simplification of the process by Ehrlich, Baumgarten, and Heneage Gibbes, show how indispensable this instrument will become in the not far distant future to the practitioner of medicine. A series of cases of diarrhoea have recently occurred in this district in which certain features of interest were observed. The patients were all attacked when a few days of very hot weather had been followed by considerable rain. A sort of period of incubation occurred, during which the patients were depressed and out of sorts, and this was followed by a prostrating attack of diarrhoea. The stools were fluid, not unlike those of typhoid fever, and contained in every instance, small gelatinous or albuminous lumps like half-cooked white of egg. The odor was extremely offensive. Beyond the prostration, however, and general gastric disturbance, with excessive flatulent distension and pain, there were no constitutional symptoms. In no case was there any marked rise of temperature, nor was the pulse greatly affected.

Having several cases at the same time under unsuccessful treatment by astringents, powdered aromatic chalk with opium, etc., I submitted the evacuations to microscopical examination. This showed them to be swarming with bacteria, and the indication for treatment drawn from the examination was carried out by the exhibition of one grain and a half of carbolic acid in compound tincture of cardamoms and peppermint water every four hours. The later cases were treated by the exhibition of five minims of terebene in mucilage every three hours. This treatment proved in the

highest degree satisfactory, for the unpleasant symptoms were speedily and effectually checked.

The method of examination for bacteria which I have found successful is very simple. The stain used is a solution in distilled water of "navy blue," one of Tomlinson's aniline dyes. I have generally used it of a deep-blue color, but not of any particular strength. A lump of the gelatinous matter before referred to is well smeared over the surface of the cover glass and allowed to dry. The cover glass is then floated on the dye for five or ten minutes, at the end of which time it will be found well stained. It is then washed in dilute nitric acid (1 to 3) and finally in distilled water. The cover slip is then allowed to dry, which may be aided by gentle warmth from a spirit lamp, and mounted in Canada balsam. Evaporation is a better method of extracting the water previous to mounting than immersion in alcohol, for I have found the alcohol to obscure the lustre of the aniline dyes. If preferred after the washing, the cover slip may be floated on a solution of aniline brown, made from another of Tomlinson's dyes in a similar manner. These dyes are excellent in microscopic staining, and are moreover cheap, and easily made as required. The most useful appear to be magenta, navy blue, and Bismarck brown. The violet has not proved so successful in my hands. The bacteria so observed consisted of small refractive granules (micrococci?); short, fine rods (bacilli); long, fine-pointed rods; and curled, twisted ones. There were also mycelium-rods, frequently stretching right across the slide. All these were well seen with $\frac{1}{2}$ in. object-glass, and even with $\frac{1}{4}$ in. It is of course to be noted that the evacuations should be obtained as fresh as possible for examination. I directed terebene to be at once placed in those that were put aside for me, and they were then well covered up.

Aitken speaks¹ of "the presence of a bacteria development in the stomach and intestines, under the name of *mycosis intestinalis*." The class of cases, however, to which he refers, appear to be of a much more serious character than my own, and are said to occur "suddenly during apparently robust health, quickly followed by lividity of hands and face, collapse and death in from two to six days."

Kington, Warwick.

COMPOSITION, RESOLUTION, AND ABEYANCE OF SECONDARY PERCEPTIONS.

By Brigade Surgeon T. OUGHTON,

Army Medical Department.

DIRECTIVE phenomena are affected by muscles influencing one another, as well as by the mechanical arrangement of their constituent fibres. Such was a cursory rejoinder to a hypothetical objection to the motor diathesis of the secondary perceptions on the ground of the multifarious and incongruous distribution of the fibres of certain muscles—the pectoralis major, pennisiform muscles, etc. It is a rejoinder meriting critical examination, since the problem of secondary perceptual currents being conducted centripetally from a voluntary muscle during its vital contraction must be incompletely verified, if not quashed, without its due acceptance. Taking it, then, as a text for the present remarks, I trust that abundant evidence will be forthcoming in its support, which will also have a practical bearing on the further proof of the problem in question.

Composition.—A very good and simple illustration

¹ Science and Practice of Medicine, seventh edition, vol. ii. p. 88a.

of this nervous process is afforded by the following observation:—"The left eye may perceive an object eight degrees to the right of the main line of direction, and the right eye four degrees; but binocular vision will give it its correct value of six degrees by virtue of muscular co-operation and the agency of a directive composition." It is an absolute essential for the dynamic composition of secondary sensorial forces that the muscular fibres engaged in the operation be consensual—that is, pull in the same direction more or less. 1. Note the parallelism of the elementary fibres of a voluntary muscle in contrast to their intricate interlacings in an involuntary and non-directive muscle. They would doubtless have been perfectly parallel were it not for the convenience in packing, admirably shown by Paley, arising from thin tendinous sheets and delicate cords. Composition renders perfect parallelism unnecessary, however; the fibres agree in their general direction, and the muscle's contraction generates a single directive resultant. 2. Observe how the numerous muscles of a set (flexors on the forearm) operate sensorially as one muscle would do when unified in one particular action (flexing the hand). Many muscles are indispensable for the attainment of various distinct ends, but muscular consent originates a directive unification where it would be useful. 3. The phenomenon of single vision has been interpreted by a consensual theory; the external rectus of one eye pulls in the same direction as the internal rectus of the other eye, thereby initiating a directive composition. There is a strict analogy between this case and that of a single muscle or set of muscles. Hence an objection to the motor diathesis of the secondary perceptions, on the ground of the extremely irregular form (pectoralis major), or distribution of the elementary fibres (penniform) of certain voluntary muscles is a weak one. Should it be sought what single directive message any muscle (penniform or otherwise) transmits to consciousness, it will be necessary merely to note the relative positions of its osseous attachments, and the direction towards which the movable segment is turned by its shortening, so that the directive message is determined by the mechanical conditions of a muscle's origin and insertion. But, mark here, nothing will be more natural than to conclude that this result could not obtain excepting the relative positions of osseous origin and insertion are known by a sort of inner consciousness; the superior rectus, for instance, rotates the ocular globe upwards, it may be concluded that the resulting upward idea has no *points d'appui* for its realization in the absence of a recognition of the sites of origin and insertion of the muscle by a latent process of consciousness. I regard such a conclusion as erroneous, inasmuch as latent or inscrutable consciousness is incomprehensible; the directive message, although due to mechanical conditions, has no further reference to them, referring only to any sentient point or points that may be impressed *ab externo*. Thus, the biceps has a sensorial reference to any impressed sensitive point either on the hand or the forearm, and not to its bony attachments; again, the muscles rotating the body or the head may have a directive inference to an impressed retinal point. From a very simple starting-point we now find ourselves at the complex borderland where the Ego and the Non-ego meet; there is the natural cohesion of the insensate tendinous and bony origins and insertions (the Non-ego) in juxtaposition with and holding relation to an independent agency—namely, the vitalized cohesion of muscular contraction (one mainspring of the Ego). Nothing remains for us apparently but to contemplate these two stupendous forces standing thus face to face; a fair simile

of the position is to be found in a pair of horses drawing a tram-car round a corner, the animals being guided as it were by the *vis a tergo* of the heavy tram with its mechanical adjustments.

Resolution.—It is an almost axiomatic observation, where one finds composition there one may search for resolution; and it would seem that the latter process is in operation to produce the visible directions of the peripheral portions of the retina. Before entertaining this subject, however, let us consider the direct proofs that visible direction is a motor physiology in the following condensed argument:—

1st. Peripheral retinal points are equally sensitive with the axial point, noticeable in the observation of minute stars; therefore, on the theory that the special nerve of sight is a directive agency, the centre of visible direction will correspond with the centre of the retinal concavity (ocular centre). Sir David Brewster has promulgated this view.

2nd. Prof. Volkmann and Dr. Griffin have shown, each by an independent investigation, that the centre of visible direction is situated at a point considerably anterior to the centre of the retinal concavity; therefore visible direction is not effected by the retina.

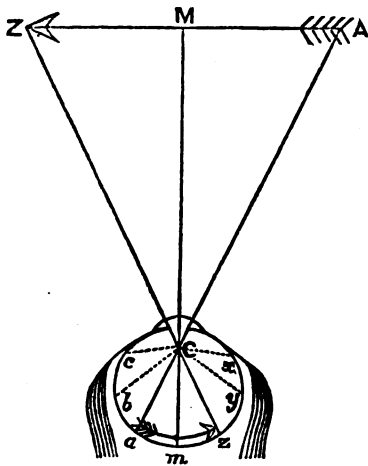
3rd. Every object before the single eye, whether median or lateral, is seen accurately in position; therefore the centre of visible direction coincides with the eye's optical centre. The latter is at a point in the crystalline lens near its posterior border—that is, anterior to the centre of the retinal concavity.

4th. Every object appears to be fixed during the rolling of the eyeball (Brewster); therefore the optical centre and the centre of visible direction both coincide with the centre of rotation of the eyeball. Hence (*nisi prius*) visible direction results from the motion of the eye—i.e., its muscular apparatus.

Reference being now made to the following figure, *c* being the optical centre, the straight line, *m m*, will represent the median and main line of monocular visible direction. This line is regarded as being originated by the recti pulling the eyeball evenly backwards by their normal tonicity. Muscular tonicity, according to this view, is a directive agent as well as volitional contraction, and the opinion is corroborated by the directive phenomena resulting from the erect position of the body and the head, both postures being referable to tonicity. The balance of the recti is destroyed when the eye is directed laterally. If the eyeball be turned towards the right, the rectus so rotating it is in a more active state of tension than its fellows, and consequently the axial point, *m*, will now perceive the image depicted on it along a line of direction inclining to the right. But the lateral points *a*, *b*, *z*, or *y* are each equally affected by the greater tension of a given rectus, as is point *m*. How is it that the images impressing these points are not perceived along a line of direction that is parallel to, or identical with, that of the image on the point *m*? Herein consists the paradoxical problem of visible direction. I hold that the main direction *m c*, is resolved into the oblique visible directions *a c*, *b c*, *z c*, *y c*, etc.

Such resolutions appear to be warranted when we consider the instability of peripheral retinal points as compared with the stability of the axial point, and that said stability is progressively greater in the direct ratio of the distance of any peripheral point from the axis. Assuming the eye to be looking forwards, it will be manifest that the backward pull of the entire recti operating on the axial point, *m*, would draw the eyeball backwards, whilst if operating on any oblique point, *a* or *z*, it would tend to rotate the eyeball. Again, the mo-

bility of this rotatory influence will be greater as exerted on point *b* than on point *a*, on point *c* than on point *b*, and so on. Further, the tendency of the muscular action to pull the eyeball backwards, will be inversely as the tendency towards its rotation; hence the forward direction, *m c*, originating with the backward pull, will be modified accordingly. A visible direction corresponding to any oblique point, *a* or *z*, will not originate such a forward idea as the point *m*—that is, it will be inclined to right or left in addition to forwards; neither will a visible direction corresponding to points *b* or *y* originate such a forward



idea as the less oblique points *a* or *z*—that is, it will be more inclined towards the right or left. Thus the causation of the progressive scattering of visible directions from retinal centre to circumference, as with other directions, is determined by a mechanical condition (the globular shape of the eyeball). The backward pull (the forward idea) will be very slight at the peripheral points *c* and *z*, but it is still there; in other words, the main direction *m c*, is resolved into the dotted lines indicated in the diagram.

In what manner the site of the centre of visible direction is fixed at a point *c*, correspondent with the eye's centre of motion, is a less abstruse inquiry. That the progressive scattering of visible directions must cause them to intersect at a common point eventually, will be evident on considering that the directions are different on either side of the median line *m c*, and that the eyeball is globular. Why, then, at point *c*, or how are the visual angles, *m c a*, *a c b*, etc., generated? Confining our attention to the images *m* and *a* of the objective entities, *m* and *a* with visual angle *m c a*:—(1) Retinal points are impressed by light for one-eighth of a second. (2) The glances of the eye must be considerably more rapid than this, since even the movements of the hand are more rapid; an ignited piece of charcoal revolved in the hand deceives the retina by producing the semblance of a fiery circle. (3) Therefore, in directing the eye rapidly from object *m* to object *a*, the retinal points *m* and *a* will be impressed by the images of these objects simultaneously for a definite period. (4) Therefore the visual angle *m c a* will be identified by perception, and this angle will be formed at point *c*, the eye's centre of motion. (5) Therefore every single visible direction into which the main visible direction is resolved will have a fixed value for a certain retinal point; thus, *a c* for the lateral point *a*. Let it be understood that muscular traction reacting on the

mechanical sphericity of the retina generates visible resolution, whilst ocular rotation effects monocular visible direction.

Other phenomena that are probably determined by directive resolution may be briefly alluded to: I refer to the visible area correspondent to the punctum caecum, and to the resolution of main tactile directions correspondent to the manifold sentient points on the skin's surface. The latter forms a fit subject for reflection and analytical investigation.

Abeysance.—There are two varieties of this process—viz., the subordinate and the insubordinate. The directive and positional perceptions of the sense of touch are subordinated to those of vision, as indicated in the following original experiment: Holding the thumb and forefinger midway between and a few inches before the eyes, let them be rubbed together. Looking now with both eyes at a remote and median position, two spectral thumbs and forefingers will be seen, and with these singular results: When the optical axes (still divergent) are inclined to the right side, the forefinger will feel the thumb at the site of the right spectrum; on inclining the axes leftwards, the thumb will be localized on the left side. The same tactile *abeysance* may be proved by studying one's face in a distorting mirror; however much the forehead is seen to recede abnormally, its parts will be accurately felt by the fingers just wheresoever they may be seen. Brewster's well-known experiment with the cane-chair,¹ in which the octagonal perforations of the seat are felt in a different position to which they are seen, does not invalidate the above statement; this is apparently an example of single vision, but really one of double vision with a sensorial antagonism operating between the ocular muscles. Is it possible that a tactile positional perception can be in *abeysance* to visual positional perceptions that are at variance so as to neutralize each other? Certainly not; in such an event, as a result of the first experiment, the thumb would be felt by the forefinger at the sites of both the visible spectra simultaneously.

Another example may be instanced in viewing objects behind by bending the body forwards and looking between the legs; the superior rectus now localizes objects below and the inferior rectus above, because these muscles are in *abeysance* to those bending the trunk. Muscular *abeysance* exhibits many manifestations in the upper extremity, concerning which it may be said generally that a given distal segment is subordinated to any given proximal segment—the fingers to the hand, the fingers or hand to the forearm, and this to movements of the arm. The index finger indicates direction or position only through the *abeysance* of the indicator muscle to wrist, elbow, or shoulder movements, which clearly modify its indications. Analogously taking a natural skeleton of the upper extremity, the phalanges may be moved independently of the metacarpal bones, but not *vice versa*; and the carpus may be moved independently of the humerus, but not *vice versa*. Hence a practical illustration is afforded of a statement made elsewhere that "the muscular organism of the secondary perceptions is correlated to the mechanical forces of nature in like manner as that of the primary perceptions is correlated to the sense essences of nature;" other facts endorsing the same doctrine are contained in the present thesis.

A single instance of insubordinate muscular *abeysance* must suffice—namely, it is the usual province of the right external rectus to give rise to a rightward perception; but, rotating the face over

¹ Brewster on the Stereoscope, p. 95, 1856.

the right shoulder, the resultant perception of this muscle is a backward one. In this experiment the rectus is not in abeyance to the rotatory muscles of head, but it co-operates with them, whilst remaining *per se* an efficient factor throughout. The result is due to an absence of inconsistency or antagonism between rightward and backward directive perceptions. A mechanical equivalent of the process is afforded by two rulers that are fixed end to end at right angles, and that rotate on the free extremity of one of the rulers as on a centre.

Derby-villas, Forest-hill, S.E.

A SIMPLIFIED EVACUATOR FOR LITHOLAPAXY.

By HENRY J. BIGELOW, M.D.,

Surgeon to the Massachusetts General Hospital, Emeritus Professor of Surgery in Harvard University.

THE operation for the immediate removal of a calculus through a catheter, like many other surgical operations, can be accomplished more or less satisfactorily by any one of several instruments which much resemble each other. But it can be done better by employing a more perfect apparatus than those now generally in use. It has been said that "no new form of instrument is required by this operation," which is true so far as it implies that neither a lithotrite nor an evacuator is a new instrument. But it would be a mistake to infer that the operation could have been done with the instruments of the old lithotrity, and that they had needed no change to adapt them to what is now required of them, or that they cannot be still further modified to advantage. The new operation cannot be performed with the old instruments. It requires a larger evacuating catheter than that of Clover, through which the usual product of the lithotrite could not pass, except powder and sand, and that only in limited quantities, because the other detritus obstructed the entrance of the tube.¹ Though at first received with a good deal of distrust, the large catheter has been finally adopted by all the surgeons who have done the operation, and in fact cannot be dispensed with. It should be combined with a thoroughly efficient aspirator; but no particular form of aspirator has so far met with general approval. Though better than it was, surgeons have none as yet which entirely satisfies all requirements of the operation, and is at the same time compact and convenient to handle, and simple in construction. This part of the evacuator still needs improvement.

¹ Sir Henry Thompson says (*Diseases of the Urinary Organs*; Philadelphia and London, 1882), "The evacuating catheter to be attached to the aspirator should be as large as the urethra will admit; usually No. 15 or 16 of the English scale [26 to 28½ French] may be used without any danger. Sometimes No. 17 or 18 [30 and 31 French] are admissible; but such sizes are quite unnecessary for small stones, and may produce mischief; hence they are only to be used where the presence of a large stone demands corresponding instruments." Or, it might be added, to expedite the operation, when the urethra is large and healthy. The size of the normal urethra, according to Otis, is, if we except the meatus, 32 of the French scale. Clover's evacuating catheter was 21. Those now in use range from 26 to 31. Care, however, and often special skill, may be required to introduce safely the largest sizes; 31 is very rarely needed, and the French sizes 28 and 29 are generally the most convenient. For a final washing or sounding without anesthesia when it is desirable to give the patient the least discomfort, even so small a calibre as 26 is sometimes useful. Through a catheter of this calibre Mr. Teevan has removed calculi weighing six or eight hundred grains; but such cases should be regarded as showing what is possible, rather than as establishing a rule of practice. Here I may add that although no lithotrite compares in size with the larger tubes, it is yet true that long-bladed lithotrites, especially if they have the sharp extremity of the old instruments, are more difficult than tubes to introduce with safety. Although since 1878 my lithotrites have been made in three sizes, I have rarely had occasion to employ any other than the middle size.

The usual parts of an evacuator, not including the catheter, are these:—

1. The exhaust, the best form of which is an elastic bulb.

2. A space or trap for air at the upper part of the instrument.

3. A glass receiver at the lower part, to collect and show the débris.

In drawing out fragments from the bladder through the large catheter, one bulb or aspirator, if strong enough, is about as efficient as another. An aspirator of almost any shape, and having almost any combination of its parts, will do this. So will a mere elastic bulb attached directly to the catheter, without joints or receiver, if it is placed lower than the catheter, bent down like the body of a retort, so that the fragments can fall to the bottom of it; and the instrument will still work well if it has joints made, for economy, of cork or rubber instead of metal. But, however otherwise arranged, a satisfactory aspirator should have—

4. Some device, near the catheter, to act as a trap for débris and secure every fragment that has passed it.

The chief difference among evacuators now is in the certainty with which they retain the fragments they have aspirated. Any instrument will draw out the fragments, but few hold them securely, for the débris do not always fall into the glass receiver, nor do they always remain in it. On the contrary, they are easily carried back to the bladder. This defect in the action of the evacuator has received little attention from surgeons, although it is the only point connected with the instrument which offers any difficulty whatever. Until recently it has been remedied only by sacrificing simplicity in the apparatus.

In endeavoring to make a satisfactory evacuator for litholapaxy, many experiments have to be tried. It is quite possible that a perfectly satisfactory instrument might have been contrived some time ago if it had been generally understood that an evacuator that works best with pieces of broken coal in a vessel of water will succeed best with the fragments in the bladder.² So also will the surgeon if he is otherwise well qualified. It is true that the living tissues are easily injured, but in other respects the experiment can be made sufficiently like the operation to give it great value. Aspirating débris from the bladder is not a question of pathology, but of operative surgery; of physics. And in view of the fact that we fail in some bladders to discover a last fragment even by repeated washing, an evacuator should be so constructed that it will absolutely prevent a fragment that has once passed the catheter from returning to the bladder to become the nucleus of another calculus.

It is not altogether easy to meet this requirement, because the solid particles are usually borne back and forth with the current of water. In a common evacuator, they are carried wherever it goes, first from the bladder to the bulb, and then, when it is reversed, back to the bladder, a part only falling into the receiver at each aspiration. As we may fairly assume that a surgeon would not deliberately inject foreign bodies into a patient's bladder, there must be something wrong in a system which obliges him to do this, and makes it necessary to aspirate the same débris twenty times over in order to remove it. In short the apparatus as commonly arranged is still a defective one, and needs some special contrivance to assist the action of gravity in securing the débris.

Surgeons have long felt this. The use of a long

² The specific gravity of hard coal is 1.575, that of a urate calculus is 1.540, and of a mulberry calculus 1.262.

elastic tube connected with the catheter has been more than once criticised, and with some reason, on the ground that it might contain fragments which would be returned to the bladder. And again, in order to shorten by an inch the route from the bladder, a less convenient stopcock has been substituted for the usual one. But lithotritists should be fully aware of the fact that whether there is an elastic tube or not, a tenfold greater quantity of fragments is generally driven back out of the bulb itself, and that the difficulty lies almost wholly in that part of the instrument. At each expansion débris are drawn from the bladder into the bulb, where they are detained until, when it is compressed, they are injected back into the bladder. Only a part of them, sometimes only the larger half, the quantity varying in different instruments, settle into the glass receiver. This important fact, so little recognized, should not be accepted without demonstration.

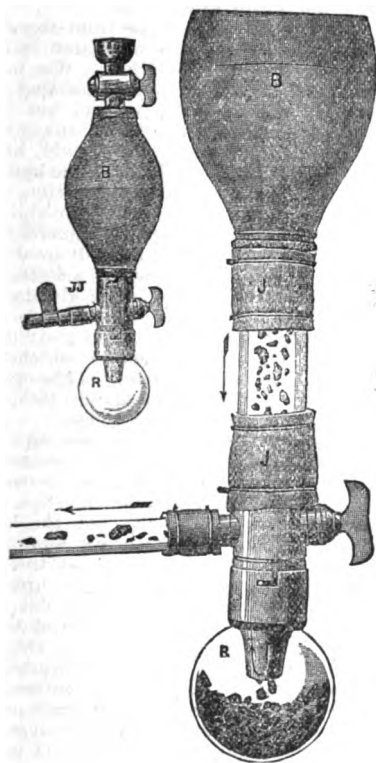


Fig. 1.

B, Bulb. R, Receiver. J J, A joint.—These two figures, representing the same instrument, are intended to illustrate the fact that all evacuators return fragments to the bladder unless provided with some especial arrangement to retain them. The joint J J of the smaller figure is opened in the larger figure to receive a glass tube. Through this fragments are seen as they are drawn into the bulb and expelled from it. The glass evacuating catheter shows them again, on their way to and from the bladder. The receiver R shows other fragments in the act of being lifted by the current and returned to the bladder.

An instrument which Sir Henry Thompson has lately abandoned (Fig. 1) can be made to demonstrate exactly how the currents act upon the fragments in an evacuator which is unprovided with a catheter-trap to prevent them from re-entering the catheter. It is here selected because the peculiar form of this instrument makes it easy to fit a glass tube to it, so that we can see what takes place in the interior. Let a piece of glass tube, an inch in

diameter, be inserted at the joint J J, between the bulb B and the catheter, to show what passes with the current from one to the other in either direction. If the end of the catheter be now placed in a suitable vessel of water containing fragments of coal of different sizes, while the bulb is alternately compressed and allowed to dilate, a continued stream of fragments will be seen rising from the vessel into the bulb, and then returning to the vessel, as they inevitably do to the bladder. The back-flow of débris can be still better watched if a glass tube be also substituted for the catheter, as in the figure.

But there is another important fact illustrated by this instrument. Fragments do not always stay in a receiver after they have been deposited there. When the glass receiver R of this evacuator is half filled with fragments, a part of these are easily carried back into the bladder or into the vessel. They are first lifted up from the receiver into the bulb, and then driven out through the catheter. For though the orifice of this glass receiver is small and protected by a special trap, the current and débris pass out of it as well as into it. It could not have been foreseen that fragments would escape from a receptacle apparently so well arranged. But it will be found that in any instrument, if the bulb or catheter directs the current into the glass receiver, whether directly or obliquely, fragments are easily carried out again.

And the general result is little better if, to avoid stirring the fragments which lie in the receiver, the current is directed horizontally over the mouth of it instead of into it. Some of them pass directly back and forth between the bladder and the bulb, over the receiver without falling into it. This defect can be shown in an instrument recently employed by Sir Henry at the suggestion of Weiss & Co., where the stream from the catheter passes horizontally through an empty chamber on its way to the bulb. As the stream enters it, its velocity is so diminished that fragments fall to the bottom into the receiver in greater number when the bulb is weak. Many fragments as usual are secured. But in order to be wholly effectual, the chamber intended to retard and break up the current by its size would have to be inconveniently large to give time to the floating débris entering on one side to settle into the receiver without passing further. The principle here involved is quite different from that of the evacuator represented in the above figure. This instrument is not unlike one formerly figured in *THE LANCET*, but the valve and strainer which there act as a trap have been omitted, and, in consequence, not a few fragments escape back to the bladder.

In Weiss's evacuator again, some of the fragments which enter the bulb gather in the bottom of it, which is lower than its outlet, and where there is no receiver to collect them. The chief difficulty, however, is not that these fragments stray into the bulb, but that for want of a trap they are afterwards liable to escape out of it to the bladder.

This difficulty is not wholly obviated by placing a strainer across the mouth of the bulb to prevent the fragments from entering it, as has been done in some other evacuators.

(To be Concluded.)

—A TOMBSTONE has, we are informed, been placed in Walmer churchyard over the grave of the late Fleet Surgeon William Anderson, by subscription amongst the officers of the Royal Navy and Royal Marines.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas
et morborum et dissectionum historias, tum aliorum tum proprias
collectas habere, et inter se comparare.—MORGAGNI *De Sed. et
Caus. Morb.*, lib. iv. Procerum.

ST. GEORGE'S HOSPITAL.

SARCOMA OF THE FEMUR; AMPUTATION AT THE HIP-
JOINT; RECOVERY; NO RETURN OF THE DISEASE; RE-
MARKS.

(Under the care of Mr. PICK.)

The following case is interesting, not so much on account of the rarity of the disease, as from the fact that amputation of the hip-joint was performed for sarcoma of the lower end of the femur five years and a half ago, and the patient has remained well and free from any symptoms of a return of the disease up to the present time.

Mary Anne P—, aged nineteen, was admitted into Princess ward on Jan. 10th, 1877. Her history was as follows:—Her parents were both alive and healthy. She had three brothers and three sisters, all living and healthy. She stated that she had never been very strong, and had suffered from enlarged glands in the neck when a child. She had had measles in early life, but no other complaint, and had never been troubled with cough. She had been accustomed to live well and work hard. Catamenia had always been regular; no syphilitic history obtainable, and no history of cancer in the family. About four months previous to admission she noticed that the lower part of the right thigh began to swell, more particularly on the outer side. The right knee also swelled. About a month later the thigh and knee began to pain her very much, more especially when pressed upon, and when she moved. The swelling did not interfere with the motions of the knee-joint, and she was able to walk. She does not remember ever having received a blow or injury of any kind. The swelling did not increase rapidly after its first appearance. For some weeks she attended as an out-patient, and was treated with iodide of potassium. At first the treatment appeared to produce some benefit, the swelling got smaller and she gained weight and strength; but for a month previous to her admission the swelling increased rapidly, and she suffered from a dull, aching pain in the part, which was worse at night.

Upon admission she was found to be thin and slightly built, presenting the appearance of a strumous diathesis. There was a large, smooth and nearly uniform swelling situated at the outer side of the lower end of the femur, of the right side, about two inches above the condyle. The swelling was confined to the outer side of the shaft of the bone, on the inner side and at its lower extremity the femur could be felt to be unaffected. The skin was tense and reddened, but freely movable over the tumour, and some enlarged veins could be seen crossing over it. The swelling was hard and somewhat elastic and firmly connected to the bone, from which it could not be moved. Pressure caused pain, but no sensation of crackling or fluctuation could be felt. Now and again she experienced a starting or shooting pain through the limb. Upon placing a stethoscope on the

outer and lower part of the swelling an occasional soft, blowing bruit was audible. The bruit was not constant, and could only be heard at one particular part of the tumour. At this spot, upon making firm pressure, an indistinct feeling of pulsation could be perceived. This pulsation and bruit were felt and heard for the first time on the day after admission, though they had been carefully sought for on several previous occasions. The temperature of the affected limb, especially over the swelling, felt considerably raised above that of the sound limb. There was some enlargement of the glands in the right groin, but the same condition also existed on the left side. The knee-joint was unaffected and could be flexed, extended, and rotated with perfect freedom.

A consultation was held, and it was determined to remove the limb. This was proposed to the patient, but she refused to entertain the proposition and left the hospital. She was lost sight of for a time, but again applied for readmission on March 12th, six or seven weeks from the date of her previous discharge. The alteration in her appearance was now most marked. She had lost flesh considerably and was much emaciated. There was a hectic flush on her cheeks, and her countenance wore an expression of great anxiety. She was unable to sleep on account of pain, and had entirely lost her appetite. The tumour had grown rapidly, especially in an upward direction, so that the upper margin, which was well defined, reached to within six inches of Poupart's ligament. The skin over it was red, shining, and adherent to the surface of the swelling. There was a distinct pulsation and an audible bruit. The glands in the groin were more enlarged. Amputation at the hip-joint was now proposed to the patient, who willingly accepted any proceeding which would relieve her of her intense pain. This operation was accordingly performed on March 15th by the long anterior and short posterior flap.

The subsequent progress of the case requires no comment. Her recovery was much retarded by the formation of bed-sores, the profuse discharge from which at one time threatened her life. Eventually, however, she rallied and left the hospital with a perfectly sound stump. Six months after the operation a patch of dulness about the size of the palm of the hand appeared at the upper part of the right chest, accompanied by tubular breathing in this situation, and it was found that the disease was returning in the lungs. Gradually, however, it disappeared, resonance returned, and the breath sounds again became natural. The exact cause of it was never clearly made out. At the present time (November, 1882), five years and a half since the operation, the patient is perfectly well, and there are no signs of a return of the disease. She has married, and expects shortly to become a mother.

The tumour after removal was found to be of a soft brain-like consistence and of an almost uniform greyish-white color. Interspersed throughout its structure were numerous patches of extravasated blood. The tissue of the tumour was arranged in lobules, each of which was surrounded by a more or less distinct capsule. The whole of the lower third of the femur was destroyed and its structure replaced by the growth, which had also extended downwards into the knee-joint. The patella and bones of the leg were unaffected. The microscopical appearances were as follows:—A number of thickly interlacing spindle cells, with distinct nuclei, arranged for the most part in closely set parallel bundles. Intermixed with these spindle cells were a number of irregularly, round, nucleated cells, and in some parts the tumour consisted wholly of these. They were

grouped in a delicate stroma, were irregular in shape, and contained two or three nuclei. In addition to these, there were found, here and there, large, irregularly round, multi-nucleated cells, not unlike transparent "giant cells."

Remarks.—The disease in this case appears to have belonged to the class of central tumours of bone, in contradistinction to the subperiosteal form of growth; and, as Mr. Butlin has pointed out in his Lectures at the College of Surgeons, the "treatment of central sarcoma of the femur is very much more hopeful than of subperiosteal sarcoma. That amputation high up at an early period of the disease may be undertaken with very fair prospect of success, if not of permanent recovery, at least of long relief." This case seems to bear out Mr. Butlin's opinion. Nothing could have been more unpromising at the time of the operation; the rapid growth of the tumour and the considerable emaciation which had taken place during the six weeks or two months immediately preceding it induced us to regard the case as one of a very malignant type, and to give a most unfavorable prognosis. Happily, that opinion has not been verified by the subsequent history of the case.

NEWCASTLE-ON-TYNE INFIRMARY.

GASTROSTOMY IN A CASE OF MALIGNANT STRICTURE OF THE OESOPHAGUS; REMARKS.

(Under the care of Dr. G. H. HUMK.)

J. H.—, a laborer, aged fifty-seven, was admitted on August 3rd. Twelve months previously he had first found difficulty in swallowing, and had cough and shortness of breath. He had attended at the infirmary as an out-patient from time to time, and had bougies passed, which temporarily relieved the difficulty in swallowing. At the time of his admission he could only swallow liquids. Examination of the chest detected some dulness to the left of the sterno-clavicular articulation, and throughout the lungs a considerable amount of bronchial catarrh. An oesophagus bougie could be passed down to, but not through, a stricture situated nearly opposite the middle of the sternum. For a time after his admission a considerable amount of liquid food was taken, and, with rest in bed, the patient's condition appeared slightly to improve. But the difficulty in swallowing gradually increased, until very little could be taken by the mouth, and life was maintained almost solely by nutrient enemata. Gastrostomy was therefore determined upon; and the first stage of the operation was performed on Sept. 2nd. An incision, about three inches in length, was made an inch from the left costal margin, its direction being such as to make it terminate at the extremity of the tenth rib. The structures of the abdominal wall being divided down to the peritoneum, all bleeding was completely stopped, and the peritoneum divided on a director. The wall of the stomach, which was readily found lying below the left lobe of the liver, was taken up between the finger and thumb, and a silk thread passed through it for the purpose of holding it forward during the insertion of the sutures. These latter were nine in number, and enclosed a piece of the gastric wall, somewhat larger than a shilling. The sutures were passed into, but not through, the wall, so that they did not enter the stomach cavity; and each was passed through all the structures of the abdominal wall, so as to bring the visceral in apposition with the parietal peritoneum. The ends of the incision in the abdominal wall were then brought together.

The operation was performed under carbolic spray. During part of the operation ether was un-

fortunately administered instead of chloroform, and it was probably in part due to this that on the evening of the day of operation the pulmonary catarrh was considerably increased.

Sept. 3rd: Catarrh much increased, though the patient had a good night. Temperature 100° F.; pulse 86. The enemata were continued, and use was also made of Slinger's nutrient suppositories.—5th: Great thirst and hunger complained of; breathing, which has been very bad, is somewhat relieved. Temperature 99°; pulse 82.—6th: On removing the dressings the exposed portion of the stomach wall was found covered with lymph, and firm union seemed to have taken place to the edge of the incision. The stomach was therefore opened with a tenotomy knife, the incision being just large enough to admit easily a No. 10 gum elastic catheter. Some milk was poured into the stomach by means of a funnel and tube attached to the catheter. Feeding with milk and brandy and beef-tea was continued from this time at regular intervals, and the enemata were administered as before.—7th: The patient has had a good night. Temperature 99°; pulse 80.—9th: The difficulty of breathing, which had become less distressing, has again increased, and there is now a dusky appearance of the face. There is slight wandering.—13th: The patient died.

Post-mortem examination.—The body was much emaciated; the left lung was consolidated, especially the lower lobe, and gangrenous in parts. Similar gangrenous masses were scattered through the right lung also, but were less numerous. Opposite the fourth dorsal vertebra the oesophagus was found to be constricted by an annular deposit in its wall of a scirrhus nature. This constricting ring was almost an inch in longitudinal depth. The stomach was adherent to the margin of the incision, and there was not the slightest trace of inflammation either on the peritoneum or wall of the stomach.

Remarks.—This case was, undoubtedly, in some respects, a favorable one for gastrostomy. The cancerous formation in the wall of the oesophagus was of limited extent, and had not involved surrounding structures. Probably a lengthened period might have elapsed before life was threatened by the invasion of the air-passages and large vessels. It is a matter of regret, therefore, that the operation was not performed earlier, before the patient's strength had become exhausted, and the consequent condition of the lungs developed. The operation in itself does not appear to be attended by special danger. When peritoneal surfaces are placed in accurate contact they speedily unite, so that the general cavity is shut off, and there is little risk of discharge entering it from the wound. The case only serves to illustrate the well-recognized truth that gastrostomy to be of service in prolonging life must be had recourse to in good time.

LOCOMOTOR ATAXIA; SEVERE LIGHTNING PAINS; LEFT SCIATIC STRETCHED; MARKED RELIEF.

(Under the care of Dr. DRUMMOND and Mr. PAGE.)

For the following notes we are indebted to Mr. James Limont, senior house-surgeon.

R. R.—, aged twenty-three, a fisherman, was admitted for shooting pains in the legs and staggering gait. The patient stated that he had been greatly exposed to cold and wet during the past eleven years, and that he had frequently slept in trousers saturated with salt water. His habits had been very intemperate, and he had suffered from syphilis. In the summer of 1881, seven months before admission, he began to complain of pains in both legs, especially the left; subse-

quently he lost power in the lower extremities, and failed to control their movements properly.

As regards his family history, it may be stated his mother died twelve years ago of a tumour in the brain; one sister died of consumption. The father is still living and healthy.

On admission the man exhibited the typical features of locomotor ataxia. The ataxic gait was most characteristic; he staggered and fell whenever he attempted to walk with closed eyes, and was quite unable to stand when the eyes were shut, even though the feet were widely separated. He complained bitterly of the lightning pains, and had the girdle sensation well-marked. Analgesia was present in patches, and retarded sensibility was very marked in the legs (occasionally twenty-three seconds elapsed before a prick of a pin was discovered). The superficial skin reflexes and the knee-jerk were entirely absent. His sight was dim, the ophthalmoscope revealing pronounced syphilitic choroiditis.

On March 7th, about five weeks after admission, as the pains still continued very severe, Mr. Page cut down upon and stretched the left sciatic nerve. The operation was done antiseptically.—On the 15th the wound was entirely healed, and the patient expressed himself as greatly relieved of the pains in the left leg.—On the 30th he left the hospital quite relieved of the pains in both legs, but in no other way changed.

GUY'S HOSPITAL.

CASES OF ACUTE NECROSIS.

(Under the care of Mr. BRYANT.)

CASE 1 (from notes taken by Mr. Tresidder), *Multiple Necrosis, after Scarlet Fever, of Clavicle, Tibia, and Ulna; Sequestrotomy; Cure.*—John S—, aged three, was admitted on May 21st, 1881, into Lydia ward. He was the youngest of eight children, none of whom, except himself, had enlargements of the bones, and he had been always a healthy child until four months before admission, when he had scarlet fever with dropsy, and he had not since been quite well. First an abscess formed over the right tibia, and was opened; then, five weeks before admission, an abscess formed on the right clavicle, and two weeks later another on the left ulna.

On admission the sternal end of the clavicle was much thickened for an inch and a half. There was a sinus covered over with a scab, from which a thick creamy pus exuded, and the sterno-clavicular joint was diseased. Just below the bone there was an irregular lobulated mass, like a piece of fat, under the skin. The right tibia was much thickened throughout the whole diaphysis, and the dead shaft was felt through three places. The left ulna was also thickened, and there were sinuses leading to diseased bone.

On June 3rd the wound over the tibia was enlarged, and a thick layer of new bone was cut through, and a larger sequestrum, about three inches long, was removed, besides several pieces; in fact, nearly the whole of the shaft of the bone. From the lower end of the wound a piece an inch long, including the whole thickness of the bone, as well as the epiphysal end of the shaft, was removed.

The child improved much in condition, and in a fortnight the wound was almost healed; but a few small spicules of bone came away.

On July 30th, under an anæsthetic, the sinus over the ulna was enlarged, and a sequestrum comprising the greater part of the diaphysis was removed. The necrosed clavicle was also taken away.

On August 27th the wound over the clavicle was quite healed, and on September 12th the wound over tibia was almost healed. There was good movement in the ankle, and no pain in the swelling here.

On November 28th general health was fair. The wound over tibia was still not quite healed. Recommended to go out and return if any unfavorable symptoms came on.

On January 9th, 1882, the tibia wound apparently closed.

On June 1st the child was seen by Mr. Bryant, when all the bones were quite sound. The perished shell of bone in each case had contracted to its normal dimensions.

CASE 2. (From notes taken by Mr. Wilson). *Acute Necrosis of Upper End of Tibia; Suppurating Knee-joint; Sequestrotomy; Incision of Joint; Healing.*—Fredk. W—, aged eighteen years, a carman, was admitted on Feb. 27th, 1881. About three weeks before admission he knocked his left leg against a cart-wheel.

On admission there was an abscess over the inner tuberosity of the tibia and above the tubercle. There was some fullness of the capsule of the joint, and the lower third of the femur felt larger than on the other side, but there was no tenderness.

On February 24th the abscess was opened and a large quantity of pus mixed with blood exuded, and next day a back splint was put on.

On March 9th an incision was made on the inner side of the joint, and a week later, under an anæsthetic, and after an Esmarch's bandage had been applied, an incision was made and several pieces of necrosed bone were removed. There was acute suppuration of the head of the tibia and an abscess cavity in the head of the bone. Free incisions were made to ensure free drainage, and the leg put upon a back splint. The patient passed a good night after the operation, and the wounds began to heal at once.

On April 9th an incision was made just below the inner tuberosity of the tibia, and a large quantity of offensive pus let out.

The wounds have progressed favorably towards healing. The wound was probed, and a small fragment of necrosed bone was detected on July 27th.

On August 5th a Thomas's splint was applied.

Two small splinters of bone were removed on August 9th, and by November 16th several small pieces of bone had come away. Two sinuses remained unhealed. The patient left, and was to report himself in about a month's time.

SEAMEN'S HOSPITAL, GREENWICH.

CARDIAC DISEASE; PROLONGED INTERMISSIONS OF CARDIAC ACTION; ANTE-MORTEM CLOT IN HEART AND AORTA.

(Under the care of Drs. CURNOW and HALE WHITE.)

JOSEPH B—, aged forty-two, was admitted on July 11th, 1882, with a history of pain in the left side occasionally for two months, shortness of breath, and slight hæmoptysis. He had had rheumatic fever eleven years before. On admission the heart's apex beat was found in the fifth space outside the nipple-line. A double aortic murmur was present as well as a mitral systolic at the apex, with occasionally a presystolic also. The second sound was ringing at the base and the pulse collapsing. He left the hospital on July 25th, much improved. On Sept. 29th he was readmitted, under Dr. Hale White, complaining, in addition to his former symptoms, of frequent faints. The cardiac action was now found to be very slow, though

variable (usually about forty per minute). Physical examination gave a result similar to that previously obtained, but the murmur antecedent to the systolic was now more marked and persistent. It seemed also to vary in its position in time in the cardiac rhythm; when the heart's action was very slow indeed the murmur appeared to occur in the middle of the interval between the cessation of the second sound and the commencement of the first, a distinct interval elapsing between its termination and the systolic sound; on the other hand, when the action became more frequent, the murmur was heard immediately before the systolic sound and running right up to it; occasionally when the heart began to quicken, it even seemed possible to hear both these murmurs at once, a very slight interval separating the one from the other. The patient was subject to frequent transient attacks of syncope, which caused him much distress. On the morning of October 7th, these attacks occurred with greatly increased frequency, and about 9 A. M. he presented the following symptoms:—For the first three-quarters of each minute the heart beat strongly and regularly, about thirty-three times, and then ceased abruptly and entirely for a quarter of a minute when its action again commenced, to repeat the same course as before, each cycle of action and intermission occupying a second or two over the actual minute. When the heart stopped, the face at once began to grow paler and paler, the respiration became slow, deep, and sighing, with occasional low murmurs of distress; towards the close of the period of cessation of cardiac action, the pupils (always rather large) became widely dilated, then the eyelids dropped, the muscles of mouth and hands began to twitch, and the head fell back, and then just when it seemed death must occur the heart recommenced its slow measured action. With the first beat the face began to flush, but the twitchings of mouth and hands did not cease until the fourth or fifth beat, when also the eyes opened, the head was lifted and the patient seemed as it were to return to life. Between the periods of intermission he was quite conscious, and dreaded the moment when, as he said, his heart would "pull" within his chest, and he would lose his senses completely. When visited half-an-hour later the attacks had passed off, and from that time till October 10th, when he died, they only occurred at irregular and infrequent intervals. The treatment consisted in the administration of stimulants—viz., alcohol, ether and ammonia, but during the thirty-six hours previous to the morning of October 7th, he was taking in addition five-minim doses of tincture of digitalis every four hours.

Necropsy.—Heart of rounded shape with much hypertrophy and dilatation of both sides, weight $19\frac{1}{2}$ oz. Much atheroma and general dilatation of the ascending aorta, this condition extending quite down to the aortic orifice which measured nearly 4 in. in circumference. The aortic valves showed slight thickening and small calcareous nodules at their angles of junction. Immediately below the aortic orifice the wall of the ventricular septum presented a depression of $2\frac{1}{2}$ in. from side to side, and $1\frac{1}{2}$ in. from above down, the base of the hollow being formed by a fibrous membrane placed on a level with the inner lining of the right ventricle, but not bulging at all into that cavity. From the apex, where its base lay entangled among the columnæ carneæ, a large clot extended up into the aorta nearly to the top of the ascending arch. The base presented the usual pale yellow color, and elastic, homogeneous texture of a clot formed just before death; on tracing it upwards that part lying near the aortic orifice became much tougher,

darker in color, and more fibrous, while beyond the valves, the part lying in the aorta was shrunken, flattened, brownish in color, and when incised displayed a cavity full of dark grumous-looking matter with fibrous-looking walls. The clot had all the appearance of having been formed by accretion to the base, while the head became gradually more and more prolonged from its original place of formation at the apex of the left ventricle, so as ultimately to lie in the cavity of the aorta. Notwithstanding the presence of the murmur described above as to all appearance presystolic, the mitral orifice did not seem at all contracted.

TRANSIENT RIGHT HEMIPLEGIA FROM INJURY TO THE HEAD.

(Under the care of Mr. G. R. TURNER.)

For the following notes we are indebted to Mr. E. Penny, house-surgeon:—

Maude M—, aged two years, was brought to the hospital on August 7th, 1882, at 8.30 P.M., with the following history:—At 5 P.M. on the same day she fell off the table, striking the left side of the head with some violence as she fell. She did not complain of feeling any uneasiness until 6 P.M., when she became steadily but rapidly unconscious. Soon afterwards she was seized with convulsive movements of her right arm, right leg, and right side of the face. These occurred every few seconds. When brought to the hospital she had been in this condition an hour and a half.

On admission she was quite unconscious, and could not be roused in any way. Every few seconds she was seized with violent convulsive movements of the right arm, the right leg, and the right side of the face. Both pupils were dilated and insensible to light, but the right was larger than the left. Both eyes were turned to the left side, but the head was quite natural. Her pulse was 60, and very good; respiration 29, deep, but no difficulty about it; temperature 100° F. There had been no vomiting. Her head was examined, and a swelling found over the anterior and inferior part of the left parietal bone, but there was no evidence of any fracture. She was put to bed and an ice bag applied about 10 P.M.; the right arm and leg ceased their convulsive movements, and in the course of a few minutes were completely paralyzed, and the side of the face dropped. Her urine was passed in bed from time to time. Her temperature was now 98.4° ; pulse and breathing unchanged. About 1 A.M. she was noticed to move both right arm and leg, and from this time the paralysis gradually passed off, the face resuming its normal look last of all, and the leg recovering first. At eight o'clock in the morning she vomited freely, and almost immediately afterwards she recognized her mother. From this time she rapidly recovered, and left the hospital quite well in four days.

STROUD GENERAL HOSPITAL.

OVARIOTOMY DURING PREGNANCY; SUBSEQUENT NORMAL PARTURITION.

(Under the care of Mr. STORRY.)

For the following notes we are indebted to Mr. R. D. Cameron, resident medical officer:—

Emily B—, aged thirty, married, four children, was admitted on April 1st, 1882, with an ovarian tumour, the swelling of which she had noticed eighteen months ago. She last menstruated in January, 1882. Being incapacitated from following her household duties, and having lately suffered considerable pain in her abdomen, on the 11th of April (believing her to be pregnant), she

was placed under the influence of ether. Mr. Storry, with the assistance of his colleagues, and with the ordinary carbolic spray, opened the abdomen, torsioned one vessel in the abdominal walls, but found no adhesions. He then tapped one large cyst and one small one, tied the pedicle with chromicized catgut, and removed the growth. The uterus was found to be enlarged in the pelvis. The wound was brought together with chromicized catgut sutures. An india-rubber drainage-tube was left hanging from the lower part of the wound, and communicating at the other end with the abdominal cavity, and the usual gauze dressing and india-rubber bandage were applied. Eight hours after the operation two drachms of blood-clot were removed with a syringe from the drainage-tube. The tube itself was removed on the fourth day. The temperature in the axilla was taken every two hours for the first week and it never rose above 99°.

The patient was catheterized every six hours for the first week. The bowels were opened by an enema on the eighth day after the operation. On the fourteenth day she was sitting in an arm-chair, and a fortnight after this she returned home to her friends.

On Oct. 18th Mr. Storry delivered her of a fine female child.

GUEST HOSPITAL, DUDLEY.

CASE OF LIGATURE OF THE LEFT COMMON CAROTID ARTERY FOR HÆMORRHAGE.

(Under the care of Mr. M. E. MESSITER.)

THE following case is similar in its history and results to the one that was shown at the Clinical Society last October by Mr. Pepper.

R. R—, aged twenty-four, was admitted on Oct. 20th, 1882. On Oct. 11th he caught cold, and the left tonsil was found enlarged and inflamed; no swelling was visible externally, but during the two or three following days a fulness simulating mumps was observed on the left side of the neck and under the jaw, extending as far up as the mastoid process, but closure of the jaws prevented examination of the inside of the mouth and fauces.—Oct. 15th: Without any warning, profuse arterial hæmorrhage, to the extent of three pints, came on; his voice, hoarse previous to the hæmorrhage, now became subdued to a soft whisper; the lips and conjunctivæ were blanched. Pulse 80, compressible. He complained of a feeling of suffocation, but the syncope was not alarming. It was noticed that the tumour in the submaxillary region disappeared completely after the hæmorrhage. Patient said that the blood appeared to come from the back of the left ear. Cough did not precede the hæmorrhage, and the blood was not mixed with pus or air; it was arterial, and formed a firm clot. For twenty hours after this the patient seemed convalescent, when another swelling in the exact site of the last was noticed, which, in two or three hours, was dispersed by a second hæmorrhage to the extent of two pints of arterial blood; the syncope was greater than before, and the patient was thought to be moribund; he rallied, however. On the 19th hæmorrhage again occurred, and he consented at last to be moved into the hospital.

After consultation with his colleague, Dr. T. E. Underhill, Mr. Messiter ligatured the left common carotid above the crossing of the omohyoid. Antiseptic precautions were observed. Catgut ligature was used, and cut short off. Two minutes after the vessel was ligatured there was facial paralysis on the affected side, but it passed off in two hours.

The man went on well until Oct. 26th, when he had a severe rigor, and a temperature of 105° F.,

and his evening temperature came down a degree each evening until October 31st, when it stood at 100° F.

On Nov. 8th he had a similar attack, with a temperature of 103° F. These attacks may have been caused by some slight septicæmia. His general condition, however, was fairly satisfactory all through; the wound looked healthy all the time; he had no swelling near it, no discharge of collected pus, and no hæmorrhage. The only symptoms that occurred in connection with the high temperature were weakness and sweating.—17th: Wound nearly healed, and the patient allowed to get up. He had gained in flesh since entering the hospital, and looked anything but anæmic. His mental condition was good. There was no headache, nor swelling about the neck or side of the jaw. The left carotid pulsated up to the point of the ligature, but hardly perceptibly on the other side. There was no pulsation in the facial artery of the affected side, and it was but slight in the left temporal. There was no paralysis or loss of sensation. A loud double aortic murmur existed, which did not exist when he was taken ill, and on his admission into the hospital only a faint aortic obstructive bruit was found.

Remarks.—I may add that the common carotid was chosen as the vessel to place the ligature upon, as it was thought that the close proximity of so many large branches would make it unsafe to ligature the external carotid. I fail to see how a distance of a quarter of an inch even could be obtained free from branches on the latter vessel, whereas the absence of all branches makes the common carotid so peculiarly the vessel to apply a ligature to.

ST. BARTHOLOMEW'S HOSPITAL.

THREE CASES OF ACUTE RHEUMATISM COMPLICATED WITH PERICARDITIS AND PLEURO-PNEUMONIA; REMARKS.

(Under the care of Dr. SOUTHEY.)

THE following notes and remarks illustrate the supervention of some grave complications in acute rheumatism:—

CASE 1.—Letitia T—, aged sixteen, a machinist, single, an anæmic strumous-looking girl, was admitted on Oct. 5th with rheumatism and pericarditis, having been laid up at home with articular rheumatism since September 28th (eight days). This was the first attack of rheumatism she had had, and with the exception of scarlet fever and whooping cough she had never been laid up before.

Condition on admission.—Perspiring profusely; temperature 102.6°. Decubitus dorsal; no pain in chest, no cough; she lay very still quite low in bed; mind clear. Tongue white and furred; breath foul; bowels costive. Micturition natural, urine high colored, otherwiser normal. Catamenia just ceased, always regular. Heart apex beat in the fifth interspace below the nipple. Thrill felt with systole, and friction rub heard all over the cardiac region. Pulse 144, soft. Lungs presented no abnormal sounds or dullness. Respiratory sounds clear; respiration 90. Abdomen natural. Large joints, as shoulders, hips, and knees, were more affected than the small ones.

Treatment by twenty grains of salicylate of soda, and seven drops of tincture of opium every four hours. The temperature fell the following morning to 98.6°, and only rose to 100.2° on that and the next day. Her pains promptly subsided. There was no anxiety; no restlessness. On the thirteenth day of the rheumatism the temperature fell to normal and remained so for three days, but the

friction rub became less distinct, and the præcordial dullness increased. She was very drowsy, but woke up to take her nourishment. The opiate was now diminished, and the salicylate given less frequently. There was effusion enough to produce marked præcordial dullness on the twelfth day of illness, and contemporaneously, or nearly so, bronchial breathing and bronchophony were noticed at the root of the right lung, and over more than two-thirds of the left lung. The dorsal position was maintained. Temperature 102.6°; pulse 120. Symptoms of more active implication of the left pleura were noticed on the nineteenth and twentieth days of the illness. Pain stitchlike and friction rub. At the same date the dislocation of the heart's apex upwards and outwards, and its disappearance from the chest-wall, too, were well marked. The heart's impulse being felt on the level of the mammae, she was advised to make some effort herself to lie on both sides alternately, and was directed to be propped by pillows into such position. Slight ægophony was noticed over the area of bronchial breathing.

Treatment.—Twenty grains of salicylate of soda, and five drops of tincture of opium, every four hours, were repeated. Her temperature fell gradually from the nineteenth day of illness, and her pulse improved. She has been able to sit up in bed and do needlework. Since the twenty-fourth day her pulse has been from 74 to 84; respiration 24; and temperature below normal. Heart-sounds have been clear, and no friction sound has been heard over front of chest. She has had no fever and no cough, but there is still a friction sound synchronous with respiration behind over left lung, some dullness and evidence of feeble air entry at base of lower third of left lung. She entered upon convalescence on the twenty-fourth day of her illness.

The facts in evidence of the course of this patient's disease are:—Pericarditis; pericardial effusion; imperfect air entry into lower lobe of left lung. Bronchial breathing; no rusty expectoration, followed by lateral and posterior friction rub and slight ægophony; rheumatic pleuro-pneumonia, with slight pleuritic effusion. Her temperature fell from 102.6° to 99.4° on the ninth day of her illness, pericarditis notwithstanding, and it was not till ten days later that it rose at all high again, 100.6° and 101°, when she had some fever from her left pleuro-pneumonia. This febrile disturbance lasted four days, and she has since convalesced with one slight relapse.

CASE 2.—Eliza P—, aged forty-six, and fairly nourished, prematurely grey-haired woman, single, entered on her menopause at the age forty-one. She had small-pox at nine years old, and her first attack of rheumatism at nineteen, which laid her up for some weeks; second attack at the age of forty-five, during which she was laid up six weeks. The present illness began three weeks before her admission by swelling and pain in her left foot, which shifted to her shoulders, calves, knees, and lastly wrists. She was feverish, had no appetite, and the pain made her feel sick.

Condition on admission.—Sept. 9th: Lying flat on her back, unable to help herself; all the joints of her arms stiff and painful; both wrists swollen; the right red and very tender. Knees and right hip-joint very painful; ankles swollen, red, and hot to feel. Pulse 108; respiration 18; temperature 100° to 101°. Bowels open four times freely; tongue coated with usual thick white fur, and inclined to dry; urine high-colored; skin moist; pupils large.

Physical examination.—Fauces and abdomen yielded negative signs; heart impulse feeble, apex beat indistinguishable, systolic apex murmur;

præcordial dullness increased over both lungs before and behind; rhonchus and catarrhal sounds, but resonance unimpaired. She was placed on the usual slop dietary, and treatment by salicylate of soda was pushed to salicylism, an event established in twenty-four hours.

Course and progress.—Three days later her pains were gone; but she complained much of her head, and her cough was troublesome. She took her nourishment fairly, but slept very little. Pulse 78, small and weak; respiration 20. Good resonance over lungs, front and back, and fewer moist sounds. Joints still swollen, and painful upon least movement. General condition extreme weakness; lies always in the same posture. After she had been under treatment twelve days, and therefore on about the thirty-third of her illness, we noticed that her pulse had risen to 96, respiration to 36, and temperature, which had gradually fallen to below normal, rose to 100.5°. Her cough was more troublesome, and she had a relapse of pains. Pericardial friction was now audible all over the cardiac region in front, and the dullness increasing. The following day the effusion was obviously increased and her temperature went up to 104°, but no physical signs as yet of pressure upon the lungs were observed. The relapse of pains lasted for the usual three days; improved on the fourth, when she slept well without any opiate. But we observed marked dullness on percussion on this the thirty-seventh day of her illness at the base of the left lung. Pericardial friction and præcordial dullness still well marked in front. Since her pericarditis had been ascertained beyond doubt she had taken repeated moderate doses of morphia, and was propped up in bed. The following day fine pneumonic crepitation could be heard over the dull area of her left lung, with bronchial breathing, transmitted also to the right lung. The color of the sputum was distinctly rusty. Meantime, notwithstanding the pneumonic complication, the temperature fell to nearly normal. Three days later both legs were anasarctous, and pitted widely. Stimulants had been given, but were now increased. Two days later improvement commenced, and gradually the dullness receded, and more air entered the affected lung; but her cough, she said, "tore her to pieces." Pulse 96; respiration 42. Her improvement steadily went on; the cough subsided, and she was free from all pain on the forty-eighth day, on which she was able to wash herself.

On the fiftieth day the pericardial friction gradually disappeared, but a pleural rub remained at the left base, and in the left lower lateral region for some days longer. She got up for a short time a few days ago, the sixty-sixth day of her disease.

In this case again there was pleuro-pneumonia of the middle or lower portion of the left lung occurring shortly after the evidence of a considerable pericardial effusion has been established. Yet it ran a favorable—nay, more, a speedy—course to entire resolution, so that in a fortnight or three weeks afterwards the woman was convalescent.

CASE 3.—Emma W—, aged nine, a poorly nourished strumous child, with dark hair and pasty anæmic look, was admitted into Faith ward on October 3rd, suffering with acute articular rheumatism and pains in her chest. Her illness had lasted a week, and the pains and swelling had begun in her right hand.

Condition on admission.—Temperature 102.6°; skin hot and moist; cervical glands enlarged. Tongue moist, but furred; abdomen nil; bowels confined; urine scanty. Chief seat of pain and rheumatic inflammation in left hip-joint. Pulse 112; respiration 33.

Physical examination.—Heart's apex in fifth interspace outside the left nipple, systolic murmur at apex; pericardial friction at base; præcordial dullness scarcely increased abnormally. Lungs: no morbid sounds, but enfeebled vesicular sounds, and slight dullness at both bases behind, and laterally, over the right. She was treated with salicylate, and for four days went on remarkably well; her temperature fell to below normal, and pericarditis and endocarditis notwithstanding, she had four days' intermission of her fever; but then her temperature gradually rose, in forty-eight hours, from 97° to 100·6°; pulse 108. The pain in her heart region was greatly increased, and the præcordial dullness increased also, showing no inconsiderable pericardial effusion, extending all across the chest in front, and well up into the left axilla. She had to be propped up in bed to get her breath, and we recognized dullness, with bronchial breathing, all over the middle portion of the left lung; posteriorly in scapular, interscapular, and subscapular region, also across the root of the right lung. The cardiac region was painted with iodine and poulticed, and some morphia was given in small doses, 1-24th of a grain every four hours. For four days she was extremely ill, then suddenly began to improve. Her temperature fell to 99°; her skin acted, and her pulse was 108; tongue moist and clearing. Dullness on percussion; bronchial breathing, and bronchophony still marked the area of the left lung consolidation; but there was no redux crepitation, and no expectoration, and very little cough.

Again the mode of recovery was in the order which I have exactly observed—namely, that as the præcordial dullness diminished and the effusion was reabsorbed, so the lung consolidation lessened, and air re-entered it, with here and there a little bronchial crepitation; on the twenty-eighth day of her illness, having had no further elevation of temperature or increase of rheumatic pains, sleeping and eating well, the pericardial friction rub became re-established all over the chest in front. Breathing sounds were faintly heard over the area of previous lung consolidation, and she steadily convalesced. Yesterday, however, and for the last week, we have been able to recognize a distinct pleuritic friction sound over the left lung base.

Remarks by Dr. SOUTHEY.—I have taken three cases of pericarditis that had well-marked pericardial effusion; no rare, no exceptional cases, but all illustrating a rule so invariable in my experience that I have often wondered it should have escaped comment—the association of pericardial effusion with pneumonia of the lower lobe of the left lung, or with pneumonia of the middle symmetrical portions of both lungs. In slight pericardial effusion this complication is not met with; in large effusion it is invariable. The left lung is that which is always first and most involved. Is it an effect of pressure? Is it a consequence of dorsal decubitus? Is it a result of the filling up of the posterior mediastinum and that complementary space into which the lung ought to be expanded in the inspiratory augmentation of the thoracic chamber? I believe the latter explanation is the correct one, because the order of physical signs is so very regular. Increased præcordial dullness in front, absence of respiratory sound first between the lower angle of the left scapula and the spine, then dullness on percussion over the same area. The affair terminates in some cases with nothing more than inexpansion of the lung; there is superadded no bronchial breathing, while in others bronchial breathing is well marked. And in some of these, again, the morbid process advances no further; effusion into air cells and

solidification of lung tissue are all; a little friction rub follows, but no rusty expectoration, no attendant bronchitis, no fine or redux crepitation; while a third degree of the same lung disease may occur, as in E. P.'s case, attended by both rusty expectoration and fine crepitation and redux crepitation, in other cases where the pericardial effusion is of longer duration or slower absorption. I do not remember to have ever found this pneumonic rheumatic complication independently of pericardial effusion, although I have seen repeated examples of slight superficial rheumatic pericarditis which were not thus complicated. This rheumatic pneumonia has a far more favorable prognosis than either its extent or occasional doubleness would at first thought entitle it to. If my theory of its causation be correct, the treatment I adopted in the three cases I have brought before you, and which experience has taught me is good, is also rational—viz., subduing the joint pains by opium, so that the patient may be moved into a less dorsal position; propping up of the patient by pillows; and administration of stimulants. Rheumatic pericarditis and rheumatic pneumonia, or pleuropneumonia are doubtless attended seldom nowadays by a fatal issue, but when bleeding and mercury were principally relied upon for conducting these local inflammations to resolution, and even in the time when alkalies were chiefly trusted to in the treatment of rheumatism, death was far from being uncommon. That the lesser mortality of rheumatism of late years may be due to some alteration in type of the disease I am not prepared to dispute. It may be so, but how can we prove it, and to what are we to refer such an alteration? To better living, better clothing, less wet weather, better draining of our lands, and the more hygienic housing of our population? This may be the case, but I see no evidence of it. But as a hospital physician I avow that we admit no fewer cases of acute rheumatism than formerly; nor comparing the cases I see to-day with those I saw twenty years ago can I perceive any difference in the severity of the general symptoms, or in the degree or kind of its ordinary complication. Still I certainly fail to witness so many autopsies upon cases of rheumatism, and have fewer butter-pat pericardial effusions and solidified lungs, with lymph-coated surfaces, to show my clinical clerks. The cases complicated by pericarditis are less noisy, less restless, less wild in their delirium, often scarcely delirious at all throughout their course. To what shall we attribute this? Is it to salicin, to the salicylates, or to a generally more rational treatment of the disease? I believe it is that we are biased by less theory in our conduct of each individual case, that we do not aim at neutralizing some possible lactic acid, destroying some ferment, or even ousting some poison. We neither purge, nor sweat, nor diuretize, nor nourish our patients so much, nor use an exclusive milk, or alcohol, or broth dietary. We seek, at least I can speak for myself, to ease pain by local sedative applications, and rest over-strained nerves by opiates. We wait till stomach catarrh subsides, and then give peptonized or part-digested meats. For three or four days together, we have learnt, patients can live very well on toast-and-water, and if their tongues are very thickly furred will seldom take much else than warm tea or clear meat soups. A little weak brandy-and-water is often a much more suitable nutriment than a pint of milk, although this is thought and believed to be the simplest, the most entire, and the most suitable of aliments, *Pace* my total abstainer; alcohol is physic. In the treatment of acute rheumatism this gastric catarrh is no unimportant affair; and I believe that the real use of salicylate of soda lies in the good effect

it appears to exercise upon the stomach. The tongue cleans rapidly under the repeated doses of the remedy. There is another remedy which seems to be adapted to the later stages of the malady, to the relapsing cases—the cases, too, which perspire very profusely—this is salicin, which some of you have recently seen me prescribe pretty largely. I give ten grains with one grain of the iodide of potassium and ten drops of the tincture of iodide to an adult every four hours. And this remedy doubtless exercises what virtue it possesses upon the gastro-intestinal functions, for the appetite and digestion improve under its use.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

Case of Intra-thoracic Aneurism.—Treatment of Pleural Effusion.

A MEETING of this Society was held on Nov. 20th, 1882, Mr. F. Mason, President, in the chair.

Dr. Haward showed a man suffering from Intra-thoracic Aneurism. The case was that of a carpenter, thirty-eight years of age, who had suffered from what was taken to be left pleurisy in February, 1882, and had been unable to work since. In June last he began to have throbbing in the chest, and came into the hospital six weeks ago. The cardiac sounds were normal at the apex; but in the second left interspace, half an inch outside the sternum, there was a rough blowing bruit blending with the first sound. There was no bulging or thrill, but a faintly visible impulse. "Each expiration is broken by a series of audible puffs, like the distant snorting of a goods engine. These correspond to the cardiac contractions, and are slightly anterior to the radial pulsation. They are increased in loudness by exertion, and are even felt, as well as heard, by the patient; but after prolonged rest in bed they disappear altogether, returning directly he rises." There was a small bronechocele. In reply to questions put by Drs. Habershon, Hall, and Cavafy, Dr. Haward said that the thyroid enlargement had not increased; he was not aware whether the sound was modified by sleep or repose, and thought the disease to be in an early stage; no laryngoscopic examination was made. The case was referred to a committee consisting of Drs. C. T. Williams, de H. Hall, Thorowgood, and Cavafy, and the author.

Dr. Frederick Hicks drew attention to an improved form of Apparatus for Paracentesis Thoracis. The advantages were:—1st. That it enabled any degree of pressure, high or low, to be used and maintained during the operation. 2nd. That a manometer, for ascertaining the intra-thoracic pressure either at the commencement or during the operation, could be employed easily and without encumbering the apparatus. Two forms of manometer were shown, and their action explained and demonstrated; in one the fluid was mercury, in the other colored water. In the latter the disarrangement of the apparatus by the oscillations of pressure during coughing were divided by a mercurial valve, so constructed as to allow a slow current of air at any pressure to pass freely and affect the water-gauge only, whilst any sudden gust of air acted on the column of mercury, and in doing so closed the tube connecting the trocar with the manometer. The construction of this apparatus was explained, and model shown. The use of the manometer was recommended in all cases of

paracentesis thoracis. The intra-thoracic pressure was not proportionate to the amount of fluid present. In many cases the fluid was under slight or even no pressure, and in some there was actually suction which might amount to half an inch of mercury. Without a knowledge of this condition it was impossible to estimate the force required to withdraw, which if too low rendered the withdrawal less complete, and increased the liability to the sucking-in of air on the patient coughing or taking a deep inspiration, which, if it were too high, blood was easily expressed, especially so in tapping recent effusions. The same apparatus was also adapted for washing out fluid contained in cavities by alternately injecting from one bottle and drawing into another. This was done through the trocar by means of a three-way stopcock, and the opening or closing of the apparatus was unnecessary during the operation. It was important to prevent the accidental introduction of air into the pleura during the various arrangements and manipulations. An instrument was shown for exploring, and if necessary introducing a drainage-tube into cavities in the lungs resulting from phthisis or bronchiectasis, or introducing a drainage-tube into the pleura in cases of empyema when an anæsthetic is not given, but only the skin frozen, and rapidity in operation became a matter of importance.

Dr. Thorowgood made some remarks on the treatment of Intra-pleural Effusions. He commenced by pointing out that the operation of tapping the chest for the evacuation of collections of fluid, though old as the days of Hippocrates, had only of late years taken its position as a recognized and successful mode of dealing with such effusions. Before the days of Laennec the difficulty in diagnosis caused the postponement of such operative measures until the chest bulged or an abscess pointed. Then it was thought justifiable to puncture, but it was common for the enfeebled patient to sink from exhaustion before very long. In his own experience rapid evacuation by the aspirator was almost always followed by speedy reaccumulation, and it was hence his practice to wait three weeks generally in a case of obvious intra-thoracic effusion before aspirating. Brief details of cases were given where pretty copious effusion had become absorbed satisfactorily under small doses of mercury, combined with diuretic mixtures. When aspiration became necessary stress was laid on very gradual evacuation of the fluid under a low suction power. In cases of empyema, as a general rule, the open method of continuous drainage succeeded best, but the details of one case were given where an empyema was treated by two aspirations with a perfectly successful result. The first time pure pus was drawn out, at the second operation, twelve months later, a blood-stained fluid appeared, after which steady and complete recovery followed. As a rule there should not be so long an interval between the tapplings, but if pus appear once in the aspirator, and a week or two later the chest seem to have again filled, no time should be lost in again emptying it, so that the lung may have a chance to expand. A case seen with Mr. Bullock, of Isleworth, proved the expediency of this course. A youth had an empyema on the right side, which was evacuated by aspiration. In eight days' time the pus again collected and was let out by free incision, and a drainage-tube was inserted, the operation being done antiseptically. In two months' time recovery was complete, the lung filled well, and there was no deformity. Washing out the chest was only required when the discharge was offensive, the great point being to secure free drainage. Dr. Thorowgood drew at

tention to right hydrothorax being sometimes caused by cirrhosis of the liver, and the details of a well-marked case were given.—Dr. Green pointed out the different objects with which paracentesis was performed in a case of serous and in one of purulent effusion. In the former it was only needful to remove the intra-thoracic pressure, and for this he preferred Dr. Hicks' method. The cases marked by the greatest amount of effusion were those that were most insidious in onset and least attended by pyrexia. In such cases he did not anticipate much benefit from drugs, but advocated early operation.—Dr. C. T. Williams thought that in very early stages drugs were of service. So far as his own experience went, the cases treated by aspiration did better than the others. The occurrence of pain in the side was an indication for ceasing to withdraw fluid, the remainder being always absorbed. He mentioned a case in which paracentesis was refused, and where treatment by drugs took a year to accomplish the cure. He had not seen much success from division of ribs or cartilage.—Dr. Hall remarked on the importance of a counter-opening in the lowest part of the chest in empyema, to efficiently drain the cavity.—Dr. Symes Thompson thought in sero-purulent cases it was important to empty the pleural sac completely. In such cases Dr. Hicks' apparatus for the introduction of air was useful.—Dr. Hicks said he strongly advocated the use of the least possible amount of suction in treating pleural effusions, the aspirator being used only as a safeguard in case the tube became blocked. The danger of making an opening very low down was that it might get blocked by the diaphragm.—Dr. Thorowgood thought that in serous effusion the use or not of the aspirator was of minor importance.

The Treatment of Syphilis.—The Difficulty of Diagnosing true Syphilis in Females.

A meeting of this Society was held on Nov. 27th, 1882, Mr. F. Mason, President, in the chair.

Dr. Drysdale read a paper on the Treatment of Syphilis. He first alluded to the growing belief in a specific germ in syphilis, and exhibited a specimen sent him by Dr. Ehland, of Stockholm, showing the fungus from gonorrhoeal discharge. The treatment of syphilis was still undetermined. Dr. Fournier advises the use of interrupted courses of mercury for two years and ten months, in daily doses of about one grain and a half of the proto-iodide; Dr. Keyes, of New York, recommends a daily dose of about half a grain of the same salt, given continuously, perhaps for three or four years; whilst in London there was scarcely any regular treatment of the disease by prolonged courses of mercury, and in Edinburgh some practitioners give no mercury at all. Syphilis was introduced into Europe in 1492, and first treated by inunction in 1497. Paracelsus first gave mercury internally in 1570; and until 1812, in this country, there could be little doubt that mercury had poisoned fatally perhaps as many patients as had been killed by syphilis, which until 1836, when Wallace, of Dublin, published in the *THE LANCET* his account of the treatment of tertiary syphilis by iodide of potassium, must have been a terrible disease. It was now known that syphilis varied very much in intensity, a certain number of cases getting well without any local measures. He himself had treated syphilis with iodide of potassium only; but Fournier and Hutchinson were so positive as to the power of mercury to prevent tertiary symptoms that he had begun to regard mercury as a possible germicide, and for some years past had given it continuously for months to all patients

with well-marked sore or with secondary symptoms. He gives one-sixth of a grain of the proto-iodide or one grain of mercury with chalk, and since he has used this treatment he has not met with any salivation, whilst at the same time, so far as he knew, the patients have had a complete immunity from tertiary symptoms. When iritis supervened or severe rheumatic pains with headache, he increased the dose and prescribed inunction. He advocated the early commencement of mercurial treatment and its prolonged use on the ground of its antagonism to the syphilitic virus.

Dr. Routh read a paper on the Difficulty of Diagnosing True Syphilis in Women, and the Nature of its Contagion, with the especial view of combating the Contagious Diseases Acts. He particularly dwelt upon the insignificance of the initial lesions in women leading to their being overlooked on examination, and spoke of the extreme virulence of the syphilitic poison. He then remarked that it was proved (1) that a female could contaminate by her secretions alone, quoting several French and English authorities, and that Fournier extended this contagious power to three or four years; (2) or by mediate contagion owing to promiscuous intercourse; (3) by women who had been cured of syphilis so as to be incapable of re-inoculation and yet fertile sources of infection. He maintained that the contagion of syphilis was intensified in virulence wherever brothels were tolerated, as illustrated by reference to reports from France and Brussels; and that the danger of licensed houses was increased by the inadequacy of examinations. He also showed from the English data of the Contagious Diseases Acts that true syphilis was more severe in the protected than in the unprotected districts, the number of constantly sick being greater, and that even Mr. Lawson admitted the chance of a soldier contracting syphilis in the former as compared to the latter is as 36 to 33; and that for the last two years from the Army Reports syphilis had increased in the former 57 per cent. in the latter 45 per cent.—Dr. Drysdale confirmed the statement as to the increase in the prevalence of soft sores in London and Paris of late years; and also that syphilis had increased in Paris, which he attributed to the clandestinity caused by the police regulations.—Dr. F. Simms agreed with Dr. Drysdale's remark, and added that the presence of a soft sore was an unsafe reason for inferring the absence of syphilis. It was hard to diagnose a primary sore with certainty.—Mr. H. Lee suggested that the Society should undertake the preparation of a scientific digest of the evidence respecting the working of the Acts. Before the passing of the Acts syphilis and gonorrhoea were decreasing, but now both are on the increase. He corroborated Dr. Routh on the extreme difficulty of diagnosing primary syphilis in the female, and the same with respect to gonorrhoea. He had produced the characteristic pustule by inoculating the discharge from the healthy vaginal membrane of a syphilitic woman. The army returns were defective in not giving the cases of secondary syphilis or in distinguishing soft and hard chancres. In women the diagnosis was more difficult by the absence of the characteristic symptom found in men—the enlargement of the inguinal glands. As women only were examined under the Acts, the difficulty in diagnosis seemed to cut at the root of the scientific value of the statistics. It was a question whether one-tenth of the money that these Acts cost to execute, spent on sanitary objects in barracks, would not do far more than the execution of the Acts.—Mr. St. George Mivart drew a distinction between the French system, which had broken down from the brutality of the police, and

the English; and Dr. Routh's arguments were mainly drawn from the former. The most common source of infection he believed to be mucous tubercle, and not primary sore.—Mr. Edmund Owen had found that soft sores were apt to become indurated, and to be followed by secondaries, whilst infection not uncommonly was the sequel to a sore which never bore typical induration, and he believed beyond doubt in the unity of syphilitic virus. He protested against Dr. Routh's conclusion that the working of the Contagious Diseases Acts increased vice and propagated disease. The evidence given before the Select Committee had led its members to form the opposite conclusion.—Dr. Drysdale and Dr. Routh briefly replied.

Microscopical Demonstration of Various Forms of Bacteria.

A meeting of the above Society was held on Dec. 4th, 1882, Mr. F. Mason, President in the chair.

Dr. Heneage Gibbs showed a large number of specimens of Bacteria, including bacillus anthracis, bacillus tuberculosis, from cattle and the human subject; the so-called "typhoid bacillus," putrefaction bacilli; bacilli from septicæmia, diphtheria, sheep-pox, purples; bacilli from the Welbeck poisoning case; and the so-called infective micrococci from the spleen of a tubercular patient. A great part of the evening was spent in the examination of these specimens. After speaking in detail about the specimens and the mode of preparation employed in the tubercular cases, Dr. Gibbs drew attention to the two forms of tubercle met with in the human subject, as already defined by Klein, the reticular and non-reticular forms (specimens of bacilli in both were shown). In the former class of cases bacilli were rarely found; in his own observations in one lung out of every ten, and then in the smallest numbers, singly or in groups of three or four in the meshes of the reticulum. In the non-reticular tubercles, on the contrary, bacilli were of almost invariable occurrence in large numbers, and were aggregated into masses especially to be found in the caseous centre. He was inclined to think that the latter form indicated a more acute disease, than the former. Bovine tubercle was always of the reticular form, with large and numerous giant cells, the tubercles being aggregated in large masses, which are caseous in many places. In bovine reticulated tubercle, however, bacilli were abundant; found, not as in the human subject, solely in the reticulum, but partly around the edge of the caseous region, and partly in the interior of the epithelioid and giant cells. He was inclined to think that this bacillus would prove to be of a different kind from the human one. He had found the bacillus in the liver and spleen, but not in the omentum.—On the motion of the President a cordial vote of thanks was given to Dr. Gibbs for his excellent demonstration; and to Messrs. A. & J. Beck for their kind loan of microscopes.—Dr. C. T. Williams remarked on the failure, in other hands, of Koch's and Ehrlich's methods of obtaining bacilli, and the universal success of Dr. Gibbs' mode. Had Dr. Gibbs detected the bacillus in the blood? He himself had not been able to do so. By Dr. Gibbs' method he detected bacilli in the sputa of nearly all cases of advanced phthisis, but not in all. He thought they were most difficult to find in cases undergoing partial recovery.—Dr. R. Crocker thought Ehrlich's process more successful than Dr. Williams represented.—Dr. Heron said that Koch's process was very difficult, and had been lately abandoned by Koch himself in favor of Ehrlich's process of floating the cover-

slip in a solution of fuchsin. Fuchsin is precisely the same thing as magenta, though various specimens of either were slightly different in tint. The cover-slip was washed in nitric acid (one part to two of water), and the specimen then stained with methylene blue. This process, therefore, was practically identical with that of Dr. Gibbs', whom he personally thanked for his labors.—Mr. Jabez Hogg thought the greatest advantage of Dr. Gibbs' method was that low powers might be used in it. The distinction between various specific bacilli was not at present clear, and it was questionable whether these bacilli of tubercle are really characteristic of this affection.—Dr. Green presumed that the Fellows were prepared to assume with M. Koch the essential connection between the bacillus tuberculosis and the tuberculous processes. Was there, he would ask, any relation found between the number of bacilli and the stage of the disease? He had still to hear what the conditions were which enabled the bacillus to produce its effect.—Dr. Gibbs, in reply, said that he had not examined the blood for bacilli. His method of mixing rosaniline with aniline to form a definite compound was totally distinct from Ehrlich's. Fuchsin would not combine with aniline.

An Improved Invalid Carriage.—Transplantation of Skin in the Treatment of a Large Hairy Mole.—Talipes Varus treated by Partial Excision of Tarsus.—Bronchiectasis, treated by Tapping.

At the meeting of the Society held on Dec. 11th, 1882, Mr. F. Mason, President, in the chair, Mr. Richard Davy exhibited an Invalid Carriage he had devised, capable of carrying one, or, at an emergency, six injured persons, in addition to the surgeon and the driver. The carriage was drawn by one horse, and could be shunted on to a steamer or railway-truck; was of large cubical capacity, and admitted plenty of fresh air and light; the door facing a platform for easy ingress or exit. The stretchers are comfortable and strong, and could be easily slung to the roof. Journeys not exceeding twenty miles could be undertaken by road. For the surgeon there is ample space, a floor easily cleaned, and ready means of communication with the driver. A cupboard beneath the driving-box contains surgical requisites and food. Mr. Davy commented on the exorbitant rates and bad accommodation furnished by railway companies, and stated that his carriage had been appreciated by invalids, pointing out the comfort arising from a system that required no change of conveyance in going from one place to another. The carriage was constructed by Mr. Burt, of Swinton-street, W.C.

Mr. W. Pye read notes of a case of a large Hairy Mole on the forehead treated by Transplantation of a Skin-flap from the arm. The patient, who was exhibited, was fifteen months old when admitted into the Victoria Hospital with a very disfiguring hairy mole occupying the right half of the forehead. It was plain that simple dissection or destruction by caustics would involve great risk of deformity to the eyebrow and lid, besides the unsightliness of the resulting scar. It was therefore decided to cover the wound with a flap of skin from the forearm. The flap dissected from the forearm was left attached to the wrist; the mole was completely dissected off, the arm brought up and the flap adjusted to the wound by several sutures. The arm was then fixed in position by strapping and bandaging, and the sides of the wound in the forearm were partly brought together with sutures. Within twenty-four hours the flap had united at all the joints, where it was in contact with the edges of the wound. On the third

day, however, the side of the scalp became tumid, and the eye became irritated by the discharge. The flap was therefore detached from the arm on the fourth day, and after a little of it had sloughed the wound healed rapidly. There is now only a fading circular cicatrix marking the place of the original mole. The surgical interest of the case consisted in (1) the method of treatment employed, (2) the fact that the pedicle was taken from the distal side of the forearm with no ill effect, and (3) that the pedicle was divided as early as the fourth day.—Mr. Rose had lately performed a similar operation on the hand, using a flap of skin from the abdomen. He divided the pedicle by degrees at the end of a fortnight. Mr. Pye was to be congratulated on the flap living after so early a division of the pedicle.—The President remarked that wounds in children united earlier than in adults. It was fortunate that the child could be induced to keep its arm quiet. He had never divided a pedicle at so early a date. He showed two photographs of cases. In the first, a hairy mole, he had used ethylate of sodium without success, and subsequently nitric acid. In a case of artificial nose he had transplanted a large flap of skin from the forearm to the forehead successfully without any pedicle.—Mr. Davy had used for many years a very fine needle with thermo-cautery in removing hairy moles in preference to excision. In young infants, however, extensive wounds of the skin might be made without much ultimate deformity.—Mr. Pye said that he had fixed the arm with strapping and bandages, keeping the child under the influence of opium. He thought the mole could not have been removed by the thermo-cautery without leaving a large scar. The mole was raised and deep. He had no alternative between dividing the pedicle and letting the eye slough.

Mr. Rose read notes of a case of Talipes Varus in a boy aged thirteen, who was successfully operated on by removal of a wedge of bone from the tarsal arch. Casts of the right foot were shown before and after operation, the second cast showing the foot in good position. The patient had been operated on by tenotomy four times at other hospitals without result. The operation was performed antiseptically on April 14th, and the boy left the hospital on June 3rd plantigrade. Mr. Rose brought forward the case as another link in the chain of evidence in favor of this operation, which should, of course, be restricted to cases in which instrumentation and tenotomy had failed, and where, without this last resource, the patient would remain a permanent cripple. The cast of another case was shown, operated on fourteen days ago, the position of the foot and progress of the case being very satisfactory.—The President doubted the necessity of removing so much bone. Did Mr. Davy use Listerism?—Mr. Davy was glad to see this operation making way, and promised to show some patients operated on by this method at a future day. The insertion of the peroneous tendon was as a rule involved. It was of no importance whether the tendon was cut or not. He did not use Listerism. He had but one death in twenty-five cases.—Mr. Rose said his patient walked away within two months of the operation.

Dr. C. T. Williams read notes of a case of Bronchiectasis treated by Tapping. The case was that of a man, aged forty, admitted into Brompton Hospital in April, 1882, with a history of continued cough and expectoration (latterly fetid) of a year's duration following pleurisy. The physical signs pointed to double chronic pneumonia, adhesion of right pleura and numerous bronchiectases of the right lung, the spots of gurgling being seated in the second and third interspaces near the

shoulder, in the fourth and fifth outside the right nipple, and posteriorly near the lower angle of the scapula. Antiseptic measures failing to reduce the fetor, Professor Marshall, at Dr. Williams' request, made a vertical incision from the fourth to the sixth rib, along a line marked out by the latter, and plunged a trocar and director (specially devised by Dr. Hicks) to the depth of four inches in the direction of the root of the lung. Air hissed out of the opening, and a quantity of fetid matter and sloughing debris was forcibly ejected. The opening was enlarged and a drainage-tube inserted. All fetor ceased, the cough moderated, the temperature fell to normal, and the patient took exercise in the garden. Nineteen days later the discharge increased and became thoroughly fetid, the temperature rising to 101.4°; there was some headache. The discharge continued, but became fetid; vomiting, followed by drowsiness and left hemiplegia, ensued, and death by coma took place on July 6th, forty-five days after the operation. An abscess was found in the left cerebral hemisphere; there was chronic pneumonia, an adherent pleura in the left side, and numerous small bronchiectases, as well as some larger ones, in the left lung, the largest, of the size of an orange, having been the one tapped. No tubercular or caseous masses were found. The case illustrated the difficulties of dealing with bronchiectasis, especially of the globular or saccular variety. By loss of their contractility the tubes were converted into mere bags of putrescent matter, which became absorbed and caused pyæmia. The diagnosis was tolerably exact, and, fortunately, the largest bronchiectasis was reached without much difficulty, and the first results of the operation were thoroughly satisfactory. He alluded to the value of a vertical skin incision over interspaces, to allow, if necessary, a second puncture into the adjoining space, and to Dr. Hicks's director attached to the trocar and cannula, which enabled the opening to be readily enlarged for the introduction of the drainage-tube. This was the fourth case of bronchiectasis which Dr. Williams had tapped, but was the only one where death ensued from cerebral abscess; in two others septicæmia of the opposite lung was the cause. One patient was still living after two years' interval, but the chief difficulty lay in the number of operations which were sometimes necessary to establish efficient drainage.—Dr. Symes Thompson said that the difficulty in these cases was that the dilatations were seldom single. In one case Dr. Williams had made as many as six incisions. The irritation of retained secretions could not be successfully overcome by inhalations.—Mr. E. Owen asked whether Listerism was essential to these cases. In a case he had recently operated on for Dr. Broadbent, excellent results had followed without it. Was it worth while keeping germs from the wound while they could enter by the bronchi?—Mr. Hubert Smith thought antisepticism useful when pleural adhesion had not taken place.—Dr. Williams, in reply, said that in such cases something must be done, otherwise the fetor would render a hospital uninhabitable. He had left the surgical treatment of the case in Mr. Marshall's hands. Free drainage was the main point. It was his first case before operating to ascertain that the pleural layers were adherent.

DIPHTHERIA.—At Port Washington, Long Island, U. S., ten persons in one family are said to have been suffering from diphtheria, which is supposed to have been contracted by drinking from a tin dipper which had been used by a boy in a neighboring family who had the disease.

PATHOLOGICAL SOCIETY OF LONDON.

Casts made with New Material.—Diffuse Polypi of Colon.—Large Polypus of Rectum.—Polypus of Small Intestine.—Abscesses in Liver of Kangaroo.—Abscess and Pyæmia in a Python.—Changes in the Nerves in Infantile Paralysis.—Changes in Nerves after Amputation.—Hypertrophy and Softening of Bones in a Child.—Addison's Disease without Bronzing.—Bone and Brain Disease in Syphilis.—Micro-organisms in Pyæmia.

THE ordinary meeting of this Society was held on December 19th, 1882, the President, Dr. Wilks, being in the chair. Dr. Goodhart's specimens of extraordinary thickening and softening of the cranial bones were referred to the Rickets Committee. Dr. Lees showed a living case of erythema papulatum in a boy aged three years.

Mr. Bowlby showed some excellent casts of Limbs and Skin Eruptions made from a new material, the composition of which was described in the *British Medical Journal* a short time ago. The most important question was as to the durability of the specimens; some of those exhibited had been made nearly a year, but possibly it might be found advantageous to add some preservative like arsenic. The coloring of the skin eruption was done after the cast was made. His second specimen was a Colon of a man, aged sixty years, with diffuse Polypoid growths. There was no other disease of the alimentary canal found, and there were no symptoms during life. The growths commenced immediately beyond the ileo-cæcal valve and extended as far as half way down the descending colon. Some were sessile and some pedunculated. They consisted mostly of soft mucous membrane, and had no relation to any particular part of the circumference of the bowel.—Mr. Bowlby also showed a very large Fibro-cellular Polypus of the Rectum. The patient was a girl, aged twenty-four, who previous to the discovery of the tumour had felt no discomfort beyond occasional constipation. While straining at stool she felt something come down which she was unable to return, and Mr. Everley Taylor, of Scarborough, having been called in, found a large mass, the size of a fetal head, protruding from the anus. The tumour was removed under chloroform and was found to be very succulent, much fluid escaping when it was cut into, and its weight was thirty-one ounces. Its attachment was to the anterior wall, and it consisted of very loose fibrillar tissue containing a considerable quantity of fluid—i. e., a soft fibroma. The mucous membrane over it was normal. It is now ten months since its removal, and there has been no recurrence. Its large size, and the absence of symptoms, were the most noteworthy features. His fourth specimen was a Polypus of the small Intestine. A female, aged thirteen months, under the care of Mr. Morratt Baker, was taken ill, with symptoms of intussusception, on April 28th. She was admitted to St. Bartholomew's Hospital on May 10th, when the vermiform appendix was found hanging loose from the anus, and on the 13th a large portion of the gut came away. The child immediately began to recover, and was discharged from the Hospital on the 19th with the motions fairly healthy. On June 1st it was readmitted with wasting and congenital syphilitic rash, and it died from marasmus on July 2nd, without any symptoms of intestinal obstruction. Post-mortem, there was evidence of old peritonitis and adhesions of the coils together, and also to the enlarged mesenteric glands. The upper part of the small intestines was healthy.

There was a polypus about eight inches from the anus, with ulceration of the gut above it. There was no colon, but there were signs of the restitution of the continuity of the canal, three inches and a half from the anus. There was very little constriction; but the gut above was dilated. The peritoneum was scarred and puckered. The polypus was doubtless the cause of the intussusception; but it was unusual for the polypus not to come away.—Dr. Coupland alluded to a case something like Mr. Bowlby's that was under his care two years ago, the details of which were published in the *Clinical Society's Transactions*. The patient was twenty years of age, and abdominal section was performed for irreducible intussusception. The polypus was in the small intestine, and produced the intussusception which came through the ileo-cæcal valve. Alluding to Mr. Bowlby's case of multiple polypi, he said there was a specimen somewhat similar in the Middlesex Hospital Museum.—Mr. Cripps remarked on the large size of the rectal polypus; and with regard to the disseminated polypi, said there were only four cases recorded in the *Transactions* of the several Societies and in the museums. The specimen that Dr. Coupland had alluded to was taken from a man whose symptoms dated from an attack of cholera, and he died six months afterwards. There was another specimen in Guy's Hospital Museum where there were about twenty polypi in the last twenty inches of the colon with long, slender pedicles. He had shown a specimen himself last year. There were two kinds of polypi: (1) Those formerly called villous tumours, which consisted of hypertrophy of the mucous membrane, with new epithelial layers over the retiform tissue; (2) deposit in the submucous tissue of a mass of cells, the pedicle being formed subsequently, analogous to the fibrous molluscum of the skin. He saw Mr. Bowlby's case of intussusception during life, and asked how it was that the small intestine, which must have come down through the ileo-cæcal valve, did not also slough.—Dr. Wilks thought from his experience that polypi generally occurred in little boys.—Mr. Morris was surprised to hear polypi spoken of as rare. He recollected seeing several cases shown in one evening at this Society, all from young children. He once operated on a woman who had polypus, fistula, and hemorrhoids, and related a case of a man who complained of tenesmus and spasm of the sphincter, and on examination six or eight polypi could be felt in the rectum.—Dr. Goodhart said that he had met with three kinds of polypi in the museum of the College of Surgeons:—1. Like the large specimen shown to-night, which was like Mr. Curling's case. 2. The polypi of young children, which consist of mucous membrane, and are papillomata. 3. Villous, like Mr. Henry Smith's case, where twenty or thirty were removed by the finger, but recurred. With regard to the intussusception, he thought that the colon usually sloughs, and leaves the small intestine behind.—Mr. Bowlby, in his reply, said that disseminated polypi were usually mucous. The interest of his case lay in the fact that his had a fibrous consistence. He thought that the ileo-cæcal valve in the intussusception case, as well as a part of the small intestine, had sloughed away.

Mr. J. B. Sutton showed, first, the Liver of a Kangaroo, with about 200 small abscesses, some projecting above the surface and some deeply imbedded. All of them had caseous walls. One had burst into the peritoneum and killed the animal. He had often seen similar abscesses in birds. Secondly, he related the case of a Large Abscess occurring in the Abdominal Wall of a Python, seven feet long and five inches in circumference, which died four days after admission into the Zoological

Gardens. The cavity of the abscess was lined with layers of fibrin. There were five ounces of bloody serum in the pericardium. The liver was filled with abscesses, from the size of a pea to that of a nut; some of them had only fibrin in them, others pus. In all reptiles there was a communication between the portal vein and the intercostals, and this was freer in the python than in other reptiles through an extra communication. The abscess was situated in the anastomotic area, and led to the hepatic abscesses and the pericarditis.—In reply to the President's question as to the cause of the abscess, Mr. Sutton said that abscesses were common in snakes, possibly from wounds of the intestines produced by the bones which they swallowed.

Sir Joseph Fayrer, in reply to Dr. Wilks, said he was only familiar with multiple abscesses of the liver in the human subject, and he thought that at first they were limited necroses, and then abscesses.

Dr. Walter Edmunds showed microscopical specimens of Nerves from three cases of Infantile Paralysis. The specimens were from three cases in which the leg had been amputated late in the disease as an encumbrance. The sections were from the internal popliteal nerve. They showed considerable increase of the endoneurium in the nerve-bundles and atrophy of many of the nerve fibres. The endothelium in the vessels in the nerve was proliferated.—Dr. Buzzard thought that if the disease be really inflammatory it would probably affect the vessels in the connective tissue first, and where the inflammatory change was the greatest the nerve tubules would be most pressed upon, and therefore atrophied.—Mr. Bowlby thought Dr. Edmunds' view was the correct one, as the separation of the fibres from the nutritive nerve cell would lead to atrophy. He thought the patches of connective tissue were in the site of former motor nerve fibres.

Dr. Hale White and Dr. Edmunds showed microscopic specimens of Neuromata after Amputation, which were, he said, rare in the Society's Transaction, though not really rare tumours. The specimens showed that the first change in the coiled bundles of nerve fibres at the end of the amputated nerve was an ingrowth of delicate connective tissue from the perineurium; this ended in the sclerosis of the bundles, and in its turn the sclerosed tissue underwent fatty degeneration. The reason why the nerve fibres underwent fatty degeneration was that in man the other tissues of the limb not regenerating themselves, there was no need of either sensory or motor nerves. It was pointed out that in the nerve of the amputated limb certain fibres underwent degeneration, which were probably those coming from the parts which had been renewed, whilst the fibres which had not undergone degeneration were derived from the remaining parts of the limb. In a case of amputation of the thigh, the change in the cells of the tractus intermedio-lateralis had not extended as high as the lower dorsal cord. Sections of the median nerve just below a spot where it had been cut through previously showed complete degeneration of the nerve owing to all its fibres being functionally useless. A specimen was also shown of a round-celled sarcoma at the end of an amputated nerve.—Dr. Wilks asked if there was new growth as well as atrophy.—Dr. Hoggan thought that the only satisfactory method was to begin *de novo* the study of nerve pathology by the investigation of the changes in the individual nerve fibres by the improved methods of staining by osmic acid and gold.—Dr. White, in reply, said that his specimens were taken when the changes were too far advanced to show the new nerve fibres, and he

had only quoted from the authorities as to their existence.

Dr. Goodhart showed the Calvaria and specimens of the other bones of an infant, aged fifteen months, who was in the hospital only three days, and died of atelectasis. The mother contracted gonorrhoea from her husband and the child had consequent ophthalmia, but there was no other evidence pointing to syphilis. There are two other children, one with rickets. The patient was suckled for three weeks, and then brought up on milk and water and beef-tea. The child thrived well the first year, but always perspired profusely, had thrush badly, and occasionally spots on the nates, the abdomen was always large. During the last three months the spine had been curved and she cried when moved. A month ago the legs became swollen, then the arms, and then the head. There was well-marked cranio-tabes, the ribs were beaded and the thorax flattened laterally. Node-like lumps could be felt over the inner surface of each tibia and radius, and the lower epiphyses of the radii were enlarged. The spleen was notably enlarged. Post mortem the changes in the bones were the most noteworthy, the bones of the skull being enormously thickened, and also all the long bones and the spine. To summarize the changes:—1. The bones were soft like sponge, and all of them except the petrous part of the temporal bone could be cut with a knife like a raw potato, and one tibia was broken. 2. There was great hypertrophy, mainly, but not exclusively, upon the periosteal pattern. 3. There was marked rickets. The question was whether it was all from rickets or due to congenital syphilis. Parrot has described a similar condition of spongiform osteophytes, but less marked than in this case, which he ascribes to congenital syphilis. Dr. Goodhart thought there was almost too much periosteal growth for rickets, and perhaps the safer plan was to consider it the outcome of both diseases. The infiltrating growth, which even obliterated the medullary canal, seemed to bring it in some relation to osteitis deformans, and some thought osteitis deformans was allied to tumours; and it might be suggested that these changes were more of the nature of a bone tumour.

Dr. Norman Moore thought that the bodies of the vertebrae did not present the changes seen in rickets, and that in the skull the thickening was not increased at the sutures; in both these points it was not like rickets.—Mr. Kesteven asked if there had been any microscopical examinations made.—Dr. Goodhart replied that he had only made an imperfect microscopic examination, and found porous bone. He then related a case of Addison's Disease without bronzing, and showed the abdominal sympathetic nerves which had been carefully dissected out by Mr. Pearson, of the College of Surgeons. The patient was a medical man who had felt ill for a short time and took a sea voyage to recruit himself, obstinate sickness set in, which was ascribed to the effects of the sea, and he landed in a very exhausted state; a few days later he got out of bed and fatal syncope ensued. There was no alteration in the color of the skin. At the autopsy Dr. Goodhart found suprarenal change, and the abdominal sympathetic affected in such a way as to show that there was undoubted Addison's disease. He thought that the case supported the view that if the disease was rapid in its course bronzing might not occur.

Mr. Victor Horsley exhibited specimens of Bone and Brain Disease in Syphilis. The organs shown possess no special interest beyond the fact that successful treatment lessens the opportunities of studying syphilitic lesions. In this case the patient was admitted into University College Hospital under Mr. Hill, from the Lock Hospital,

Soho in a very weak state, and suffering from pyæmic abscesses. What history could be obtained showed his condition to be pyæmic, following on necrosis of the facial and cranial bones. The specimens show, first, the points of necrosis on the frontal and malar bones, together with the spongy bones of the nose, of which the inferior turbinate was found post mortem to be a mere sequestrum, and kept in the nasal fossa by tenacious muco-pus. The whole mucous membrane of the pharynx is hyperæmic, and shows a few cicatrices of previous ulceration. The seats of active mischief were excessively foul, the smell of the discharge not being controlled by antiseptics. The frontal bone shows very well the cicatrices of former ulceration and destruction of the outer table. The lungs on both sides showed some cirrhosis of the apices and broncho-pneumonia; the liver, fatty and cirrhotic, presented a depressed scar on its surface penetrating a quarter of an inch into the substance of the organ. Both spleen and kidneys were cirrhotic, while the former was greatly enlarged, being seven inches long by four inches and a half by two inches. The other abdominal organs showed no particular lesion. On removing the brain there was found an excess of cerebro-spinal fluid, while the arachnoid and pia mater at the base were opaque, and in places matted together by exudation. This did not seem to have caused any paralysis of any cranial nerve. There is asymmetry of the cerebellum, the lateral lobe of the left side being deficient on its under surface at the anterior border, the flocculus being scarcely represented. This does not seem to be the result of disease. There were eleven abscesses in the connective tissue of the limbs and trunk.

Mr. Horsley also showed the Micro-organisms of Pyæmia. There were also shown two specimens of Micrococci, found in the abscess fluid of the case of syphilis and pyæmia first referred to, and also from a case of excision of the tongue for epithelioma. The form of pyæmia in both cases was alike—viz., that in which there is a formation of peripheral, not visceral abscesses—i.e., an infective process not dependent on embolism. As has always been found, the organisms are micrococci, and while always occurring in the abscess cavities, they were not found in the blood. With the fact in view of their invariable occurrence in acute abscess (described by Ogston and confirmed by Mr. Horsley), of course no causative importance was attached to their presence.

Card specimens of Urinary Calculi, chiefly composed of carbonate of lime, from the horse, ass, and dog, were shown by Mr. Shattock; and Cancer of Omentum by Dr. Bedford Fenwick.

CLINICAL SOCIETY OF LONDON.

Cases of Intussusception treated by Abdominal Section.

THE ordinary meeting of this Society was held on Dec. 8th, 1882, J. Lister, Esq., F.R.S., President, in the chair. The evening was occupied by an interesting debate upon the subject of abdominal section for intussusception, introduced by Mr. Godlee in a paper on three cases in which that procedure was followed, one case being successful. The other papers on the agenda had in consequence to be postponed, but Dr. Coxwell exhibited his case of a child with symptoms resembling those of myxœdema. Dr. T. H. Green exhibited a well-marked case of pseudo-hypertrophic paralysis, the patient being a man twenty-four years of age, and the symptoms of the disease only having appeared one year previously.

Mr. Godlee read a paper on three cases of Intussusception in infants treated by Abdominal Section.—Case 1, an infant of nine months, was admitted into University College Hospital with well-marked symptoms of Intussusception, from which it had been suffering for four days. The bowel protruded at the anus. The child was very ill and weak, and it was doubted whether it was justifiable to perform any operation. It was not thought wise to spend much time on attempts at inflation, and accordingly abdominal section was performed without much delay. Antiseptic precautions were adopted throughout, the child being as far as possible protected from the chilling influence of the spray by using as small a volume as possible, and wrapping up the greater part of the trunk and legs in cotton-wool. No great difficulty was experienced in finding the point of involution, nor in reducing the intussuscepted part. The wound was secured as in an ovariectomy, and a dressing of iodoform wool was applied and secured by a flannel roller. The temperature rose the day after the operation to 105°, but soon fell to about 100°. It was necessary to give small quantities of brandy after the operation, and for some few days minim doses of laudanum were given to check restlessness and a slight diarrhoea which ensued. A little suppuration occurred along the course of the sutures, but the wound healed well, and by the eleventh day it had completely closed, the child being apparently in perfect health. Case 2 was a somewhat younger child, who had been seized with milder pain two days previously. The symptoms of intussusception were clear, and a sausage-shaped tumour was felt to the right of the umbilicus, easily movable, especially from above downwards. In the intervals between the spasms the child was apparently free from pain. Under the influence of chloroform the tumour could be easily felt, and it was thought that it diminished under manipulation, but as a considerable mass remained, abdominal section was performed as in the previous case, and reduction was effected by grasping the end of the ileum and drawing it towards the wound. Next morning the child seemed pretty well, but peritonitis set in rapidly and death occurred the following night. The spray used in this case was remarkably small. At the autopsy the last two inches of the ileum and the first two of the cæcum were found much congested and thickened, and some slight ulceration had occurred in the ileum; the rest of the intestines were almost empty. There were marked appearances of peritonitis.—Case 3. A child, fourteen weeks old, was admitted into the North-Eastern Hospital for Children with symptoms of intussusception that had lasted several days. The child was very ill and the abdomen much distended and tender. The bowel protruded at the anus. Abdominal section was performed. It was very difficult to find the point of involution, which was seated deeply in the splenic region, and correspondingly difficult to effect the reduction. After about four inches had been drawn out the cæcum and vermiform appendix appeared, and, thinking that the reduction was complete, Mr. Godlee drew the cæcum towards the iliac fossa and closed the wound in the abdominal wall. The child never rallied, but died eight hours after the operation. At the autopsy it was found that seven inches of large intestine still remained unreduced. It was clear that the involution had commenced, not, as is usually the case, at the ileo-cæcal valve, but at some point in the course of the transverse, or perhaps the ascending colon. Some sloughing had already occurred in the cæcum. Mr. Godlee pointed out how easily such a mistake as that which he made in the last case may occur, and the

manner in which it may be avoided. He did not feel discouraged by the result of the last two cases, but whenever the gut protrudes at the anus he would at once proceed to the operation, or at all events would not waste much time in attempting inflation. On the other hand, in cases such as the second recorded he would give inflation and injection a good trial, since these are the cases most likely to be cured by this proceeding, and they are better able to bear the exhausting results which it causes. Moreover it is clear that the danger of peritonitis is a real one, even if the operation be carried out antiseptically.

Mr. G. Brown read notes of a Case of Intussusception in a boy fourteen years of age, who was suddenly seized with pain in the abdomen. The bowels having acted in the morning, Mr. Brown saw him often throughout the day. There was constant pain, tenesmus, and mæna; and Mr. Brown diagnosed the case to be intussusception. Opium was given without relief. Next day the intussuscepted gut could be felt per rectum. A consultation was held with Dr. Cholmeley, who advised insufflation, which was ineffectually tried, and the next day Mr. Brown performed abdominal section. The operation was difficult, and in spite of considerable traction the invagination could not be reduced. An attempt was then made to perform colotomy, but the colon was found to be filled with adherent small intestine. Death took place six hours after the operation. Mr. Brown remarked upon the rapid evolution and severity of the symptoms in the case. Another time he would not, as in this case, make the incision over the tumour, but in the middle line of the belly.—Mr. Bryant congratulated Mr. Godlee on his courage in acting on his opinion as soon as he could do so. Although only one of the cases was successful, yet each of these cases suggested the value of early operation; for, as regards the two which had failed, valuable time had been lost, and in such young subjects the gravity of delay was great. In all these Mr. Godlee was able to withdraw the intussuscepted portion from the colon, and it had been one of the main objections to the operation that this could not always be done, because whether the bowel is adherent or not depends much on the activity of inflammation. Mr. Bryant said they should bear in mind the analogy between hernia and intussusception. In the early stages of hernia the value of taxis is great, but in later stages it is unjustifiable. So in intussusception: if seen early, temporizing measures, such as inflation, may succeed; but the longer such interference is postponed the chances of success are lessened, and operation becomes necessary to save life. And this must be the course pursued in spite of a few cases being spontaneously cured by sloughing of the intussuscepted gut; just as in hernia, sometimes, when an operation has been refused, spontaneous reduction takes place by a turn in bed or under the influence of opium. He believed if this principle were more often followed more successes would be recorded. He was glad to hear of the facility with which Mr. Godlee effected the reduction by withdrawing the bowel without requiring any process of kneading. His failure in the third case was quite excusable, for the fact of the appearance of the appendix cæci would generally imply that the intussusception had been fully reduced.—Mr. Howard Marsh also congratulated Mr. Godlee on the success of his first case, a success which taught two lessons—viz., the tolerance of infants for such an operation, and the value of mechanical treatment early applied. We were learning by degrees that children bore abdominal section well. Mr. Bryant had pointed out that the difficulties attending operations for intussusception

were purely mechanical, and had rightly compared the condition to that of hernia. Opponents of the operation might argue that it showed very few successes, the fact being that the cases were few in which operation could be expected to succeed. Mr. Brown's case showed in how short a time inflammatory adhesion could occur so as to prevent reduction; but in Mr. Godlee's cases the strangulation did not seem to be complete. For, although in each case blood was passed per rectum, the very fact of hæmorrhage occurring showed, as Dr. Hilton Fagge had pointed out, that the circulation was still going on in the partially strangulated bowel. The period at which strangulation comes on is very variable. It is not the time that the intussusception has lasted, but the period during which symptoms of strangulation have been present that is of importance. Thus he had met with a case of a child who had had intussusception for two weeks, but strangulation for only twelve hours. In Mr. Godlee's two fatal cases the operation had been delayed too long, and seeing the good results of abdominal operations he joined with Mr. Bryant in urging early interference, so that, if inflation do not succeed, the operation should be done at once. The severity of an operation is no good ground for its exclusion, if it be the only means likely to succeed. Intussusception is extremely fatal, for, setting aside a few cases of spontaneous cure, almost all die, and therefore he urged surgeons to be on the alert in such cases. Mr. Marsh concluded by advocating the procedure of reduction employed by Mr. Hutchinson as preferable to simple traction.—Dr. F. Taylor agreed with Mr. Marsh on the minor importance of the duration of the intussusception itself as an indication for interference; for during the past year he had had under his care three cases, in two of which recovery took place after inflation. In these cases symptoms had been present for from three to five days. The symptoms of strangulation, however, were not severe, there being very little distension of the abdomen, the patients suffering from time to time from twinging pains. In the two successful cases the invagination yielded to insufflation under chloroform; the children were five and eight years of age respectively. The other case was a younger child, who was in a more collapsed state; inflation reduced the size of the tumour considerably, and it passed from the left side of the abdomen to the right. Opium was given, but in a few hours the tumour returned to its original size and position. Mr. Golding Bird saw the case and again performed inflation, with the same result as before, but collapse ensued. After death examination showed an incomplete reduction, which was completely effected by injecting water into the bowel, but not without causing a rent in the peritoneal coat.—Dr. Mahomed mentioned a case of chronic intussusception lasting nine months, the true nature of which was not clear, notwithstanding the sloughing and passage of a portion of intestine. It occurred to him in that case whether it would not be justifiable to cut down on the bowel and remove it. He therefore suggested that excision of the intussuscepted bowel might be of value in cases which could not be reduced by other means.

Mr. Howse said that the results of abdominal section for intussusception were not very encouraging. Since the case recorded by himself and Dr. Fagge, in the *Med. Chir. Trans.*, he had had four cases, in two of which the intussusception had protruded from the anus. In two of the cases inflation was tried, but owing to their severity operation had to be performed. On each of the four cases he failed to reduce the intussusception. In two he excised the ileo-cæcal valve,

which remained unreduced. But the excision of a piece of intestine with the abdomen laid open was not easy, there being great risk of tearing the softened gut; and he suggested the use of a thin elastic sheeting to shut off the rest of the cavity whilst excising. Another difficulty he met with was in bringing the divided ends of the bowel together, it being very difficult to draw them sufficiently out. It might be well in cases where the intestine protrudes through the anus to adopt another measure, similar to that followed by an Italian surgeon, who, mistaking the condition for one of simple prolapse, drew down the tumour and cut it bodily away; the case did well. Some such procedure as this might succeed, for it would be comparatively easy to cut off the intestinal mass, and yet the peritoneal cavity would be shut off by the adhesions in the intussusception.—Dr. Mahomed added that he should have referred to Mr. Bryant's successful cases of excision of portions of diseased intestine.—Dr. Andrew Clark commended Mr. Godlee for his modest record, and wished to ask whether the effects of such operations on young children had been noted, especially as regards variations in the temperature. If observations on temperature were made during such operations, we might the better understand the various factors engaged in the production of temperature.—Mr. Haward said that no doubt it was very desirable to make the distinction, if possible, between those cases in which the bowel is merely invaginated and those in which it is strangulated. The acuteness of the symptoms was some guide, but it cannot be altogether depended on. There was lately under the care of Dr. Cavafy and himself a child, seventeen months old, whose attack had commenced with vomiting five days before; the bowels were twice opened after the first symptoms, and blood had been passed for two days. On admission the invaginated bowel could be felt per rectum. Ether was given, and injection with inversion failing to effect reduction, the abdomen was opened. Although acute symptoms had been present for five days there was no difficulty in withdrawing the invagination (consisting of ileo-caecal valve and ileum) by slight traction and support from above. The main difficulties now arose. The bowels, being greatly distended with gas, could not be prevented protruding through the abdominal wound. Inversion and gentle manipulation failed to replace them; nor did simple punctures to let out the gas suffice. Finally, the distended coils had to be tapped with a trocar, liberating gas and fluid faeces; before the intestines could be got back. This same difficulty has occurred to others in abdominal section for intestinal obstruction. The child died a few hours after the operation, with commencing peritonitis, which Mr. Haward thought was due to the above protracted difficulty.—Mr. Beck had done this operation six years ago, in a child under one year old, who survived it for thirty-six hours. There was some difficulty in reducing the intestine, which he had to draw out on to the abdominal wall; and he tried to reduce it by both pushing and pulling on the intussusception. During these measures fissures appeared on the surface of the vulvulus, and the child ceased to breathe, but was restored by artificial respiration.—Mr. Pepper remembered the case referred to by Mr. Beck, which raised in his mind doubts as to the propriety of such operations. Since then he had seen one operated on by Mr. Pye, in which the peritoneal coats also split. He pointed out that Mr. Pollock, writing in "Holmes' System of Surgery," says that a very considerable number got well spontaneously, and, if so, it became a question whether it is wise to operate at all.—Dr. Buzzard pointed out that a case

of intussusception was not to be placed in the same category as ovarian disease, where there is no natural attempt at recovery; for in intussusception from the time inflammation (and therefore obstruction) sets in the natural process towards recovery is commenced, ulceration ultimately succeeding in cutting off the intussuscepted part. In every case there is this natural tendency to recovery, but in the majority the patient dies in the process. At the same time he did not wish to discourage the operation, which was often the only chance.—Dr. Glover asked whether belladonna might not do good, and related the case of a child who had obstruction for ten days (not, however, due to intussusception), in which no relief had been obtained under opium and enemata, and abdominal section was on the point of being performed, when belladonna was given—the extract in quarter of a grain dose, every four hours; and after the fifth dose the bowels were freely relieved.

The President said that the Society was to be congratulated upon the valuable discussion and the paper that had given rise to it. Mr. Howse's suggestion, although startling in its novelty, deserved careful consideration, for it was an imitation of the natural process of cure referred to by Dr. Buzzard. The peritonitis in Mr. Godlee's second case was, he felt no doubt, due to the state of the bowel, just as in peritonitis following strangulated hernia, and he did not think it attributable to the spray. In abdominal surgery it would seem that antiseptic precautions are less important than in surgery generally; but it must be remembered that those who say they operate without such precautions do really follow the practice, in scrupulously observing cleanliness in boiling or steeping sponges and instruments, etc., although they do not use the spray. Mr. Godlee took antiseptic precautions, but it was very unlikely that the spray was the cause of the peritonitis, and nothing more likely than that the condition of the bowel determined it.—Mr. Godlee, in reply, said that no doubt in that case of peritonitis the strangulation had lasted longer than in the others. He believed there were very few cases on record where the bowel had separated by sloughing under the age of one year, and inflation was less likely to be successful in such young children; besides, it produced very great exhaustion. Dr. Taylor's cases were older, and the youngest died. He was encouraged by Mr. Bryant's and Mr. Marsh's remarks, and concurred as to the importance of diagnosing the fact of strangulation. It was difficult to know when strangulation occurs, for bloody mucus was passed without there being strangulation, and gripping pains might even occur without it. The plan he adopted in the reduction was unrolling the ensheathing portion from the ensheathed, using very little traction; but these cases proved exceptionally easy to reduce. The temperature rose rapidly in the second case to 103° or 104° after the operation. There was a difficulty in returning the intestine into the abdomen, especially in the second case. He added that, in 1877, Dr. Sands, of New York, published a table giving seven successful cases of this operation out of twenty-one cases.

OBSTETRICAL SOCIETY OF LONDON.

A MEETING of this Society was held on Wednesday, Dec. 6th, 1882, Dr. Matthews Duncan, President, in the chair.

Deciduous Membrane.—Dr. Cleveland exhibited a fleshy finger-like sac, passed forty-eight hours after labour by a patient who after a former labour

had passed a similar substance, which he had then exhibited to the Society. After careful search he had found no trace of a double uterus.—The President could think of no other origin for such an unbroken decidua than that it came from a uterus bicornis.—Dr. Wynn Williams described a case of double uterus at present under his own care.

Microscopic Sections of Carcinoma Uteri.—Dr. Edis showed microscopic sections illustrating his case of malignant disease of the cervix complicating pregnancy. The amount of stroma was small compared with that of the cells, the appearance thus resembling that of medullary cancer.

Perimetritic Abscess.—Mr. Griffith showed a specimen of perimetritic abscess, situated behind the uterus and left broad ligament, displacing and obstructing the rectum, and opening at three places into the cervix uteri, vagina, and rectum.

The Directions of Uterine Contraction.—Dr. Godson showed a uterus removed by Porro's operation, which demonstrated well the wrinkles on its peritoneal surface caused by the contraction of its muscular fibres underneath.—Dr. Routh had heard the uterine soufflé per vaginam or over the sacrum in cases in which he had failed to hear it by auscultating the abdomen.

Retained Placenta.—Dr. Wynn Williams exhibited a placenta retained for three months after abortion, and removed by him.

Fibroids Removed by Abdominal Section.—Dr. Bantock exhibited five specimens of uterine fibroids, weighing respectively 3 lb., 8 lb., 13½ lb., 3 lb., and 2 lb., removed by abdominal section. One patient died, four recovered. In each case the pedicle was secured by Köberlé's serre-nœud, upon the value of which Dr. Bantock remarked. He thought that whatever might be the future of oophorectomy for the cure of fibroids, it could not compete with hysterectomy in cases such as those exhibited, in each of which there were substantial objections to the former operation.—Dr. Robert Barnes thought fibroids such as Dr. Bantock had shown better dealt with by hysterectomy. At present he inclined to think Battey's operation best suited for hard fibroids in the wall of the uterus, and projecting inwards. Malignant and myxomatous tumours it was better to extirpate. He could speak from clear observation of the remarkable effect of Battey's operation upon fibroids. Within a year after this operation he had found a tumour the size of the fist practically gone.—Mr. Knowsley Thornton did not think hysterectomy should be performed for fibroids until oophorectomy had been tried and failed. He had done the latter operation ten times; all the patients had recovered, all had been benefited, and in all the uterus had diminished in size, in some to a surprising degree. Not merely the ovaries, but the tubes, and the large vessels in the broad ligament, ought to be removed.—Dr. Godson corroborated Mr. Thornton's statement as to one of the cases operated on by him.

Dr. Champneys asked Mr. Thornton in what cases he thought the operation should be done.—Mr. Thornton thought only in cases in which life was threatened.

New Lamp.—Dr. Aveling exhibited a modification of Swan's incandescent carbon lamp, so made that it could be introduced into cavities of the body for operative or endoscopic purposes.

Ruptured Perineum: New Method of Operating.—A paper upon this subject, by Dr. Wynn Williams, was read. In this operation the sides of the rent were first denuded in the usual way; then a flap of elastic tissue about two-thirds of an inch in width, about two lines in thickness, and long enough when on the stretch to reach as high as the denuded surface on the labia, was dissected up

from the floor of the vagina. Sutures were then passed through the denuded surfaces in such a manner as to keep the edges as well as the flat surface of this flap in contact with the raw surface. This being done, the sutures were secured in the usual way. When the rupture involved the sphincter ani, the flap was made, and the sutures passed through it in the same way as in the simpler cases, but the rent in the wall of the rectum was sewn up with sutures made to terminate within the bowel, and the deep sutures secured before those bringing the flap into position were tied.—Dr. Aveling asked what was Dr. Wynn Williams's practice with regard to the action of the bowels after operation.—Dr. Bantock objected to the practice of tying the knees together, and also to the use of vaginal injections, after operation. He had performed Dr. Wynn Williams's operation once, but was not much impressed by it.—Dr. Cleveland thought that rupture of the perineum could often be prevented by restraining the too rapid emergence of the child's head, which could be done by judicious counter-pressure.—Dr. Savage thought the difference was overlooked between mere tegumentary lesions and rupture extending through the perineal body. In Dr. Williams's operation a narrow tongue of tegument was reserved in the course of denudation, and plastered over the crevice left after bringing the raw surfaces together. No additional strength resulted from this, because the tongue was merely tegumentary. Early operations were tegumentary, and failed altogether. The perineal body was the centre of attachment of the perineal muscles, and the mainstay of the floor of the pelvis.—Dr. Routh thought that rupture of the perineum could not always be prevented, and sometimes a slight laceration was not so great an evil as prolongation of the labour. He had in early practice succeeded completely with ordinary sewing-needles and thread. He concurred with Dr. Savage's remarks as to the perineal body, but had seen that the perineum made by Dr. Williams's operation was remarkably strong and effective.—Mr. Knowsley Thornton thought this mode of operating gave remarkably good results; but it was not new, having been described by Mr. Teale, of Leeds, and practiced by many American surgeons.—Dr. Murray had seen the operation now described, and thought it gave a firm perineum. It was not always prudent to retard the progress of the head. Laceration of the perineum might often be prevented by making one or two lateral cuts.

Dr. Campbell Pope said that primary union might often be obtained by applying a broad strip of plaster to hold the nates together.—Dr. Edis said that rupture might often be prevented by straightening the legs while the head was emerging, and also by making a nick on either side of the perineum. Union might be obtained by operation twelve or twenty-four hours afterwards. It was unnecessary, and rather jeopardized healing, to keep the bowels constipated after operation.—Dr. Culver James had, in one case, operated immediately after labour with a rather large common household needle, and obtained union.—The President had seen the results of many methods of operating, and could not say that one was better than another. He had stitched up a perineum two weeks after delivery without denudation or cutting of any kind, and it healed sufficiently.—Dr. Wynn Williams did not confine the bowels after operation. The perineum made without the flap he had described was apt to be too thin. He was not aware that his operation had been described before; it certainly was not alluded to in any work on gynecology.

Pregnancy complicated with Cancer of the Cervix; Cæsarean Section; Recovery.—This paper, by Dr.

Edis, was then read. The patient came to the Middlesex Hospital in November, 1881. She had begun to suffer from pain, hæmorrhage, and discharge eleven months previously. She presented the signs of six months pregnancy, and there was epithelioma involving nearly the whole circumference of the cervix and the greater part of the posterior vaginal wall. Palliative treatment was adopted until February, 1882. Labour pains then came on, and the os dilated to the size of a five-shilling piece. It being judged impossible for delivery *per vias naturales* to take place, Cæsarean section was performed by Mr. Morris. The child was born in a state of suspended animation, but recovered. The mother recovered, and when seen in September the disease had made but little progress.

Two Cases of Labour complicated by Cancer of the Cervix Uteri.—These cases were related in a paper by Dr. Herman. In the first case the diseased tissue was freely cut away with scissors and the actual cautery, and delivery effected with forceps. A vesico-vaginal fistula subsequently was formed, then phlebitis, and the patient died on the 18th day. The fistula occurred at a spot which the cancer had invaded. In the second case masses of diseased tissue were removed with the écraseur, the fingers, and scissors, with only trifling hæmorrhage, and delivery was effected with forceps. The mother recovered well. The author thought that in the management of labour obstructed by cancer, the first alternative to be considered should be whether it was not possible to break down, and tear or cut away (the former preferably) the obstructing diseased masses.—Dr. Bate had had a case of labour with commencing cancer, in which delivery was effected by natural efforts, but the patient died from septicæmia.—Dr. Champneys said that in these cases it was perhaps most important that there should be healthy tissue at the sides of the cervix, for it was there that lacerations most often occurred.—Dr. Galabin inquired as to the method of suture of the uterus adopted in Dr. Edis's case. He had in four cases of cancer delivered *per vias naturales*, in one only was there great difficulty in doing so; but two of the mothers died; in one of the latter the disease was almost entirely removed with the galvanic cautery.—Mr. Jennings thought that rupture of the bladder during parturition was not so rare as might be supposed.—Dr. Fancourt Barnes thought that in these cases Cæsarean section offered a chance of probable recovery to the mother and certain safety to the child. An important point was that in this operation healthy tissues were cut through, while in natural delivery diseased tissues were torn, thus favoring blood-poisoning.—Dr. Edis said that in his case interrupted sutures of silk worm gut were used.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

The late Mr. Critchett.—*Hydatid Tumour of Orbit.*—*Panophthalmitis.*—*Large Ivory Exostosis of Orbit.*—*Hard Chancre of Inner Canthus.*—*Central Amblyopia in Diabetes.*—*Optic Neuritis.*—*Tortuosity of Retinal Vessels.*

THE ordinary meeting of this Society was held on Dec. 14th, 1882, Mr. W. Bowman, F.R.S., President, in the chair. He alluded in feeling terms to the sad loss they had sustained in the death of Mr. Critchett, in whom they mourned a warm-hearted, true-hearted colleague, and one whose calm and mature judgment, based on long and

wide experience, would be missed by many in cases of anxiety and difficulty. In him Mr. Bowman had lost an almost life-long friend, and although it would be more fitting to attempt a particular enumeration of his claims on some future occasion, he could not help recalling the fact that Mr. Critchett had presided in the chair at the close of the last session. He concluded by reading the following resolutions, which had been unanimously passed by the Council: 1. "That the Council of the Ophthalmological Society of the United Kingdom desire to record their sense of the great loss sustained by the Society, as well as by the profession at large, in the death of one of their vice-presidents, George Critchett, whose extended reputation at home and abroad rested on the solid foundation of important services rendered to that department of the medical art to which he was chiefly devoted, and whose kindness of heart and excellent judgment were universally recognized and esteemed." 2. "That a copy of the foregoing resolution be forwarded to the family of Mr. Critchett with an expression of the cordial sympathy of the Council on the part of the Society under their bereavement."

Dr. P. H. Mules showed a Hydatid Cyst removed from the Orbit, the size of a pigeon's egg. The patient was a boy aged six years; the growth was difficult to diagnose, and was treated by free incision and drainage tubes. The cyst was discharged on the seventh day. Before this, however, a condition of choked disc supervened which interfered with the perfect recovery of vision; but six months after the removal of the cyst he could read.—Mr. Hutchinson asked if any echinococci were found in the fluid.—Dr. S. Mackenzie pointed out that the laminated membrane of the cyst sufficed for the diagnosis.—The President asked whether the firm adhesion of the cyst prevented its being wholly removed at once, for it was very desirable to avoid inflammation within the orbit.—Mr. Milles mentioned a case lately treated at Moorfields Ophthalmic Hospital where the whole cyst was readily removed, and the wound rapidly healed.—Dr. Mules, in reply, said that the cyst was very firmly adherent, and he did not think it prudent to tear it away.

Dr. Mules also gave particulars of a case of Panophthalmitis. Two or three months before the patient had undergone an operation for glaucoma, which had left a cystoid cicatrix. A panophthalmitis, which he attributed to septic absorption through the faulty cicatrix, destroyed the eye within twenty-four hours of the first symptom of purulent infection.—Mr. Priestley Smith said that Leber had recently pointed out the dangers of such cystoid cicatrices. He had himself lately seen a case where the eye was rapidly destroyed from septic inoculation, due probably to an old wound of the iris.—Mr. Brudenell Carter mentioned the case of an old lady operated upon for chronic glaucoma of both eyes, in whom suppuration occurred three years later in one eye, the pus escaping at the cicatrix. There was no evidence of inoculation.

Dr. H. A. Lediard (Carlisle) read notes of a case of Necrosis and Spontaneous Separation of a large Ivory Exostosis of the left Orbit. He showed the portrait of the patient, and also the exostosis itself. The tumour was stated to have been about the size of a pea at birth, and it was situated between the upper eyelid and the eyebrow. It gradually enlarged, and at the age of nine years, induced destruction and rupture of the globe of the eye. The tumour ceased to enlarge at about twenty-five years of age, and, about two years later, the skin, which had hitherto covered it, suddenly gave way. The patient was admitted into the Carnarvonshire

and Anglesey Infirmary, under the care of Mr. Hughes, in 1870. He was then thirty-three years old, a sailor, and in good health. The tumour seemed to arise from the cavity of the left orbit. It was of stony hardness, irregularly pyramidal in shape, nodulated on the surface, and measured 4.5 by 5 inches; the tumour was then movable, and, whilst under observation, gradually became looser; an offensive discharge issued from the base; finally, about a month later, the whole mass became suddenly detached, without any associated pain or hæmorrhage. The tumour was pediculated, and weighed nine ounces. The neck also was much enlarged, the anterior and lateral portions being of stony hardness, the left side being on this account much larger than the right; the girth of the neck was 17.5 inches, and of this a space of ten inches was of stony hardness. In October, 1882, the patient survived, was in good health, and master of a vessel. The vision of the right eye remained good. Dr. Lediard referred to the other similar cases which he had been able to find recorded. Mr. Hilton reports in Guy's Hospital Reports (1836) a very similar case, where the exostosis, which weighed 14.75 ounces, became spontaneously detached. In a case recorded by Mr. Hutchinson in his "Illustrations of Clinical Surgery," and under his care jointly with Mr. Borlase Child in 1859, the exostosis which was of large size, and appeared to spring from the frontal sinus, also became necrosed. Sir James Paget, in his "Surgical Pathology," mentions another case of large ivory exostosis in the orbit, which projected not only forwards, but also backwards into the skull. Dr. Lediard showed a photograph of the skull in this case, which had been sent to him by Professor Humphry, of Cambridge. Boyer had referred to spontaneous necrosis of ivory exostosis, and had remarked on the fortunate nature of the process.—Mr. Hutchinson said these tumours had slender pedicles, and if dealt with early they might be removed without much risk, necrosis being a late event. In Mr. Borlase Child's case it took an hour to saw through the neck; it should have been broken off at the root. A year later, necrosis having occurred, the tumour readily shelled out, leaving the orbit much dilated.—The President recalled a case where an exostosis as large as a walnut projected from the orbit; it was easily shelled out.—Dr. Fitzgerald referred to a specimen in the Museum of the Royal College of Surgeons at Dublin, much resembling that at Cambridge. In a case under his own care the tumour sprang from the roof of the orbit, but he did not venture to remove it.

Mr. S. Snell (Sheffield) communicated notes of a case of Hard Chancre of the Inner Canthus, which occurred in a nurse-girl, aged twenty-one, who had under her special charge a syphilitic infant of five months. The chancre was noticed some few weeks as a pimple before the girl came under observation on Aug. 15th, 1882. It then involved the caruncle and adjacent conjunctiva as well as the integument of the commissure and the lids. A point of interest and diagnostic value was the presence of well-marked induration of the pre-auricular and submaxillary glands. Other symptoms were a papular, coppery rash and alopecia, ulcerated throat, and later on mucous tubercles of the vulvæ. The chancre healed with hardly appreciable deformity.—Mr. Brudenell Carter had seen two instances of hard chancre on the eyelids in young subjects; the mode of infection could not be traced.—Dr. Fitzgerald had seen a case in Paris in a young girl, and had attributed it to direct inoculation.—Mr. McHardy suggested that inoculation might arise from the popular practice of using the tip of the tongue to remove foreign bodies from

the eyes; or the use of moistened blotting-paper for the like object.—Mr. J. E. Adams thought inoculation generally occurred from the sore mouths of syphilitic children through kissing; and Mr. Vose Solomon mentioned a case directly traceable to kissing.

Four papers on the subject of Central Amblyopia in Diabetes were read. The first was by Mr. Lang. The second was by Mr. J. B. Lawford, who gave an account of a case of Stationary Tobacco-amblyopia in a man subsequently affected by diabetes. The patient was forty-six and had always been a heavy smoker. His sight had begun to fail about seven years ago, and diabetic symptoms supervened about nine months ago; but his sight had not deteriorated, though the diabetes had grown steadily worse. Vision was very defective, and there was a well-marked central scotoma for red. The optic discs were a little pale, but the ophthalmoscope revealed no other morbid state.—Mr. Stanford Morton communicated a case of Double Amblyopia, with well-marked central scotoma for red and green, in a man, aged thirty-four, accustomed to smoke very moderately, and who was suffering from diabetes. The patient was not under care long enough (barely two months) for the result as to sight to be known.—Dr. Edmunds and Mr. Nettleship communicated a paper on the same subject. It contained notes of four cases of central amblyopia without ophthalmoscopic changes, in patients suffering from diabetes. 1. A man aged forty, who had suffered from diabetes for several months. He smoked half an ounce of tobacco a day. Failure of sight had been noticed for one month. Vision in each eye 20-100, letters 14 J. (corrected). Under treatment for diabetes, health improved, but not vision. He would not, however, stop smoking. 2. A man, aged thirty-eight, had had diabetes three or four years. He smoked half an ounce of strong tobacco daily. Failure of sight had been noticed for five months. Vision in each eye 5-200 and 14 J. He died in the country three months later. 3. A male, aged forty-eight, had been the subject of diabetes during twenty-one months. He had smoked, during the last thirty years, three-quarters of an ounce of tobacco a day. He had experienced failure of sight for five weeks. Vision was 20-100 and 8 J. 4. A man, aged fifty-eight, a moderate smoker, complained that his sight had been failing for eighteen months. Vision in each eye 20-200 and 16 J. His urine, on examination, was found to contain sugar. Nine cases were referred to by the authors (including published ones) of failure of sight with central scotoma, in the subjects of diabetes without ophthalmoscopic changes. The authors, however, suggested that the coincidence would prove to be fairly common. Most of the patients were smokers, some of them great smokers; and it was not yet certain whether diabetes alone caused the disease, or only acted as a predisposing cause to tobacco-amblyopia. The analogy of double amblyopia to the symmetrical neuralgia in diabetes, described by Worms and Buzzard, was pointed out.—Dr. S. Mackenzie pointed out that these cases had all come under the care of surgeons rather than physicians. He had seen two cases, one in a woman. Tobacco was an important factor in their production.—Mr. Priestley Smith, speaking of the pathology of central amblyopia apart from constitutional or toxic causes, stated that Samelsson, of Cologne, had suggested that inflammation of the central parts of the nerve at or near the optic foramen, causing the amblyopia, might depend on the distribution of the nutrient bloodvessels of the nerve, the capillaries in the centre of the nerve being more numerous than at the periphery. On this view sudden changes in

the vascularity of the face from exposure to cold, etc., might through the orbito-facial anastomoses lead to congestion and inflammation of the central part of the optic nerve. Mr. Smith referred to a case in point.

Dr. S. West read a sequel to a case of Optic Neuritis reported by Mr. Stanford Morton in the Society's Transactions, vol. i. The patient came under Mr. Morton's care in January, 1881. Vision was then perfect, but both discs were greatly swollen; in the following month she consulted Dr. West for headache and for sudden temporary attacks of blindness. Vision began to fail in June, 1881, in the right eye, amounting to J. 2, and 20-30, and the field of vision was much contracted; headache worse. At the end of July, 1881, vision in the right eye was completely gone and was defective in the left. She was very actively treated with mercury and with iodide of potassium on several occasions, but without any good result. In September, 1881, she was completely blind in both eyes. The swelling of the disc remained; atrophy gradually ensued, so that in August, 1882, the discs were quite white and extremely atrophic. In November, 1882, there was no perception of light; the pupils did not react to light, but freely to movements of the eyeball; the eyes diverged but could fix fairly well. The condition was probably secondary to some tumour of the brain, possibly a tubercular tumour, which had become stationary or retrogressive, but the diagnosis was exceedingly difficult. The case was of interest, owing to the persistence of perfect vision for about five months in the presence of extreme optic neuritis, to the attack of temporary complete blindness, to the rapidity with which the failure of vision became absolute when once it commenced, and to the entire absence of any symptoms beyond the eye changes.

Dr. S. Mackenzie showed a drawing of the Fundus, exhibiting great Tortuosity of the Retinal Vessels, from a patient, aged twenty, who was suffering from severe vesicular emphysema, oedema of the legs, and lividity. The veins in the fundus of both eyes were extremely tortuous, dark, and somewhat dilated. This condition of the veins would, perhaps, have been attributed to the venous obstruction consequent on the emphysema but for the cases recorded by Messrs. Nettleship and Benson, where the condition was noticed in otherwise healthy eyes.—The President had occasionally seen cases, mostly women, of small varicosities in the episcleral region, without impairment of the functions of the eye. In some other cases glaucoma eventually supervened, but he had not operated for fear of hæmorrhage, a fear which iridectomy shows to be unfounded. In some of these cases the retinal vessels also were enlarged.

Dr. Edmunds and Mr. Lawford exhibited Microscopical Sections of the Optic Nerve from a case of Amblyopia in Diabetes. The patient had been a hard smoker, and sight had been failing for about four months. No ophthalmoscopic changes were detected. He died of diabetes. The section showed changes limited to a group of fibres which extended through the length of the nerve—viz., a thickening of the connective tissue with degeneration of the nerve fibres.

Mr. Juler showed again the case of Chronic Membranous Conjunctivitis exhibited at the last meeting. The right eye had recovered under the use of lapis divinus, but the disease had extended in the left.

Mr. J. E. Adams showed a case of Chancre of the Upper Lid, an indolent shallow ulcer, with surrounding thickening on the under surface of the left upper lid near the outer canthus, and a very marked adenopathy on the same side. It was

too early to allow of an absolute diagnosis, since no secondary symptoms had as yet appeared.

Mr. Gunn showed a girl with Peculiar Appearances in the Right Retina below the disc, probably congenital.

Mr. Adams showed a case of peculiar congenital Opacity in the Capsule of the Crystalline Lens.

MEDICAL OFFICERS OF HEALTH SOCIETY.

At a meeting of this Society, held at Adam-street, Adelphi, on November 17th, 1882, the President, Dr. J. W. Tripe, in the chair, a paper was read by Mr. Rogers Field, M.I.C.E., on "Certain less recognized, but highly important, points in the Drainage and Ventilation of Houses," of which the following is an abstract:—Three sanitary principles govern house-drainage. These are: 1. All refuse matter must be completely and rapidly removed from the house. 2. There must never be any passage of air from the drains or waste-pipes into the house. 3. There must be no connection between the drains and the domestic water-supply. These principles, although so simple, are very frequently neglected. The first goes absolutely to the root of sanitation; for were it strictly complied with there would be no leaky drains, no polluted subsoil, and no production of foul gases in the drains from decomposing organic matter. There cannot be a greater mistake than to assume, as is commonly done in investigating drainage, that if water runs away with freedom this is all that is required; numerous cases are on record where the sewage from houses has apparently run away freely for years, but where the greater portion of it has really been leaking out of the drains into the ground under or close to the house. In illustration of this point the author quoted two cases in his own practice: one in which the connection with the sewer was actually found to be blocked with shavings, which had been left in when the house was built three years before; the other that of a school, in which the drainage from the lavatories had leaked through disused drains under the floor of a large portion of the building, and where, although there was a mass of filth in some places seven feet deep, no leakage had been suspected. If the drains are exposed and found clean and jointed with cement, this is not sufficient; the tops of the joints may be good and the bottoms bad. The only safe method is to actually test the drains by plugging them at the lower end and filling them with water; very few house drains indeed stand this test. Even if the drains are outside the house, it is a mistake to assume that it is unimportant whether they are sound; for not only may sewage leak out of faulty joints and percolate under the house, but foul air may be drawn into the house. It is important to realize how small an amount of deposit will create mischief by decomposing and degenerating foul gases, a mere irregularity of the joints even when the drain has a good fall is sufficient to cause this. There is no better test of the condition of the drains than the amount of smell emitted from a ventilating opening, for if drains be properly laid and in thorough working order, practically no smell should exist. Examples were given. Faulty forms of traps and water-closet apparatus were strongly condemned by the author, and diagrams descriptive of good and bad closets were exhibited. The principle that there should never be any passage of air from the drains or waste-pipes into the house was then considered, and the means of isolating the house drains from the public sewer, the necessity of keeping the drains outside the house, their ventilation as well as that of the soil-pipes,

the position of the water-closets, the disconnection of the sanitary fittings inside the house from the drains, were referred to. It was insisted that the danger should be guarded against of trusting too much to those parts of the drainage of a house which are visible as an index of the condition of other and important parts which are concealed, and an instance was mentioned of a house the drainage of which had been recently reconstructed, and where all the sanitary arrangements appeared at first sight to be perfect, but where a subsequent examination of the drains, which were under the house, showed that the joints were in many places defective, and at one point the pipes were not jointed at all, but a space left large enough to put a hand in, though it was stated that special care had been taken to make the drains watertight. Old drains, which had no outlet connected with gullies, were found beneath the passages and rooms; the housemaid nearly died of typhoid fever, and beneath the room she occupied was found an old drain with a large amount of foul deposit. A long list of other defects was described, leading to the conclusion that the drainage instead of being very good was really so radically defective throughout that it was necessary to reconstruct the whole of it. Another instance was given in which a lady and her cook were attacked with erysipelas and blood-poisoning shortly after occupying a house. Various alterations were made in the drainage in the absence of the family, but on their return the lady was again attacked with erysipelas, and shortly after other members of the household. Again alterations were made, and again the lady was attacked with erysipelas, and the housemaid with typhoid fever. An examination of the house by the author showed that an old stoneware drain in the scullery into which the sink formerly discharged, before it was disconnected, had not been removed, and though stopped with cement, the stopping was imperfect, thus allowing the air of the drain to enter the house. The author next considered the various ways in which foul air from faulty drainage inside the house passes to different parts, and pointed out the opportunities which were given for the passage of air from one part of a house to another, depending chiefly upon windows and fires; the latter, of course, mainly acting by drawing air through passages, staircases, and doors. But other channels must also be borne in mind; and an interesting account was given of the passage of foul air along bell-wire tubes, the proximity of the bell-pull to the fireplace giving an increased opportunity for air to be drawn from a distance to this part of a room. Channels for gas-pipes and for hot-water pipes also not uncommonly give facility for the admission of foul air. In connection with this part of the subject, a remarkable instance was given of a particular bed in a school, the occupants of which were constantly the subjects of slight attacks of pneumonia, with tendency to typhoid. In this case the foul air was conducted from a lavatory, where there was defective drainage up a staircase, and, impinging on the ceiling of the dormitory, was reflected on to the bed where the sickness occurred. An interesting account was given of the cause of the Duchess of Connaught's recent illness. Defective drainage was found in the basement of the house; and after numerous experiments, the means by which the foul air entered the duchess's bedroom were discovered. These showed that it was only when occupying certain positions in the room that she would be exposed to the influence of the foul air, while in bed she would escape. As a matter of fact, in twenty-four hours after sitting on a sofa in one of these exposed positions Her Royal Highness's symptoms fully developed themselves. These two

cases were illustrated by diagrams. The necessity of a thorough disconnection between the drains and the domestic water-supply was then dwelt upon, and the mistakes most commonly made in this particular pointed out.—In the discussion which followed the President, Dr. Buchanan, Dr. de Chaumont, Dr. Corfield, Mr. E. C. Robins, Dr. Bate, Mr. Jacob, Dr. Rogers, Dr. Poore, and Mr. Shirley Murphy took part.

MIDLAND MEDICAL SOCIETY.

An ordinary meeting of this Society was held in the Birmingham Medical Institute on Wednesday, November 22nd, 1882, Dr. Malins, President, in the chair.

Dr. Malins showed a large Cyst of the Broad Ligament successfully removed by Abdominal Section.

Mr. Kenneth Millican (Kineton) exhibited some specimens of Bacilli from cases of Diarrhoea which were found in the stools of patients affected during an epidemic. The motions were not unlike those of typhoid fever, and contained small gelatinous lumps. A cover-slip smeared with these lumps, dried and then stained with aniline blue, exhibited the organisms. An interesting therapeutical point was that the diarrhoea, which resisted all ordinary methods of treatment, yielded in about twenty-four hours to the internal administration of carbolic acid and terebene, the former being given in one and one and a half grain doses every two hours, the latter in doses of from five to ten minims.—Mr. Millican also showed a specimen of *Bacillus Anthracis*.

Dr. A. H. Carter showed specimens of the *Bacillus Tuberculosis* prepared by the method of Dr. Heneage Gibbs.—Mr. Millican referring to some remarks as to the diagnostic value of the bacillus tuberculosis, said he considered Dr. Heneage Gibbs' method absolutely diagnostic for the following reasons:—(a) It stained the bacillus tuberculosis clearly, and did not affect the organisms found in phthisical sputum. He had tried Ehrlich's method and several stains of his own, but found that, while they certainly brought out this particular organism, they obscured the diagnostic value by bringing out also the organisms and putrefactive bacteria. Having assured himself that these organisms were present in the sputum, he then used Gibbs' method, and found that only the bacillus tuberculosis appeared. (b) On employing Baumgartens's method—viz., immersion in a 33 per cent. solution of caustic potash—he found this rendered the bacilli visible; afterwards by staining with Gibbs' process it was found that all the organisms took the stain. (c) He failed to make Heneage Gibbs' stain dye the organisms from epidemic diarrhoea, stale sputum, and stale hay infusion until after they had been immersed in the 33 per cent. solution of caustic potash; they then stained readily.

Dr. Simon showed a series of living cases of Extensor Paralysis.

Dr. Savage showed two specimens of Double Pyosalpynx which he had recently removed from two young single women. There had been a long history of pain, and in one of the patients anæmia and a high temperature, 104°. The tumours were each about the size of an orange. During removal of the tumours rupture occurred, and there was a considerable escape of pus into the pelvis; this was cleaned out, and a drainage-tube inserted. The operations were not performed antiseptically. The patients did well.

The Notification of Infectious Diseases.

Mr. J. H. Palmer (Solihull) in moving the fol-

lowing resolution, "That this Society, recognizing the necessity for legislation to provide for the better notification of infectious diseases, is of opinion that the duty of making such notification should devolve upon the occupier of the house and not upon the medical attendant," said that the expediency of providing legislation for the better notification of infectious diseases had occupied the attention of the profession, with whom the idea had originated, and of the public. In many private Bills which had passed into law powers had been conferred upon sanitary authorities to enforce which no one would dare to attempt. The Bill introduced by Mr. Hastings was sound in its object but faulty in detail. The duty of making the notification was one which obviously devolved upon the occupier of the house. In the Bill brought in for Ireland the duty of notifying was rendered compulsory on the occupier and permissive on the part of the medical attendant; that seemed the prudent course. Mr. Hastings' proposal that the matter should go to a Select Committee was a fair one, and showed that Mr. Hastings was quite prepared to see the question discussed in all its bearings.—Dr. Griffiths seconded the resolution.—Dr. Alfred Hill in moving an amendment combated the objection raised by the opponents of notification by medical men, such as compulsion and its alleged consequences—viz., antagonism between the medical attendant and the medical officer of health, the inquisitorial character of the duties of the latter in some cases, and the spread of disease from concealment. He showed that in many towns where the Acts had been put in operation the evil predicted had not followed, and the best results had been obtained. Compulsion of the householder had been tried in Greenock for five years, and had failed to achieve the amount of good to be expected from a compulsory system of notification. Nothing but notification by the medical attendant, either with or without the same by the occupier, would be of use. He concluded by moving the following amendment:—"That this Society sharing the views of the leading sanitary authorities, that early notification is necessary for the control of infectious diseases, and having the benefit of the experience of the large number of towns which have already put the Compulsory Notification Act into force, is of opinion that every sanitary authority should possess parliamentary powers to obtain notification from both the medical attendant and the householder or person in charge."—Dr. Wilson (Leamington) seconded the amendment, and said there could be no doubt that outside as well as inside the profession there was a steadily growing conviction that no systematic or efficient control of dangerous infectious disease was possible without early notification, and that such notification could not be uniformly obtained unless under legal compulsion. It was quite true that the experiment had been tried in various quarters, and in a part of his own district, of entering into an agreement with medical practitioners to report all cases of certain specified diseases on payment of a stated fee; and though he admitted that the experiment, so far as his experience went, had succeeded admirably, he felt sure that it would not succeed in any locality of limited area and population where the medical officer of health was allowed private practice, and could thus enter into competition with his medical brethren. He felt convinced that there could neither be promptitude nor efficiency in notifying unless the medical attendant was made responsible, although he maintained at the same time that any measure would be faulty and one-sided if it did not render the householder liable to heavy penalties if he failed to report.—

Mr. Gamgee spoke in favor of the resolution.—Mr. Henry May (Aston) supported the amendment.—Mr. H. R. Kerr (Halsowen), while believing compulsory notification to be necessary, objected to the onus being thrown on the practitioner.—Mr. Hall Wright believed that in refusing to notify the members of the profession would be doing an injustice to themselves and to the public by shirking a responsibility that it was their duty to take.—Dr. A. H. Carter thought there was an official and a professional side to the question, and that the members of the profession had not been treated well in the matter. The Birmingham Town Council were about to apply for a Bill compelling professional notification, and he thought that a deputation should attend upon that body before the initiative was taken.—Mr. Palmer, in reply, stated that he regarded compulsory notification as the thin end of the wedge. The amendment was then put, and carried by a large majority, and subsequently as a substantive resolution.

CAMBRIDGE MEDICAL SOCIETY.

At the meeting on November 3rd, 1882 (Professor Humphry in the chair), the subject for discussion was "Sudden Death (irrespective of Hemorrhage) during Confinement, or within three weeks after—the Causes, etc."

In answer to a circular requesting members to inform the President whether they had seen any cases, and if so to give the particulars, thirty-five replies were received. A total of twenty-nine cases were supplied by fifteen persons; twenty-one members had not seen a case. Professor Humphry had made an analysis, and divided the cases into three classes—viz., of sudden death (1) before the birth of the child; (2) soon after delivery; (3) within three weeks after confinement. Under the first heading five cases were reported, in two of which death was apparently due to exhaustion from long and complicated labour. Fifteen cases were reported under the second heading: in two the cause of death was not apparent; in three the labour was tedious and severe; two were cases of inverted uterus; one case was marked by diabetic coma and one by albuminuria; three were cases of placenta prævia; in one case rupture of the uterus occurred; and in one parturition supervened during an attack of typhus. Under the third heading eleven cases were returned; nine of the deaths were attributed to embolism; in one case there was albuminuria, and in another apoplexy.

Dr. Stowers (of London) exhibited a male patient, aged twenty-eight years, who had been under his care eight months suffering from Acne varioliformis. The disease first appeared on the skin in front of each ear, and had throughout been almost entirely limited to the face, scalp, and upper part of chest. Deep punched-out scars, or pocks, marked the sites of the pustules, so that the deformity remaining was equal and similar to that of confluent small-pox. Several unsuccessful attempts at inoculation were made to test the character of the pus. The patient recovered entirely under the influence of increasing doses of arsenic, aided by the topical application, by puncture, of carbolic oil, thus supporting the belief previously held by Dr. Stowers that the affection was in no way related to syphilis.

NORWICH MEDICO-CHIRURGICAL SOCIETY.

THE second meeting of this Society was held at the Norfolk and Norwich Hospital on Dec. 5th, 1882, the President, Dr. Barnes, in the chair.

Dr. Eade showed a specimen of a Phelebolithe,

the size of a hazel nut. A lump had existed on the lower part of the right leg of a woman for thirty or forty years, ulceration occurred, and the concretion was discharged; it weighed twenty-nine grains. The portion insoluble in water consisted of phosphate of lime, with traces of phosphate of magnesia and some carbonates; the soluble portion consisting of the chlorides of sodium and ammonium, and some sulphates.

Mr. D. Day exhibited a Dissection of a Double Foetal Monstrosity, of which the following is a brief description. The heads and limbs are perfectly formed. The bond of union is the front of the thorax and upper part of the abdomen. The ribs are united on each side to a complete sternum, which is symmetrical; the lungs are normal; and there is one umbilical cord. The heart is single, in a single pericardial cavity; the auricles are distinct, the ventricles completely blended; the vessels at the base are quite distinct; and there are two inferior venae cavae. The diaphragm and liver are common to both. Close under the liver are two stomachs, the intestine beginning by a fusion of the two pylori; for sixteen inches it is single, it then branches into two, and the remainder of the intestines run a normal course. The umbilical veins divide as soon as they enter the abdomen, half going to each side.

Dr. Bateman showed a specimen of Ovarian Disease, complicated with Hydatids of the Liver. Against advice, the woman persisted in going to the w.c., and was there seized with an attack of syncope, from which she died.

Dr. Mallins recorded a case of Jaundice, caused by a round worm obstructing the common bile duct.

Mr. Lyddon reported a case of Removal of Foreign Bodies from the Ears after twenty years' impaction; from one ear a pearl button, and from the other an iron dress-hook, were removed by iridectomy forceps. No structural changes had taken place in either ear, and the hearing was perfect.

Mr. H. Turner read notes of a case of Rheumatic Fever which, while apparently progressing satisfactorily, terminated fatally in two hours, with cerebral symptoms (the patient was taking fifteen grains of the salicylate of soda every six hours). The cause of death was believed to be meningitis.

Dr. Eade also described three cases, with cerebral symptoms, he had seen in consultation about the same time (September), no cases of the kind having occurred in his practice for several years.

ACADEMY OF MEDICINE IN IRELAND.

A MEETING of the Surgical Section took place on Dec. 8th, 1882, Mr. J. K. Barton, President, in the chair. In the library a man who had been trephined for abscess on the brain was exhibited by Mr. Kilgariff, and various specimens by card by Messrs. Franks, Croly, A. Benson, Stokes, Wheeler, and Abraham. Mr. Wheeler's included an interesting cast of dislocation of the wrist, caused by the contracting cicatrix of a burn, and Mr. Abraham showed the sputum of bronchitis and phthisis, contrasted in reference to the bacilli. Mr. Barton then gave the inaugural address as president of the section, and referred to the Surgical Society which had lasted for the past fifty years and had now become merged in the Academy of Medicine. He dwelt on surgical clinical instruction in the Dublin Hospitals as compared with the continental system, and made some suggestions which he thought would be of advantage in elucidating some of the most difficult problems of surgery. Mr. Kilgariff next read a paper on the case of

trephining he had exhibited, which was followed by a communication from Dr. O'Reilly, of Trim, on a case of nephrectomy by right lumbar section. The patient, a girl, was admitted into Trim Union Hospital and died in forty hours after the operation, probably from shock. On removal the kidney weighed eight and a half ounces and contained an abscess from which a large quantity of pus exuded. The case was evidently one of primary tubercular disease of the organ. Mr. Knott read a paper on dissecting aneurism of the aorta, which some of the members considered should have been kept for the Pathological Section, and the proceedings terminated.

The first meeting of the Medical Section was held in the College of Physicians on Friday evening, Dec. 15th, 1882, Dr. William Moore, President of the King and Queen's College of Physicians, Ireland, occupied the chair as President of the Section.

The President delivered an inaugural address. Having alluded to the absorption of the Medical Society of the King and Queen's College of Physicians into the Academy of Medicine in Ireland as its Medical Section, he reviewed at considerable length the advances made in the diagnosis of disease, particularly within the last twenty-five years. He referred first to affections of the chest, the differential diagnosis of which was now well-nigh perfect. In certain cases clinical observations of the temperature had proved of great use, and the most recent advance was the demonstration by Professor Robertson of the germ origin of pulmonary tuberculosis. To Laennec was due the elucidation of cardiac diseases, and to Traube, in great measure, the knowledge of the relations which may exist between these and renal affections. The diagnosis of valvular diseases had become very exact, but the precise value of murmurs as regards diagnosis and prognosis was apt to be over-estimated. Nor was the diagnosis of abdominal aneurism always an easy matter. Great advances had also been made in the study of specific fevers, especially of the endemic fever of this country, enteric or typhoid fever. Again, much had been done in the localization of cerebral and spinal diseases, among the more interesting of this class of maladies being hysteria, hystero-epilepsy, and hemianæsthesia. As regards the treatment of some of these affections, he mentioned some remarkable instances in which good results had followed the practice of metallo-therapy.

Mr. Arthur Benson exhibited a case of well-marked Retinitis Albuminuria in a boy, aged sixteen, without constitutional disturbance; Dr. Charles F. Moore, a case presenting Neuralgic Symptoms in a man having remarkable patches of white hair, some of which were congenital; and Mr. Story a case of Double Zonular Cataract.

Dr. J. W. Moore exhibited by card specimens of Diphtheritic inflammation of the throat; and Mr. P. S. Abraham microscopic sections showing (1) diphtheritic deposit of muscular tissue of the pharynx; (2) mycelium of fungus; and (3) degeneration of muscular fibre in diphtheria.

Dr. Wallace Beatty read a paper on the Causation of Left-side pain, drawing special attention to a form not sufficiently recognized, which was due to fecal accumulation, and removed by getting rid of the accumulation. The pain was felt over the lower few ribs on the left side, was associated with extreme tenderness on pressure upwards of the tenth or eleventh rib, scarcely any pain being felt on pressure of these ribs downward, and was relieved when the side was pressed inwards with the flat of the hand. He explained its occurrence by the drag of a loaded colon on the pleuro-colic ligament; this constant drag setting up a state of

extreme irritability in the nerves of that ligament, so that a painful impression was carried upwards along the left lesser splanchnic nerve to the spinal cord, and was transferred by the law of irradiation of sensations to the tenth and eleventh left intercostal nerves.—Dr. Walter Smith said the pleuro-colic fold had not received the attention it deserved. It certainly was of considerable importance in the investigation of abdominal disease. Dr. Beatty's arguments were valid as explaining certain kinds of left-side pain, but did not explain all kinds.—Dr. Wallace Beatty did not wish it to be understood that he considered left-side pain was caused in every instance by fecal accumulation, but only in cases presenting the symptoms he had mentioned.

Dr. Walter Smith related two cases of Paralysis of the left half of the Velum Palati, and raised the question whether palatine paralysis was invariably to be regarded as a characteristic sequela of diphtheria, or whether it may not occasionally supervene upon non-diphtheritic forms of angina. Case 1 occurred in a young lady, aged twenty-four, and the paralysis developed six weeks after an apparently simple ulcerated sore throat, for which she had been treated by Dr. Smith. Case 2, a young lady, aged twenty-six, was affected with what was considered to be a simple relaxed sore throat unattended with ulceration. She remained in a weak and nervous condition, and shortly afterwards the left half of the palate was found to be paralyzed. In each case the symptoms were similar—viz., difficulty of swallowing, nasal twang in the voice, and regurgitation of fluids through the nose. Both cases recovered completely. Dr. Smith submitted that it was not unreasonable to hold that catarrhal sore-throat may now and then give rise to slight motor paralysis through partial implication of the nervous system or otherwise.—Dr. Henry Kennedy said that diphtheria might exist without exudation. He had seen such cases in which paralysis followed.—Mr. H. G. Croly said that the large majority of cases described as diphtheria were really cynanche.—Mr. William Thomson asked, if paralysis occurred in the palate as the result of specific inflammation, why similar effects did not follow in other parts of the body where nerve filaments were concerned.—Mr. J. W. Moore alluded to the specimen which he exhibited, describing it as one of phlegmonous erysipelas of the throat in which diphtheritic conditions had supervened. He believed that paralytic symptoms occurred only in true diphtheria.—Dr. Finney considered the fact that other diseases were associated with paralytic symptoms confirmed Dr. Smith's view.—Mr. W. Stokes doubted that paralytic symptoms followed inflammation other than those of a diphtheritic nature.—The President regretted that no information had been given as to the presence of albumen in the urine in Dr. Smith's cases.—Dr. R. A. Hayes mentioned in support of Dr. Smith's view a case in which chronic inflammation of the palate, resulting from excessive tobacco smoking, gave rise to paralysis of the palate.

Dr. Walter Smith, in reply, said that the paralysis in these cases might be the result of myelitis or of muscular degeneration. He answered Mr. Thomson's question by pointing out the rich nervous supply of the palate, and the muscles being open to attack from both sides.

The Section then adjourned.

—DR. DAVID W. CREEVER has been nominated to the Professorship of Surgery in the Harvard Medical School, rendered vacant by the resignation of Dr. Henry J. Bigelow.

(17)

THE ANNUS MEDICUS 1882.

Introduction.

We proceed to lay before our readers a history of the year 1882, not pretending that it is complete. As on previous occasions, we go at once to our duty without preface or comment on the general history of a year which, with all its faults, will not look badly in British history.

Anatomy and Physiology.

Before referring to a few of the more noteworthy of the facts which have advanced our knowledge of Anatomy and Physiology during the past year, it is with feelings of no ordinary emotion that we notice the death of Charles Darwin, the great naturalist, whose work, continued through a long period of bodily infirmity, has left a durable impress on the whole field of modern thought; who passed away in the spring at the ripe age of seventy-one, and who lived long enough to see that the calm and unimpassioned, yet logical mode in which he stated his opinions, and the vast array of facts resting on unimpeachable authority he brought to support to them, had converted to his doctrine many of those who by education and vocation were most disposed to ignore, scoff at, and oppose them. In the next place, it is fitting to express our deep feeling of regret at the loss science has experienced in the death of Professor Francis M. Balfour, of Cambridge, a brilliant follower of Darwin, and to pay a tribute of respect to the excellence of the work on Comparative Embryology, which he had only just completed, and which promises to be for a long time the text-book on this subject. The observations he had made are to a very large extent original, and though time has not yet been afforded to enable them to be corroborated by other observers, yet the care with which they were undertaken, the rare manipulative dexterity he possessed, and the acuteness of his perceptions, combined with the habitual caution with which he formed his opinions, render it probable that they will meet with very general acceptance. The statements made are everywhere well arranged and easily accessible to the student. The next works to be mentioned are the several splendid volumes of the reports of the scientific results of the *Challenger* expedition, to which we have on various occasions directed the attention of our readers, as containing an immense amount of original information upon the inhabitants of the deep sea, and many beautifully executed drawings of animals new to science, with descriptions by such men as Mosely, Haeckel, and others thoroughly versed in the anatomy and physiology of the animals of which they treat. There have not been many additions to the existing and well-known treatises on anatomy and physiology during the past year, though several new editions have appeared. Thus of the former we have only to enumerate Mr. Reeves' *Morphology*, a work of considerable originality and research. Dr. Mears has written a work on *Schematic Anatomy*, which is on a new principle, and presents some advantages to the learner.

The first part of a good system of Comparative Anatomy has been published by Wiedersheim, and the first fasciculi of *Treatises on Zoology*, by Lanesan and by Moquin Tandon, have been issued, the last, however, being a translation of a new edition of Claus, a work already well known. Amongst the new editions may be mentioned Quain's *Anatomy*, which has been considerably enlarged, and in which the Histology has been carefully revised by Mr. Scheffer, the Embryology and Development by Dr. Allen Thomson, and the Anatomy by Professor Thane assisted by Mr. Godlee, rendering it upon the whole the most complete work of the

kind in any language. A third edition of Professor Mapother's work on Physiology, revised by Dr. Knott, has appeared, and Dr. Dalton has issued the seventh edition of his excellent Physiology, which has the rare merit in physiological works of being somewhat less voluminous than its predecessors without losing in clearness and precision. A second edition has also appeared of Harris and Power's Manual for the Physiological Laboratory. Many important papers have appeared in the successive numbers of the *Quarterly Journal of Microscopical Science*, amongst which may be mentioned Pringsheim's and Lankester's Researches on Chlorophyll, Klein's article on the Lymphatic System, Walpole and Huxley on Saprolegnia in relation to the Salmon Disease, and Herbert Carpenter's notes on Echinoderm Morphology. In the *Journal of Anatomy and Physiology* the segmental value of the cranial nerves has been discussed by Dr. Milnes Marshall. The cerebral sinuses and their variations have been described by Mr. J. F. Knott, and the volume issued during the present year contains many valuable articles on comparative anatomy. The *Journal of Physiology* contains papers by Newell, Martin, and Sedgwick on the mean pressure and the characters of the pulse wave in the coronary arteries of the heart settling the question in favor of those who believe that the coronary arteries are injected during each systole of the heart and not during the diastole, and also an excellent paper by C. S. Roy, showing that the spleen performs rhythmical contractions independently of cardiac and respiratory movements.

In the "*Leçons sur les Modifications du Sang*," in which the changes presented by the blood under the influence of various remedies and therapeutic agents has been carefully investigated, Georges Hayem has made a substantial addition to our knowledge of this fluid. By giving a table of the number of blood-corpuscles in a cubic millimetre, corresponding to every number from 40 to 270 of blood corpuscles counted in a square of a hæmatocytometer, he has materially facilitated all calculations of the absolute number of the blood-corpuscles. Malassez has specially discussed the development of the red corpuscles in the medulla of the bones, and Mayet the spontaneous changes undergone by the colored corpuscles preserved in plasma without access of air; whilst Alexandre Schmidt has contributed to Brown-Séquard's *Archives* a résumé of the researches made under his direction at Dorpat upon the physiological and pathological action of the leucocytes of the blood, in which he still continues to maintain that the white corpuscles contain a ferment that plays an important part in the act of coagulation, and having separated this ferment he shows its effects when injected into the economy. Cadet, Bizzozero, Hart, and others have occupied themselves with the bodies named hæmatoblasts and with Dr. Norris' third or transparent corpuscles of the blood, with the result of showing that they are probably ordinary corpuscles partially deprived of their coloring matter or hæmoglobin. Bizzozero has suggested an instrument to which he has applied the name of hæmatocytometer in which the intensity of color and the degree of opacity are measured by the different thicknesses that must be given to a solution, or to a blood mixture, to reproduce a certain optical effect; the imitation of a test solution for color and the disappearance of a luminous point situated at a certain distance for the opacity.

Careful observations made by Vignol in Ranvier's Laboratory seem to have demonstrated that in the lower vertebrata the heart possesses a local motor and a local inhibitory centre.

Duclaux has written a work on ferments and their relation to disease. In this he treats of the nutrition and development of microscopic organisms, and gives some remarkable facts bearing on their growth. Thus, in the case of the aspergillus a sixteen hundred thousandth of nitrate of silver is sufficient to arrest its growth, whilst it will not grow in a vase of silver, though the quantity of metal dissolved is totally inappreciable to chemical tests.

The obscure subject of the dilatation of the bloodvessels under the influence of the nervous system, has been treated of at great length and with much ability by MM. Dastre and Morat, who have satisfied themselves that it is in most, if not in all, instances of a reflex character, the centre being in the spinal cord and medulla oblongata, the sensory being the afferent and the sympathetic nerves containing the efferent fibres, which directly induce the dilatation, and which emerge from the cord by the anterior roots of the spinal nerves, and then associate themselves with the sympathetic.

Dubar and Remy have studied the phenomena of absorption by the peritoneum, and have shown that albumen in solution is absorbed by the peritoneum without producing apparent change in that membrane, that the albumen so absorbed does not accumulate in the serum of the blood, and that it is well borne and inoffensive. They have further endeavored, by means of the injection of coloring agents, to follow the course of the absorbed material. The histology of the mammalian gastric glands and the relation of pepsin to the granules of the chief cells has been worked out by Langley with much success.

Honigsberg has compared the digestibility of meat in various conditions in artificial gastric juice, and finds that with an artificial gastric juice composed of five grammes of Witte's pepsin, dissolved in 1,000 cubic centimetres of water acidulated with one part of hydrochloric acid, raw meat yields 39.7 per cent. of peptone, boiled meat 26.6 per cent. and roast meat 48.0 per cent. The action in the stomach itself is undoubtedly far more complete, but the experiment is in favor of the digestibility of well-roasted meat. Schulze and Barbieri have demonstrated the presence of peptones in the juices of various plants, as in the potato and beet.

Vella has made intestinal fistulae, and then injected pilocarpine subcutaneously, which he finds possesses a remarkable power of inducing secretion of the intestinal juice. Experiments made with the juice so obtained emulsified fats, converted cane sugar into grape sugar, and digested proteids. It acts, however, differently from gastric juice on muscle. Gastric juice dissolves the perimysium first, and then the primitive fibre; whilst intestinal juice attacks the fibre first, and leaves the perimysium intact.

Goltz has continued his researches upon the brain, and shows that injuries of a severe character to the vertex (convulsions) of the brain in dogs produce not only diminished intelligence, but a remarkable change in their psychological character, harmless and good-tempered dogs becoming snarling and morose; whilst, if the occipital lobes are damaged, the animals preserve their good-tempered character, but their intelligence becomes much more seriously impaired.

Merschewski has experimented on the functions of the olivary bodies of the medulla oblongata, and has shown that after deep injuries to them rolling movements towards the injured side occur with nystagmus of the corresponding eye. He believes that they stand in close relations with the functions of the cerebellum. The structure of muscu-

lar tissue has been investigated by Hippolyte Martin, who regards the muscular fibril as composed like an amoeba or rhizopod, or leucocyte of granular protoplasm, but affecting the form of cylindrical rods, in which the proteic granules are of several species, and arranged in a determinate order. The dark discs are composed of two closely opposed granules at the extremities of the rod, and the space between them is occupied by three other granules, the centre one of which is larger than the other two; in moderate contraction these three granules appear fused together, whilst in great extension they appear as separate granules.

The duration of the latent period of the "tendon reflex" in the healthy adult has been carefully measured by Eulenbergh in healthy adults, and found to vary but little from 2-62 of a second. He regards it as something more than a mere reflex phenomenon, and endeavors to prove that it is of a complex nature. De Watteville appears, on the other hand, disposed to regard it as a direct contraction.

A very complete treatise has been published on the physiology of the muscles and nerves by M. Richet, which gives in a remarkably clear and orderly manner the chief facts that are at present known in regard to the relation of their important lesions, which M. Richet has himself done so much to elucidate.

We must not omit to mention that Professor Burdon-Sanderson has been offered, and has accepted, the important post of Professor of Physiology at Oxford, and whilst we trust he may long continue to occupy this distinguished office, we hope also that he will exert himself to lay the foundation of a good medical school, and at the same time gather around him a band of youthful and energetic workers, who may enable Oxford to vie with the great universities of the Continent.

Pathology.

In the department of pathology the year that is closing has been, on the whole, infertile. Isolated facts have been reported in their usual abundance, and even superfluity, but of new discoveries there have been few, and those, with one signal exception, of small importance. The year has been especially barren so far as English pathology is concerned. From the laboratories of neither England nor Scotland has any important work proceeded, and even from the Brown Institution, from which we have had such good work in the past, comes the sound of physiology rather than of pathology. The lectures on inflammation by Dr. Burdon Sanderson, and on Pulmonary Cavities by Dr. Ewart, deserve, however, especial mention, although, in the former, we are not carried far beyond our previous standpoint. Abroad, bacteria still absorb the energies of the pathologists of Germany and France, and the importance of the study has been sufficiently attested by the brilliant investigations which have added a new "household word" to the literature of pathology. Few recent discoveries have created a wider and more profound sensation than that of the tubercle bacillus, for which Koch certainly deserves the high credit he has received, although the discovery had been worked towards by many investigators, and was made independently by Baumgarten. The organisms of tubercle have given pathologists in all countries abundant work, and we may expect soon to have some definite facts bearing on its practical value, in addition to the technical facts regarding methods of observation which have been abundantly supplied. In other departments of bacterial pathology some new facts have been supplied, fewer in number, however, than in preceding years. Among them may be mentioned specially the researches of Birch-

Hirschfeld on the organisms associated with syphilis, and of Keating on those of measles, although the latter are scarcely more than a corroboration of the half-forgotten observations of Vacher and Braidwood. Of especial significance also is the fact announced by Fehleison, that the organisms of erysipelas are capable of giving rise to the disease after their separate cultivation. The remarkable observations of Laveran on the organisms which apparently constitute the active agent in the production of malarial disease, have been this year confirmed by Richard, and may perhaps excite more attention than they have hitherto received. Regarding other specific diseases the chief researches to note are those of Popoff on the changes in the brain in typhoid fever, and those of Elsenberg on the alterations which are produced in the salivary glands by rabies. In the region of general pathology, the subject of inflammation has been little studied. Besides the lectures of Burdon Sanderson, already alluded to, the most important researches are those of Spina, on the morphological changes presented by protoplasmic elements in the tissues, which have not the form of cells. Zuntz has investigated the cause of the increased oxidation which occurs in pyrexia, and believes that the facts he has ascertained regarding the action of curara must, to some extent, alter our views of the process. The subject of septicæmia has been somewhat neglected during the past year, and the work which has been done only serves to show how much more is needed. The experiments of Rosenberger, for instance, suggest that the relation of bacteria to this condition may be secondary and not primary, and are of special interest in connection with the facts which Rossbach has published, which apparently prove that, under certain circumstances, the organisms always present in the body may be the source of those associated with septicæmia. The general pathology of the blood has attracted little attention, nor can we expect new facts until there is more agreement regarding its constituents. We must not, however, omit to mention the researches of Hayem on the processes by which hæmorrhage is arrested, and on the peculiar "hæmatic crises" which occur during the course of many acute diseases. Apart from the question of its relation to bacteria, the pathology of tubercle has been the subject of many researches, and among those which deserve mention are that of Chiari on the hyaline metamorphosis which tubercle undergoes; the laborious investigations of Arnold on the minute structure of tubercle in various organs; the studies of its formation in the thoracic duct by Stilling, and in the veins by Weigert, and in the synovial sheaths of tendons by Terrier and Verhère. The facts described by Tappeiner regarding the production of phthisis in dogs by the inhalation of tuberculous sputum have been confirmed by Weichselbaum, although no new evidence of the contagiousness of phthisis in the human subject has been adduced. The observation of Friedlander may be regarded as demonstrating the frequent occurrence of organisms in connection with croupous pneumonia, although it still leaves undetermined their precise relation to the disease. The etiology of gastric ulcer has been studied experimentally by Aufrecht; the cause of the jaundice of newly born children has been investigated in a most able and thorough manner by Birch-Hirschfeld. No observations on the gastro-intestinal tract are more important than those of Nothnagel on intestinal catarrh and atrophy, which, although undertaken from a clinical standpoint, are of great pathological interest. The occurrence of compensatory hypertrophy of the kidneys has been demonstrated by Ribbert; and the researches of Aufrecht have thrown con-

siderable light on the pathogenesis of renal cirrhosis. Lastly, in what may be termed toxicological pathology, the most important investigations have been those of Cornil and Brault on the effects of arsenic and phosphorus, which have shown the identity of the changes produced by the two agents.

Therapeutics.

In the department of therapeutics there are many indications of vitality and of distinct reaction from that scepticism as to the use of medicine which followed, as effect follows cause, the rise and fall of homœopathy. The demonstration afforded by this exploded system, in its simplicity, of the strong recuperative powers of the system, naturally led physicians to question whether medicine could not be dispensed with altogether. But the answer to this question is no longer doubtful, and makes it clear that that practitioner will be at a great disadvantage who does not study the latest evidence on the physiological and therapeutical action of medicines. The growing care in investigating the action of drugs, and, we may add, the growing perfection of chemistry and of pharmacy, have shown that the most specific effects may be produced by drugs which a few years ago were not known to exist—witness the case of pilocarpine, of hamamelis virginica or its active principle hazeline, resorcin, etc. The old physicians used to speak of the effects and uses of opium, but recent chemistry and therapeutics have resolved opium into nearly a dozen substances with entirely distinct physiological effects, and capable of the most various use in the hands of the physician. This year has witnessed the introduction of a substance not originally in opium, but resulting from the action of hydrochloric acid on morphia—apomorphia. Few of the books on *materia medica* published this year contain any notice of it. Its use—for the discovery of which the profession is indebted to Dr. Gee—is that of an emetic to be introduced hypodermically. But it is in the smallest quantity powerfully effective—witness the remarkable case of brandy poisoning reported by Dr. Amand Routh in *THE LANCET* recently. The hypodermic use of quinine in ague has been shown in our columns by Professor Charteris, of Glasgow, and Dr. George Rankine, of the 6th Bengal Cavalry. The stimulating effect of fifteen minims of rectified ether administered hypodermically, and repeated, seemed to determine a favorable issue in a case of aconite poisoning detailed by Mr. Cecil A. Cooke. The hypodermic administration of the active principles of purgatives does not promise to supersede the ordinary use of laxatives. The antidotal action of the alkaline sulphates in poisoning by carbolic acid was illustrated by a case in the Royal Southern Hospital, reported by Mr. T. D. Ransford. Though some antiseptics are themselves shown to be capable of serious poisoning effects, the antiseptic and germicide theory still dominates therapeutics, not only in surgery but in medicine. Our pages are full of letters and other communications from practitioners alleging the efficacy of some antiseptic or other in zymotic cases. The local use of boracic acid dissolved in glycerine and water in diphtheria, by Mr. T. D. Harries, of Aberystwith, is a case in point. His conclusions are confirmed by cases reported by Dr. Goodhart to the Clinical Society, though he does not seem to have been aware of Mr. Harries's clear experience. Another case in point is the use of enemata of carbolic acid in typhoid by M. Ramonet; and yet others, are the successful administration of salicylate of soda in scarlet fever by Mr. James Couldrey, of Southorpe, near Brigg, where the disease has prevailed in a

severe form, and the use of salicylic acid in typhoid by M. Vulpian, reported to the *Académie Médicale*. The use of salicin and salicylates in acute rheumatism was the subject of a most elaborate series of papers, elsewhere alluded to, before the Medical Society. We can only here say that these remedies emerged from the discussion with enhanced reputation. It is noticeable, however, that Dr. Herbert Davies still prefers the blister treatment. The report of the committee of the Clinical Society on Rheumatic Hyperpyrexia, though chiefly clinical in its bearings, affirms the value of the prompt and early use of cold. The therapeutics of intestinal obstruction, not due to coarse mechanical conditions, are advanced by experience of the action of hyoscyamine in a case reported by Mr. Kenneth Millican, and by a growing use of belladonna, in cases where opium has failed or is contra-indicated. For the production of anæsthesia there is an increasing preference for ether as an alternative to chloroform. The action of drugs and the best mode of administering them are thus becoming more and more questions of the first importance in medical education and practice, in connection with that other great branch of therapeutics—the proper nourishment of the sick—which is receiving at present unprecedented attention.

Surgery.

The records of surgery during the past year are not marked by any striking novelty or great advance; nevertheless good work has been done in many directions. Sir Henry Thompson has recorded some instances of removal of tumours of the bladder through a perineal incision; and he advocates an exploratory incision in cases where the diagnosis is doubtful. He has also added another list of 101 cases of lithotripsy to the already large number recorded by him. Calculi have been removed from the kidney through a lumbar incision by Mr. Beck and Mr. Butlin, and other surgeons have recorded cases in which the kidney was examined with a needle through a lumbar incision without discovering a calculus; and it has been shown that this operation is practically free from risk. A considerable number of nephrectomies have been put on record by surgeons at home and abroad; and more than one lively discussion at the Societies has shown how great an interest is felt in the question as to when and how such a formidable operation should be undertaken. A somewhat allied subject—i.e., splenectomy in cases of leucocythæmia—has been discussed by Mr. Herbert Collier and Mr. Warrington Haward; the arguments of facts seems at present to be conclusive in condemning this proceeding. Numerous facts in abdominal surgery, which the greater differentiation of our art seems to be gradually (and we think regrettably) separating from the field of surgery proper, have been from time to time recorded in our columns; we will therefore leave the discussion of oophorectomy, chylocystotomy, and other performances, the very names of which are dreadful, for mention in another paragraph. Mr. Whitehead's method of excision of the tongue has been practiced and commented upon by several surgeons; there has been some diversity in the expression of opinion, but on the whole we gather it to be favorable. A novelty in the treatment of empyema has been suggested by Mr. R. W. Parker, who proposes to introduce purified air by a second puncture during thoracocentesis to replace the fluid which is withdrawn; but little opportunity has at present offered of putting his suggestion to the test of experience. Mr. Thomson, of Dublin, tied the innominate artery, and it appeared for a time as if the case were likely to prove successful;

but this hope was not realized. Mr. Holms recorded a list of cases in which the theca vertebralis was injured. Mr. Gould and Mr. Clutton have again raised the question of the treatment of spina bifida by reporting successful cases in which Morton's method had been employed, and the subject has been referred for investigation to a committee of the Clinical Society. A very remarkable lecture was given by Sir James Paget at the Royal College of Surgeons, on "Some Rare and New Diseases;" it was the first of an annual series of lectures founded by the widow of the late Mr. Bradshawe, of Reading, and was equally interesting from its novelty and suggestiveness. A warm discussion has been carried on with respect to the merits of the different anæsthetics commonly employed. At present the balance of opinion seems to be in favor of ether, but there are not wanting surgeons of high authority who maintain that we have not yet heard the last of this question. Several new materials have been introduced during the year as dressings, all of which remind us that, after all, the main question which is fermenting in the surgical mind is that of antiseptics; with some the question is as to the advisability of employing the antiseptic system at all, but with most it has resolved itself into the best means of putting it in practice. Amongst the materials referred to may be mentioned the boroglyceride of Professor Barff, and the salicylic silk of Mr. McGill, of Leeds; while the dangers and advantages of iodoform have also been brought prominently forward. Two Scotch surgical chairs have been vacated owing to the death of Professor Spence and the retirement of Professor Pirrie; the latter, however survived his retirement not more than a few weeks. A hot contest took place for both of these appointments, with the result that Mr. Chiene obtained the Edinburgh and Mr. Ogston the Aberdeen professorship.

Obstetrics and Gynecology.

In the department of Obstetrics and Gynecology the year has not been unproductive. Extra-uterine pregnancy, and its treatment by abdominal section, has been discussed by Mr. Knowsley Thornton and Dr. Goodell; while its treatment by electrolysis has been shown by Landis to be in some cases attended with satisfactory results. The occurrence of cardiac murmurs in the puerperal state has been studied by Dr. Money, who read an able paper on the subject before the Royal Medical and Chirurgical Society. Matthews Duncan has collected a number of cases of puerperal diabetes, and written the history of that perhaps "new and rare disease," in so far as it is at present possible. A new work on Midwifery by Lusk, and new editions of Playfair and Speigelberg's well-known works have appeared during the year. Lacerations of the cervix and Emmett's operation have been discussed, but we remain much in the dark with regard to the place occupied by these lesions in the production of suffering. The operation is regarded by some as one of the greatest and most beneficent additions to modern surgery, while others regard it as unnecessary meddling. Battey's operation has attracted a good deal of attention; some operators appear to meet with a large number of cases which call for its performance, while others see such cases extremely rarely. The operation is one whose influence on the female economy are evidently but imperfectly known, and the facts bearing upon this point published during the year have thrown but little light upon it. Garrigues has written an elaborate paper on the Diagnosis of Ovarian Cysts by means of the examination of their contents. Displacements of the uterus have not been neglected. Vedeler has published statis-

tics on a large scale showing the position of the uterus in healthy women, and these appear to have proved most damaging to the views of the mechanical school of uterine pathology. Herman also issued a paper on Backward Displacements of the Uterus, in which he attempted to show on anatomical and clinical grounds that retroflexion and version, as such, were of no consequence. Macan, in Dublin, has reproduced Schultze's views with regard to Antelexion. All this appears to point to the conclusion that the mechanical view of diseases of the uterus will in the future be tested with far more severity than hitherto, and that if it is to maintain its hold on the profession, more, and more scientific, evidence in its favor will be demanded. There are not wanting signs, both here and in America, that this view has been developed to its utmost limits, and that the pendulum is about to swing in an opposite direction. Dr. Fordyce Barker read an excellent paper on Leucorrhœa, its constitutional causes and therapeutics, before the American Gynecological Society, which is of the highest value, and which is sure to have a healthy influence on specialism in gynecology. New editions of the work of Spencer Wells on Ovarian and Uterine Tumours, and of Graily Hewitt's Diseases of Women, and an English translation of Courty's Diseases of Women by Miss Maclaren, have appeared.

Ophthalmology.

The completion of the great work of Graffe and Saemisch on the Anatomy, Physiology, and Pathology of the Eye, which is an encyclopædia in itself, seems to have practically prevented the appearance of any large work during the past year or two either in this country or abroad. The only exceptions we have to record are the systematic treatise on Diseases and Injuries of the Eye, by Dr. Wolfe, of Glasgow, which is a good text-book, and is illustrated by many colored lithographs, and the less complete but still carefully drawn up "Abhandlungen aus dem Gebiete der practischen Augenheilkunde" of Stellwag v. Carion, assisted by Wedl and Hampel. A new journal the *Zeitschrift für vergleichende Augenheilkunde* has been commenced. It is well supported, contains some excellent papers, and will fill a place that has too long been vacant. Masselon has published a small but convenient work of reference on the refraction, selection of glasses, perception of colors, visual field, and movements of the eye, under the title of "Examen Fonctionnel de l'Œil." Féré gives the results of his clinical observations in a work on crossed amblyopia and hemianopsia, under the title of "Troubles Fonctionnels de Vision." A very complete treatise on Sarcoma of the Uveal Tract has been written by Dr. Ernst Fuchs. A translation of M. Dagnenet's "Manuel d'Ophthalmoscopie," by C. S. Jeaffreson has appeared, and in addition to these several well worked up hospital reports have been published, notably that of Dr. Albert Mooren, of Düsseldorf, who, under the title of "Fünf Lustren Ophthalmologischer Wirksamkeit," has almost compiled a treatise on diseases of the eye, illustrated by the practice of his hospital. Mr. Nettleship, of London, and Dr. Williams, of Harvard University, have published new editions of their useful works, bringing them well up to modern knowledge, Dr. Williams' work being so much enlarged as to be practically a new treatise. A new journal, the *Revue Générale d'Ophthalmologie*, under the direction of Professor Dor, of Lyons, and Dr. Meyer, of Paris, has been commenced, and is well supported. The Ophthalmological Society has held its meetings with regularity under the able guidance of Mr. Bowman. The genial manners, the large views, and vast ex-

perience of Mr. Critchett, who would probably at no distant date have succeeded Mr. Bowman in the presidential chair, and whose death the members of the Society deplore, will be long held in remembrance. The histology of the optic nerve has been studied by Dr. Bergen, who has been unable to discover the direct communication observed and described by Leber, between the capillaries of the optic nerve and of the choroid. Robinski has investigated the structure of the lens; Aeb, the histology of the canal of Petit, and the Zonule of Zinn; Preiss, the lymphatics of the cornea; Wolff, the nerves of the cornea; Heisrath, the drainage system of the anterior chamber of the eye. Charpentier has contributed some papers on the differential sensibility of the eye, and he, Jaeger, Magnus and others have written on the sense of color. The use of the spray in operations on the eye seems to be spreading both in France and Germany. It will probably prove useful in cases of enucleation and abscission, but it is not well adapted for cataract operations nor for iridectomy. Many papers have been published on purulent ophthalmia, notably those of Haussmann, Abadie, Bailly, and De Wecker, and evidence appears to be accumulating that cases of blennorrhœic and gonorrhœic ophthalmia, and of suppurative keratitis, are in many instances attributable to, or, at least, associated with the presence of, certain micrococci and spores of fungi, such as the aspergillus, a subject that has been well worked out by Leber, of Berlin. The employment of homatropin as an agent capable of effecting dilatation of the iris, without the persistent effect of atropin, has come into general use, and pilocarpine has been shown to be not only a valuable and effective remedy in various diseases of the eye, but that it is an excellent antidote to the effects of atropine. Knapp has collected a series of interesting cases in which foreign bodies have been tolerated in the fundus oculi, showing that it may not always be requisite in such accidents to proceed at once to enucleation, especially if the foreign body be small. Fedor Krause has given a good account of the pathological changes occurring in sympathetic ophthalmia, showing that the changes proceed chiefly along the ciliary nerves. Dr. Ayres has written a paper on the same subject, recording cases which seem to show that the changes are progressive along both the optic and the ciliary nerves. But the number of memoirs and original communications on the pathology and treatment of diseases of the eye is immense, and furnishes sufficient evidence of the attractiveness of the diseases of the eye as an object of study.

The Royal College of Physicians.

At the Royal College of Physicians several important questions both of policy and ethics have been discussed. One recent and significant act of the College has been to appoint a sub-committee to confer with delegates of the College of Surgeons with a view to the formation of a Conjoint Board consisting only of these two bodies, leaving out the Apothecaries' Society. In this course the College is only accepting a proposal originally made by the College of Surgeons in May, 1881. The prospect of legislation makes the movement less opportune and important. One noteworthy step the College has taken throughout the year is the agreeing to the moderately worded resolution of Dr. Wilks with regard to homœopathy. The report on this discussion, however, which appeared in our columns, led to an amusing self-assertion of dignity on the part of the College Censors. Whether from the observance of excessive prudence, or from a jealous regard for its fancied importance, it was declared that henceforward the

proceedings of the College were to be considered as private communications. Considering that for some years past the proceedings have been duly reported, unless an intimation to the contrary had been preferred by the President, the action taken by the Censors must be considered a retrograde one. Another important question, on which the College has given an uncertain sound, has been that of professional advertising. It need only be said that while the London College was content with reprobating the practice of extensively advertising, the Irish College censured the advertising of medical publications in the lay press absolutely. There can be little doubt that if Fellows of the Royal College of Physicians advertise their books in the lay press they do a great injustice to the bulk of general practitioners whose patients they entice to their own consulting rooms. The Irish Fellows in this question have shown a higher sense of justice and less greed than the representatives of the London College. Another fact may be noted—namely, that the College this year has been obliged to appoint examiners in Anatomy, Physiology, and Chemistry outside the circle of its Fellows. The Gulstonian Lectures of the year were delivered by Dr. W. Ewart, "On Pulmonary Cavities; their Origin, Growth, and Repair." The Lumleian Lectures, by Dr. J. Burdon Sanderson, treated of Inflammation; whilst Sir Joseph Fayrer, in the Croonian Lectures, took the Climate and Fevers of India for his subject. The Bradshawe Lecture was delivered by Dr. E. Long Fox: "On the Influence of the Sympathetic System in Disease."

The Royal College of Surgeons.

The year has been an eventful one for the Royal College of Surgeons. Beginning with the extended examination in Medicine and the new examination in Midwifery for the final membership, and ending with the appointment of delegates to meet a sub-committee of the Royal College of Physicians, to consider the possibility of establishing a complete conjoint medical and surgical examination, the year has been full of incidents affecting not only the welfare of the College, but also the interests of medical education. At the meeting held on January 12th the principle of a preliminary scientific examination was approved, on the condition that such examination should be passed before the beginning of the professional curriculum. In March a standing rule was adopted that a candidate referred on the primary membership for three months, should before re-examination produce a certificate from his teachers of having pursued his anatomical and physiological studies during that period to the satisfaction of his teachers, whereas candidates referred for six months should, in addition, produce evidence of having dissected for three months. In April the Council adopted the principle that after October, 1882, an interval of two years should elapse between the passing of the primary examination for the diploma of member and admission to the final examination, except in certain special cases. In May the report of the Joint Committee on the proposed institution of an examination in elementary anatomy and physiology was presented to the Council. The committee recommended that the proposed examination should be held at the various medical schools, and conducted by the teachers, instead of at the College. At the meeting held in June it was resolved to call the attention of the authorities of the several recognized schools to the proposed regulation, and to invite the teachers of anatomy and physiology to confer with the Joint Committee of the College as to the mode of carrying out the proposed examination. This conference was held on

June 26th, and the principle of holding an elementary examination in Anatomy and Physiology at the schools was, after a long and full discussion, almost unanimously adopted, with the condition that six months should elapse between the Elementary and the Primary Examinations. On July 6th Mr. Marshall and Mr. Power were re-elected members of the Council, and Mr. Croft was elected a member of the Council, and in the following week Mr. Spencer Wells succeeded Sir Erasmus Wilson as President of the College, Mr. Marshall and Mr. Cooper Forster being elected senior and junior Vice-presidents respectively. The vacancy in the Court of Examiners, caused by Mr. Birkett's retirement, was filled up in October by the election of Mr. Bryant. In July Mr. T. M. Stone resigned the post of Clerk, after a useful, valued, and honorable service of fifty years at the College. On Dec. 14th seven delegates were appointed, as hinted above, to meet and confer with a sub-committee of the Royal College of Physicians on the possibility of a combination of the two Colleges for the establishment of a complete conjoint medical and surgical examination. On the 13th Sir James Paget delivered the first Bradshaw Lecture at the College "On some New and Rare Diseases." This lecture is published in *extenso* elsewhere in this number. It may be mentioned that during the year an attempt has been made to form an Association of Fellows, but as some of the promoters have not hesitated to avow a wilful spirit of antagonism to the College, the attempt has hitherto received no countenance from the principal Fellows.

Army and Navy Medical Departments.

During the past year no change has taken place in the organization of the Army Medical Department. At the half-yearly examination for admission into the service a sufficient number of candidates presented themselves to make it really competitive, and to show that the conditions of service at present in force are acceptable to the profession. In the beginning of May Sir Wm. Muir retired from the post of Director-General, and was succeeded by Dr. T. Crawford, who was up to that time Principal Medical Officer of the troops in India. His appointment was regarded with much satisfaction by the Department. On the outbreak of the war in Egypt Dr. Crawford was called upon to organize the medical service for the force to be employed there, which he did in a manner that met with the full approbation of the military authorities. When, from unforeseen changes in the military operations, difficulties were experienced in bringing up to the front those supplies of medicines and medical comforts which had been provided on a liberal scale, an attempt was of course made to show that this was owing to the defective organization of the Department and the want of foresight on the part of the heads of the medical service. These charges were supported by statements of a very unscrupulous character, and were, we fear, in many instances put forward for the purpose of throwing discredit on the present system of departmental organization. Many of these statements have already been disproved by the evidence of eye-witnesses, and we have no doubt that the inquiry now being conducted by the Committee appointed by the Secretary of State for War will completely remove the odium which has been attempted so unfairly to be cast upon the medical service. The military authorities, both at home and in Egypt, have borne testimony to the praiseworthy manner in which the medical officers discharged their duties, and the sympathy of their professional brethren in civil life was well manifested by the banquet given to celebrate

their return to England on the termination of the war.

An important alteration was introduced into the Indian Medical Service during the year by the adoption of the station hospital system instead of the regimental. This was carried out under the supervision of Surgeon-General Crawford before he left India to take up the appointment of Director-General. The Indian Service furnished the necessary medical staff for the contingent employed in Egypt, and the arrangements were carried out in a most satisfactory manner.

There has been no change in the organization of the Naval Medical Service during the year. The Order of Knight Commander of the Bath has been conferred on Mr. J. Watt Reid, the Director-General of the Department.

It is satisfactory to find that for all the three branches of the public service an adequate supply of candidates has been forthcoming at the competitive examinations; and it is also matter for congratulation that in the distribution of honors for service in Egypt the medical officers have not been left out, as has happened too often in previous wars, but have received a fair share of the promotions and decorations.

Mirror of Hospital Practice.

Thanks to the generous co-operation of the physicians, surgeons, and their assistants attached to the various hospitals and dispensaries through the kingdom, we have been able to publish in our "Mirror of Hospital Practice" a large number of selected cases, presenting aspects of clinical, pathological, and therapeutical interest. The cases have not only been instructive in themselves, but have afforded a tolerably accurate indication of the progress of medicine and surgery. Out of the records many examples may be found of things both "rare and new." Where every case presents some interest it is difficult to select instances for special mention. Among the medical cases we may, however, cite:—rupture of lung, pneumothorax, paracentesis, recovery, under the care of Mr. Gould at Westminster Hospital; hydronephrosis treated by aseptic incision by Dr. Tuekwell and Mr. H. Symonds, of the Radcliffe Infirmary, Oxford; spontaneous rupture of the heart, under the care of Dr. Coupland, of the Middlesex Hospital; ulcerative endocarditis simulating typhoid fever, under the care of Dr. Sturges, of the Westminster Hospital; rupture of liver, thrombosis of the hepatic veins and embolism of a branch of the left pulmonary artery, under the care of Mr. Makins, at the Seamen's Hospital, Greenwich; rupture of an aneurism of the basilar artery, under the care of Mr. C. J. Wright, of the Leeds Public Dispensary. Among the surgical cases may be mentioned:—transfixion of neck by a walking-stick, under the care of Mr. Davies Colley, of Guy's; adherent stone in the bladder, forming after injury to spine, under the care of Mr. Henry Smith, of King's College Hospital; successful removal of large uric acid stone, weighing eight ounces, by literal lithotomy, under the care of Dr. Underhill, of Guest Hospital, Dudley; compound dislocation of the sixth from the seventh cervical vertebra without fracture, under the care of Dr. Whippam, of St. George's Hospital; dislocation of the fifth cervical vertebra, reduction and recovery, under the care of Mr. Ceely, of the Royal Bucks Infirmary. Among the curiosities may be mentioned a case of eyelashes in the anterior chamber of the eye, the result of a stab, treated by Mr. Williamson, of the Newcastle-on-Tyne Infirmary, and a fish-hook successfully removed from the oesophagus by Dr. Goldsmith, of the Bedford General Infirmary; excision of the pyloric end of the

stomach for carcinoma by Mr. Sydney Jones, of St. Thomas's Hospital.

The Medical Societies.

At the various medical societies of the metropolis the year has not been very eventful. There have been no great debates in stirring controversies, but there has been the same steady pursuit of science in the records of cases of disease, of the results of operations, of pathological research, and in the general routine of useful work that renders the meetings of these bodies so attractive and fruitful. Commencing as usual with the Royal Medical and Chirurgical Society, we find this old-established and somewhat conservative body becoming alive to the fact that for some reason or other its meetings were losing much of their former popularity. In point of numbers the Society was never richer, but yet the Fellows failed to appear at the meetings and share in the debates, the contributions even became scanty, and rumor ran that the Society's younger rivals were pressing it rather hardly. However this may be, the changes that have been introduced—minor as they are in importance—during the past few months may have considerable effect in increasing the attendance and interest in the Society's meetings. Professor J. Marshall succeeded Dr. Barclay in the presidential chair, and his first duty on taking office was to move an address of congratulation to Her Majesty on her providential escape from the attempt on her life. The papers read before the Society have, many of them, led to animated debate, and some have enunciated new principles that may become established. As in other Societies, so here, surgery predominated. Mr. Bryant relating his successful case of Colectomy for Cancer, a subject expanded more fully in the recent paper contributed by Mr. Treves on Resection of Portions of the Intestine. Sir H. Thompson contributed a successful case of Removal of a Tumour of the Bladder by Perineal Section, and the same surgeon will shortly communicate another paper on this subject to the Society. Mr. Henry Morris's paper on Dislocation of the Hip-joint was another which aroused discussion, and so did Mr. Parker's proposal to employ intra-thoracic injection of air as an aid to the evacuation of certain forms of empyema. Other papers, of a more elaborate nature, were the researches of Drs. Ringer and Sainsbury into the action of Soda and Potash Salts, that of Dr. Champneys into the production of Mediastinal Emphysema following Tracheotomy, and that of Dr. Warner upon the Postures of the Hand as indications of Cerebral Action. Sir James Paget also contributed a further series of cases of the remarkable condition to which he has given the name *Osteitis Deformans*. One of the innovations referred to above has consisted in the exhibition of anatomical and other specimens collected from various sources in illustration of the subject of the evening; and in that way demonstrations of bacterial organisms, of entozoa, specimens of cranial and cerebral disease producing epilepsy, and of forms of intestinal stricture, have successively taken place, adding much to the interest and value of the meetings.—The Pathological Society has, we believe, managed to deal with more subjects than occupied it in any previous session; the specimens are so numerous, and the communications accompanying them are often so concisely and tersely made, that not only is much work got through, but also, we fear, there is less actual debating than in former years. This is to be regretted, for not seldom the most interesting facts are brought out by discussion. We are pleased to observe that the Society is receiving several contributions in comparative

pathology, owing mainly to the facilities afforded by the Zoological Society to certain members of the former body in making post-mortem examinations upon animals. We look forward to much valuable information being thus furnished to pathology, and cannot forget that Dr. Crisp, whose death recently took place, was the pioneer in this special department in the Society. By the death of Dr. Peacock the Pathological Society lost a former President, and one of the most constant contributors to its Transactions.—In connection with the sister Society—the Clinical—it is fitting also to mention that the revered physician whose loss is still fresh in the memory, Sir Thomas Watson, was the first occupant of the Presidential chair fifteen years ago. The Society has now a well-established position, and attracts many valuable communications. Amongst the subjects more particularly discussed within it during the past year were Nephro-lithotomy in papers contributed by Messrs. Beck, Butlin, and Haward; Nephrectomy by Dr. Goodhart and Mr. Golding-Bird, Dr. Barlow and Mr. Godlee, Mr. Marsh and Mr. J. E. Adams; whilst other subjects in abdominal surgery—e.g., splenectomy by Mr. Haward, and abdominal section for intussusception by Mr. Godlee, deserve prominent mention as indicative of the growing boldness of surgeons in this direction. The subject of Myxedema—a condition that still continues to excite clinical inquiry—was also thoroughly discussed at this Society early in the year. An elaborate Report upon Hyperpyrexia in Acute Rheumatism was presented by a Committee of the Society; it dealt exclusively with the clinical aspect of the subject, the Committee not attempting to frame any hypothesis upon its pathogeny.—The chief subjects debated at the Obstetrical Society have been Dysmenorrhœa on two occasions—one in a paper on its Treatment by Dr. Godson, and the other on its Nature by Dr. John Williams. A communication by Dr. Playfair upon Emmet's Operation also gave rise to considerable discussion.—The Medical Society of London has been the medium for several excellent papers, mostly of directly practical importance. The discussion upon the Salicylate Treatment of Rheumatism was prolonged into the present year, and occupied several meetings. Mr. H. Morris read a valuable paper upon Ichthyosis and Epithelioma of the Tongue; Mr. Bryant contributed a case of Gastrostomy for Cancer of the Esophagus; Mr. Gould advocated the Complete Removal of Axillary Glands in Mammary Cancer; Mr. R. Harrison spoke of the early treatment of Prostatic Enlargement; Mr. S. Gamgee upon Treatment of Wounds, and Mr. K. Thornton upon Nephrectomy. Indeed surgical communications were decidedly the more numerous, but amongst the medical subjects may be cited Dr. Jackson's paper on a case of Cortical Tumour of the Brain, and Dr. S. Mackenzie's upon the treatment of Chronic Dysentery by injections of nitrate of silver. The Lettsomian Lectures at this Society were given by Mr. Royes Bell upon Diseases of the Testicle; the annual oration was delivered by Dr. Symes Thompson, and the Fothergillian Prize was awarded to Mr. Dolan for his essay upon Whooping-cough.—The Ophthalmological Society entered this year upon its third session. It has found it necessary to add to the number of its meetings, which are so well attended and so amply furnished with good material that the *raison d'être* of the Society is quite proved. Mr. Bowman continues President; but the Society has had to lament the loss of one of its Vice-Presidents, Mr. Critchett, who took the chair at the closing meeting of the session last July, when a debate upon sclerotomy, continued over two evenings, took place.—Of

other Societies, the Hunterian, Harveian, Epidemiological, the Society of Medical Officers of Health, and others, it must suffice to say that there has been no lack of activity within them. At the Harveian Mr. H. Power was appointed lecturer, and he chose for his subject Ophthalmic Surgery in relation to General Practice. This year has also seen the inauguration of the West London Medico-Chirurgical Society, to meet a want in a large and populous district of the metropolis, and the meetings, we understand, that have already taken place have been thoroughly successful. A Dermatological Society has also been formed during the year; but its promoters have wisely decided to limit its numbers, and to conduct its meetings in a less formal manner than is usual. From all these and kindred gatherings of men engaged in one pursuit—that of honest inquiry after truth with a view to combat disease more thoroughly—there must be much to be gained, and in proportion as the value of these Societies is appreciated will their influence on the advance of medical science be extended. In one important particular we seem to notice a change in the character of the communications made to these Societies: there is far less of the speculative and theoretical, and more of the directly practical—a change which completely confutes the apprehensions of those who used to fear that with the growth of its science the art of medicine would decline.

The Medical Council.

The Medical Council met on June 27th, and did not rise till July 8th. One of its chief acts was to deliberate on the conduct of Mr. Murdoch, L.R.C.P. Edin., and L.S.A., in employing unqualified assistants and placing them in charge of dispensaries at a distance from his own house, to attend patients. It was further alleged against Mr. Murdoch, that he had allowed such assistants to sign his name to a false certificate of death. The latter charge was not sustained, but the Council regarded the facts in the first charge so seriously as to find Mr. Murdoch guilty of "infamous conduct in a professional respect." As this was new action on the part of the Council, and Mr. Murdoch had undertaken to discontinue the practices complained of, he was not punished by having his name removed from the Register. The Council appointed a committee, under the presidency of Dr. T. K. Chambers, to consider the abuses connected with unqualified assistants. The Council discussed and in the main approved the draft of a Bill to provide for the Education and Registration of Midwives. Its chief work, however, during the long session was the consideration of the Report of the Visitors of the Medical Corporations of the United Kingdom. The eminence and earnestness of the Visitors—Professor Gairdner, Mr. Teale, and Mr. Stokes—and the scale upon which their work had been done, excited the interest of the profession. There has never been such a comprehensive visitation of the Bodies as by these gentlemen. There was a marked effort to be faithful in the discharge of their duties, slightly spoiled, perhaps, by the desire to say nothing unpleasant. Certain conclusions and recommendations were formulated by Mr. Teale, which became very much attenuated, however, by discussion. The Council has an impossible task in trying to supervise and regulate so many examinations. The task is not only impracticable—it is very expensive. This particular Visitation is said to have cost £1,500.

Medical Associations.

The British Medical Association celebrated its fiftieth anniversary fitly at Worcester, under the presidency of Dr. W. Strange, who did great jus-

tice to the medical heroes of the last half century, notably Dr. Charles Hastings and his coadjutors in the foundation of the Association, and to the founder of this Journal as the great iconoclast of medical abuses and monopolies. The address in Medicine was delivered by Dr. Wade, and that in Surgery by Mr. Stokes, of Dublin. Dr. Flint, of New York, delivered a suggestive address on the self-limited duration of phthisis.

A very notable event in the year is the formation of a Society to promote the advancement of medicine by encouraging research. This is by no means a purely medical Society. Though including Sir Wm. Jenner, Sir James Paget, Mr. Spencer Wells, and other representatives of the profession, it also includes men like Professor Tyndall, Sir John Lubbock, and many other laymen who see the beneficent nature of medicine even when it sacrifices a rabbit or a dog to save the lives of men and animals on a large scale.

Medical Politics.

The great event of the year in the matter of medical politics is the appearance of the Report of the Royal Commission on the Medical Acts, recommending changes in the organization of the Medical Council and of the licensing boards in the direction long desired by the public and the profession. This Report shows a natural disposition on the part of the Commission to judge the medical authorities generously, but it nevertheless shows equally a perception of the defects of the existing system. Clauses 5 and 6 of Part I. of the Report are as follows:—

"On the other hand, it has been stated in evidence, and especially by witnesses who have been engaged in private tuition, that not only do the diplomas and degrees of these medical authorities imply very different standards of skill and knowledge, but that in some cases the possession of a diploma affords no guarantee that the practitioner holding it possesses a competent knowledge of medicine, surgery, and midwifery. Several distinct causes appear to us to lead to this result, such as the imperfections and low standard of some examinations; the fact that some examinations are injudiciously divided into parts, the first part of the examination of one Corporation being accepted by another, as in the case of the Apothecaries' Hall of Ireland and the Edinburgh Corporations; to which may be added the unsatisfactory manner in which the examiners themselves are in some instances appointed, as appears from the evidence laid before us by the representatives of the two Societies of Apothecaries."

Other defects in the existing licensing system are brought out. Certain bodies are specially mentioned by the Commissioners, whose examinations, by a notable concurrence of opinion among the witnesses, are considered unsatisfactory. These bodies are the Apothecaries' Societies, the Edinburgh College of Surgeons, and the Glasgow Faculty of Physicians and Surgeons. The system of the Edinburgh College of Surgeons for creating Fellows, which is practically a system of purchase, was brought out in evidence before the Commission, and was little improved by even Mr. Spence's defence of it. Similarly, in regard to the Medical Council, the work it had done was admitted liberally, and its failures were freely implied in the excuses suggested for its not doing better, and in the suggestions for a radical change in its constitution. The main proposals of the Commissioners are:—

"That there shall be one Medical Council. That in each division of the kingdom there shall be a divisional board representing all the medical authorities of the division, whose duty it shall be

to appoint a certain number of persons to be members of the Medical Council, to appoint examiners for the divisional board examinations, which alone are to admit to the Register," etc.

If legislation takes place on these lines, as we have reason to hope it may, there will be a Medical Council of eighteen members instead of twenty-four, and three licensing bodies instead of nineteen. The Council, moreover, will be no longer a weak and talkative body, fighting for the rights of corporations, but "one supreme controlling authority, entrusted with larger powers than those possessed hitherto." The universities have been much considered by the Commissioners, and their graduates will be exempted from all the examinations of the divisional board but the final one, and this at a small fee.

A deputation of members of the British Medical Association, and others, waited on Lord Carlingford and Mr. Mundella in November, to urge on the Government the promotion of legislation on the lines of the recommendations of the Royal Commission. Dr. Waters, of Chester, gave a history of the arguments and demands for reform, and of the efforts of successive Governments; and Dr. Glover spoke from the point of view of a Scotch graduate and the holder of a Scotch diploma. Mr. Wheelhouse, of Leeds, testified to the fact that those who are rejected in one division of the kingdom often quickly succeed in another. Both Lord Carlingford and the Vice-President listened attentively to the deputation, and promised that the subject should have their attention.

In Parliament, excepting answers to questions of more or less medical interest, there has been little to record in a session barren beyond precedent. The chief redeeming fact about the work of Parliament is that the House of Commons has awoke to the absurdity of its own Rules of Procedure, which have served lately so to hinder legislation as to bring the Legislature itself into disrespect.

Medico-Legal Cases.

The year 1882 has not afforded many cases of very exceptional interest in the domain of medical jurisprudence. The humiliating circumstance of the conviction and execution for murder of a member of the medical profession will, however, cause the past year to be held in bitter remembrance. The circumstances of Lamson's crime need not be recapitulated, how for the sake of gain he administered acconitia to his brother-in-law in a gelatine capsule, and how the crime was clearly brought home to him by the aid of chemical and physiological tests. The satisfactory way in which the alkaloid was detected by Dr. Stevenson and Dr. Dupré will effectually tend to deter miscreants of a similar type to Lamson from using this lethal agent for the future. Owing to the public panic caused by this case, the Home Secretary issued circulars to various bodies asking for their opinion as to the necessity or otherwise of altering the law which regulates the sales of poisons. Committees were appointed by the different medical colleges, and we doubt not that much information was furnished to the Home Secretary; but as yet no steps have been taken to alter the law. Quite recently a woman named Taylor was convicted of murdering an old woman by the administration of sugar of lead. The circumstances were so lately given in our columns as to make a repetition of them unnecessary. On the last day of 1881 a curious death-bed confession was made by a man named Brooks, in Staffordshire. It appears that Brooks, a somewhat eccentric man, attempted to castrate himself on December 4th, 1879, and, in explanation, he falsely alleged that he had

been mutilated by four men who attacked him. The result of this statement was that two men (Johnson and Clowes) were sentenced to ten years' penal servitude. On February 13th, 1881, Brooks again attempted to castrate himself, and again made a false statement that his injuries had been inflicted by others. He died from the effects of heart disease on December 31st, 1881, and his death-bed confession led to the liberation of the men who had been wrongly convicted. The conviction and execution of Guiteau for the murder of President Garfield must be regarded as just in spite of the preposterous attempt to prove the murderer insane. That Guiteau was on the borderland of insanity there can be little doubt, but of the expediency of his execution there can be little doubt also. In the spring public indignation was aroused by an attempt on the life of the Queen by a man named Maclean. Maclean was arraigned for high treason, and was acquitted on the ground of insanity. Maclean had been in a lunatic asylum, and there never was from the first any doubt as to his unsoundness of mind. It was a clear blunder to go through the farce of a trial, and thus give a notoriety to the case, which would prove an incentive to lunatics of a similar class to imitate Maclean's action.

The Brighton Corporation and THE LANCET.

Early in the year we had occasion to question the perfect state of the sewerage of Brighton—a course which gave great offence to the Town Council, who commenced an action for libel against *THE LANCET*. They, however, directed Sir J. Bazalgette to report on the sewerage system, and Dr. Richardson on the sanitary condition of the town. These reports agreed in the main with our strictures on the imperfect system of drainage. The Corporation, after the publication of Dr. Richardson's report, with commendable discretion, retired from the contest. Thus the liberty of the press was vindicated. If we cannot discuss (which we do every week) the sewerage or insanitary state of a town, one great function of *THE LANCET* will be paralyzed. Our aim and mission are to diffuse scientific knowledge throughout the world, and to reform local abuses. The amount of good accomplished by the Brighton agitation is simply incalculable. Every healthy resort throughout the kingdom had its drainage overhauled and its pestilential spots purified. Perhaps the authorities expected a visit from one of our Commissioners. But as it is we congratulate ourselves and the Town Councils who have "put their houses in order."

Public Health Questions.

The year which is now passing away has, on the whole, been a healthy one at home. In England and Wales the general mortality, so far as it can be ascertained at this date, has been decidedly below the average. A comparatively mild winter led, in the first quarter of the year, to one of the lowest death-rates which has been recorded since civil registration was established in 1837. In the metropolis itself, however, an exceptional fatality from pulmonary affections amongst persons over sixty years of age was brought about by the density of the prevailing fogs. Throughout the year the prevalence of small-pox has been diminishing. In the metropolis, indeed, the small-pox death-rate is decidedly below the average for the ten preceding years, but several severe outbreaks have occurred in the provinces. It is a matter of experience that a London small-pox epidemic is always followed by an extension of the disease to some at least of the other large towns and cities, and the only peculiarity of the last epidemic is that this exten-

sion was longer in showing itself than usual. Amongst the English provincial towns that have most suffered are Bolton, Gateshead, Hull, Leeds, Lincoln, Newcastle-upon-Tyne, Nottingham, Rochdale, and Wednesbury. The mortality from the several continued fevers has also been below the average. In some parts of the kingdom isolated outbreaks have, however, occurred, and of these the epidemic of enteric fever at Bangor has been by far the most extensive. During the four months June to September over 550 cases of this disease occurred in Bangor and its immediate neighborhood, the outbreak being one of the most severe which has been recorded in this country within recent years. A searching inquiry was made into the circumstances of the epidemic by Dr. Fred. W. Barry, the newly appointed Medical Inspector to the Local Government Board, and it was proved that the outbreak had in the first instance been brought about by the contamination of the water-service into which the specifically poisoned excreta of an isolated case had been conveyed by faulty means of drainage, and that its extension was in the main the result of an ill-ventilated system of sewers which facilitated the entrance of the then fever poisoned drain air into dwellings. The long continuance of the epidemic was also favored by the failure of the sanitary authority at once to act on the recommendations of Dr. Barry and of their own officer of health. The occurrence of small outbreaks of typhus fever in several large centres of population, and especially in Liverpool, London, and Sunderland, naturally led to the fear that, with the colder weather and the resulting overcrowding in the ill-constructed and ill-ventilated tenements of the lower classes, some epidemic prevalence of that disease might be anticipated. Although, however, more than the usual interval between epidemic prevalences of this disease has elapsed since the last typhus visitation, we are fortunately still without any indication of its further spread. Scarlet fever has, like the continued fevers, been distinctly less prevalent than usual, but in several parts of the kingdom local outbreaks of considerable magnitude and severity have occurred. Amongst the larger towns Accrington, Gloucester, Merthyr Tydfil, South Shields, Oxford, Nottingham, and Hull may be named as having specially suffered; the outbreak in Hull being a continuance of an epidemic which in 1881 caused as many as 682 deaths. The disease has also been fatally and persistently prevalent in several smaller places, such as Worksop, and also at Upwell, a village near Wisbeach. Diphtheria has throughout the year caused an excessive mortality, the excess increasing as the year has progressed; and in some places, such as Folkestone, Taunton, Sutton-in-Ashfield, Lynn, and Whitstable, there have been marked epidemic outbursts of the disease. We are fortunately still ignorant of the conditions essential to the development and, to some extent, to the spread of this affection, and with a view of acquiring further information as to its etiology, both the Local Government Board and the British Medical Association have instituted a series of detailed inquiries, the results of which may, it is hoped, hereafter give some indication as to how the diphtheria mortality may be lessened. Both whooping-cough and measles have prevailed to an unusual extent, and some of the measles epidemics have been very fatal. So long, however, as attacks of these diseases are regarded by the ignorant as necessary to the period of childhood, so long must they lead to a large number of preventable deaths. The periodic prevalence of autumnal diarrhoea has been less marked this year than usual, and it is evident that a comparatively cool autumn has in part conduced to this result. But

it is equally clear that temperature alone does not regulate the extent of diarrhoea mortality amongst infants. The available information as to the causation of this disease is as yet singularly imperfect, and we can only await the results of the exhaustive inquiry which, now for three successive autumns, has been undertaken by Dr. Ballard, with a view of clearing up at least some of the more difficult sanitary problems connected with this subject. Leicester, Preston, Hull, Gateshead, and York have, as usual, suffered exceptionally from infantile diarrhoea.

During the year the subject of the isolation of the several infectious fevers has received a large amount of attention, and three important reports have been issued on the subject. The first was Dr. Thorne Thorne's exhaustive report on the Use and Influence of Hospitals for Infectious Diseases throughout the country generally; a report which embodies all the information available on the subject so far as the requirements of sanitary authorities are concerned. The second was Mr. W. H. Power's report on the influence of the Fulham Small-pox Hospital, which went to show, in the most convincing manner, that the aggregation of a large number of small-pox patients in a populous centre was attended with a spread of the disease amongst the surrounding inhabitants. The report was one of the most complete that has ever been issued by any sanitary department. It proved that the diffusion of the small-pox contagion had operated over a wide area; that it had come into operation every time the hospital had been used for the reception of acute small-pox cases; and that, owing to the uniformity of its incidence upon all the surrounding population, quite irrespective of the existence of roads or other channels of human intercourse, the diffusion must necessarily have been communicated through the atmosphere. The circumstances elicited as the result of this investigation led to the appointment of a Royal Commission to inquire into all the circumstances affecting the isolation of infectious diseases within the metropolis, and the report of that Commission formed the third contribution to this important subject. The Commissioners arrived at the conclusion that the metropolitan small-pox hospitals had operated injuriously upon the neighborhoods in which they are situated; and although not assenting in full to Mr. Power's contention that the mischief was brought about by aerial diffusion, yet they would appear to have been largely influenced by this view in so far as their recommendations are concerned. We have so recently commented on this report that we would now only add a hope that legislation will speedily give effect to the conclusions which have been urged upon the Government by the Commission. The deaths by erysipelas following vaccination in Norwich were considered of sufficient importance to demand public inquiry by the Local Government Board, who, in the first instance, appointed Dr. Airy to investigate the circumstances attending the fatality. Subsequently Mr. Henley was associated with Dr. Airy in the inquiry. The report was so unsatisfactory that Dr. Buchanan deemed it necessary to append a memorandum showing that the conclusions arrived at by the inspectors were not borne out by the evidence, and that important considerations which might have led to the elucidation of the cause of the erysipelas had been overlooked.

The Parliamentary session has been very barren in sanitary legislation, and only two statutes call for any notice. One extended the Public Health Act so as to enable sanitary authorities to make by-laws regulating fruit pickers and their lodgings; the other amended the Artisans' and Laborers' Dwellings Act, and provided means, amongst

other things, for the purchase of houses, the demolition of which was necessary for the opening up of alleys, etc. Two other subjects, however, deserve notice in this connection. During the year the Local Government Board completed their series of model by-laws by the issue of several sets of clauses for the regulation of noxious trades; and the Education Department of the Privy Council in their New Code of 6th March, 1882, made provision for the issue of grants in the case of schools which, without being closed, may suffer from a diminished attendance owing to the prevalence of infectious disease, and also for requiring school managers to comply with the notices of sanitary authorities as to the closing of schools or the exclusion of scholars under similar circumstances.

Europe has fortunately escaped from the importation of any Eastern epidemic disease. Plague has, however, prevailed to some extent in Persian Kurdistan, the disease reappearing after an apparent cessation of several years. The rumors as to the dangers which we run by the importation of cholera through the Mediterranean have been unusually rife, and the presence of that disease in an epidemic form, both in India and in some of the islands bordering on the China Sea, led to an attempt to hinder traffic through the Suez Canal at a critical moment of the recent Egyptian campaign. England, however, distinctly refused to subject herself to the regulations which the Egyptian Board sought to impose, and the result has fully justified the course she took. It is to be hoped, indeed, that before long some final settlement on a rational basis will be made as to the constant disputes arising with reference to the subject of quarantine, as this antiquated process is understood in Egypt and in some other countries. Following on the Mecca pilgrimage cholera broke out in the Hedjaz and other localities affected by the annual visit to the holy city. At Jeddah the disease still prevailed in the middle of last month, but so far as Europe is concerned, all danger may now be regarded as having passed.

Miscellaneous.

A very notable event during the past year has been the opening of the Royal Courts of Justice, and in a future number we shall give a report on the sanitary aspects of the new building. The building, although praiseworthy, is by no means above criticism, and it is to be hoped that in the future when Government offices have to be erected some of the suggestions offered by our Commissioner will be acted upon by the Government of the day.

A very laudable attempt to improve the sanitary condition of ships was made by the Directors of the Orient line in the construction of the steamship *Austral*, undoubtedly the most magnificent vessel of its class. This ship's career has been most unfortunate, for she was capsized a few weeks since in Sydney Harbor, owing to the carelessness of those in charge during coaling, and although it is hoped that she may be floated again, one cannot but have misgivings that the difficulties of such a work may prove insurmountable.

The Parkes Museum has been incorporated during the past year, and has been removed from University College to new premises in Margaret-street. It will be opened early in 1883, and we can only wish it a long career of useful activity.

Obituary.

The obituary of every successive year seems sadder than the previous ones, though in the case of the present year it includes the names of many whose age and honors were fully ripe. A few selections from our own death record will show what

figures have disappeared:—John Flint South, F.R.C.S. Eng.; Sir Robert Christison, Bart.; Charles Robert Darwin; Professor Schwann, of Liege; Dr. George Budd, F.R.S.; Sir John Rose Cormack, of Paris; Sir Edwards Burrows Sinclair, of Dublin; T. B. Peacock, M.D.; Professor James R. Wood, of New York; Professor Spence, of Edinburgh; Professor Andrew Buchanan, of Glasgow; Dr. Arthur G. Reid, of Hankow; Dr. Charles Morehead, of Bombay; Sir James Alderson, M.D. Oxon.; Mr. J. T. Clover; Dr. Edward Peele, of Dublin; Mr. George Critchett; Bhola Nath Bose, M.D. Lond., Bengal; Professor George Gulliver, F.R.S.; Professor Henry Draper, of New York; Professor William Pirrie, of Aberdeen; Dr. Edwards Crisp; Sir Thomas Watson, F.R.S.; Dr. Edward J. Reynolds, the oldest physician in Boston, who graduated at Harvard fourteen years before Sir Thomas Watson graduated at Cambridge; Deputy Surgeon-General Pearse, late and most valued Chief Officer in the Vaccination Department of the North-West Provinces of India. We should want all the columns of the "*Annus Medicus*" to record the work represented by these names and the names of practitioners in the more laborious fields of private practice, some of them dying, like Lycidas, in their prime, most of them at their post, and not a few filling offices of public trust.

Conclusion.

Now we leave 1882, wishing our readers all happiness in the coming year and inviting their co-operation in perfecting the art and science of medicine, with which the well-being of mankind is seen to be more and more inseparably connected.

Editorial.

THE PROSPECTS OF MEDICINE IN THE NEW YEAR.

In entering on a new year it is proper to encourage the feeling of hopefulness and expectation. The man who expects most is, after all, he who generally receives most. The history of medicine in recent years justifies the cultivation of a more sanguine mood than is generally attributed to medical men. Doctors are by no means a melancholy set of men. The reason is that they see infinitely more of recovery and convalescence in their experience of disease than of the opposite, and that while receiving plenty of abuse, they receive more praise and gratitude. There have been few more popular physicians than Mead, and few who saw more of disease; yet Dr. Johnson said of Mead, "He lived more in the broad sunshine of life than almost any man." This is the true mood for a physician, and if a physician in Mead's time could manage to live in the sunshine, *a fortiori* it should be practicable now. With all the admitted limitations of medical art, it is an infinite relief to the suffering portion of the community to receive the visit of a medical man who devotes his life to the removal and mitigation of disease, and who does not readily admit any case to be beyond the reach of some benefit. As in a storm many a captain carries his ship safely through who perseveres in a cheerful and hopeful contest with the waves,

se, in extreme circumstances of disease, the physician who is hopeful and has resources, and who has therefore a power of exciting hope in his patient, will often bring the patient through, or extend his life, where a less hopeful or resourceful practitioner would fail. Mead's name reminds us of the strides of medicine. He was honorably associated with the introduction of inoculation for small-pox. Since then this great plague has been brought well within the control of enlightened States by an operation which suggests the hope of similar triumphs over other diseases. Objectors will retort that States are still afflicted with huge epidemics even of small-pox, and that other fatal diseases still defy medical art—cancer, hydrophobia, consumption, and the various forms of degeneration which neither Bright nor Addison has shown us how to arrest. There is too much truth in this retort to be pleasant. But it is not so true as to damp the ardor of the physician. The great cause of the prevalence of small-pox, for example, is not the imperfection of medical art, but the imperfect intelligence of the people, disabling them for a perfect appreciation of vaccination and revaccination. In the great field of septic diseases, medicine, or rather surgery, has lately made enormous advances. As in the case of small-pox, so, in a less striking way, medicine has pointed out how many other epidemic diseases may be curtailed, but mistaken notions of liberty, or imperfect states of popular intelligence, which it is the beneficent purpose of medicine to remove by the diffusion of medical knowledge, still stand in the way. As regards the case of consumption, of late years its curability, or the chance of beneficially influencing a natural tendency to self-limitation, as Dr. Flint happily calls it, has been fully admitted, and the recent discovery of Koch—by the way, originally a country practitioner—justifies a hope that further means may yet be found of preventing the extension of this disease in individual cases, or from one person to another. The various forms of degeneration—Bright's disease, Addison's disease, atheroma, and myxœdema, etc.—are no doubt still great *opprobria* of the medical art, instances of disease in which pathology has far outstripped therapeutics. But does anyone doubt that a man affected with any one of these diseases will be greatly the better for following the advice of a sage and kindly physician? This is one of the most useful departments of medical service and labor. The extension of time taken to effect a given amount of degeneration, and the circumstances influencing the progress, or, if we may so say, the *pace* of degenerations, is one of the most interesting fields for further work and investigation. Meantime it is certain that medicine can do much to retard the progress and to abate the *pace* of such diseases. So that when a great life is visibly affected with such changes, there is still good hope that by medical wisdom it may be lengthened out for years to add to the lustre of the State, and pos-

sibly to the peace and happiness of the world. We encourage our readers, therefore, to take an ever increasingly hopeful and cheerful view of the progress of medicine and of their power to affect beneficially the progress of disease. There were never so many workers in earnest to discover the secrets of disease as now, and they were never backed by a more intelligent and well-educated body of practitioners.

We have a good hope that the year will witness some legislative attempt to increase the efficiency of medical education and to abate the worry of multiplied medical examinations; to raise the minimum standard of medical education, and, in raising that, to raise the higher standards of it. The Corporations of the profession which represent its real life and glory will survive; others may disappear. Be this as it may, we enter on the duties of another year with the conviction that British medicine and surgery will hold their place in the great competition of the world, and that this country will never want men to stand worthily in the succession of Harvey and Sydenham and Jenner and Hunter.

THE PRACTICAL VALUE OF THE TUBERCLE BACILLUS.

THE practice of medicine is based upon pathology; but the two departments of medical science rarely correspond in their development. Each is at once ahead of and behind the other. There is much that is well established in practice of which pathology has not yet supplied the explanation. There is still more in pathology which has as yet no practical application. But as medicine is an art as well as a science, the application of each new scientific fact is eagerly sought for, and the more earnestly when the fact is one which relates to a disease at once frequent and formidable. At the present time the question is being asked on all sides, What is the practical value of the discovery of the organisms which seem to be so intimately connected with the formation and growth of tubercle? A decisive answer will probably not be long deferred, for the question is engaging the attention of many who are well qualified to search for a reply. Already in Germany and Switzerland answers have been attempted, but between them there is not perfect concord.

In the *Berlin. Klinische Wochenschrift* (1882, No. 45), Balmer and Frænzel have given an account of the examination of the sputa in one hundred and twenty cases of phthisis. They found the bacillus in all, while in the expectoration from cases of ordinary bronchitis the search for it has always been in vain. They have gone further, and endeavored to ascertain what prognostic indications can be deduced from the presence, abundance, and character of the organisms. They believe that the number and degree of development of these are of considerable prognostic value; and that the prognosis is bad whenever the bacilli are numerous

and well developed. In the most acute cases the organisms were exceedingly abundant. The more rapid the process of lung destruction the larger is their number, and it is greatest towards the end of the disease. The distinctive and developmental character of the organisms presents considerable variation in different cases. Sometimes they were small and presented no trace of spores, and in this case they were always few in number, and the disease was either arrested or making very slow progress. In the rapid cases, with fever, night sweats, etc., the organisms were not only numerous, but large, well developed, and spore-bearing. In post-mortem examinations, a marked difference was found between the number of bacilli in the walls of the cavities and in their contents. They were scanty in the former when they were most abundant in the latter. Hence it is assumed that the sputum is a more suitable field for the development of the organisms than the living pulmonary tissue. The difference can scarcely be explained by the presence of oxygen in the contents of the cavities, since the bacilli were found in great numbers in the pus within a knee-joint, the seat of tubercular inflammation, perfectly protected from the presence of air.

Professor D'Espine, of Geneva, has carried out a similar investigation (*Revue Médicale de la Suisse Romande*, Dec., 1882), but can only partially confirm the conclusions of the German pathologists. According to him, Koch's discovery is of the greatest diagnostic value, but as an element in prognosis the bacillus is almost worthless. He has found the organism in the expectoration of twenty cases which were regarded on other grounds as tubercular; and they were absent in five cases which were diagnosed as bronchitis with emphysema; although in several of these there was a chronic induration on the apex of the lung, with dilatation of the bronchi. One of these patients, it is incidentally noted, had been for a year in a bed adjacent to that occupied by a tubercular patient, and certainly ought to have presented the bacilli if these come accidentally from the atmosphere. Of the twenty positive cases, in seven the organisms were present in large quantity; but in five of these there was no fever, and the disease had a very chronic course; one of them, indeed, was in a condition of arrest and in good health; the two others had hectic fever and extensive cavities. Five or six were suffering from laryngeal ulceration, and it is possible that from these ulcers most of the bacilli came. In thirteen cases the bacilli were scanty, and in some were arranged in groups. In some instances only two or three were found, after a series of preparations had been examined. One of these cases presented high pyrexia, and another with an enormous cavity died a few days afterwards. Hence the Professor concludes that the assertions of Balmer and Fraentzel relative to the prognostic value of the number of bacilli in the sputum are erroneous. The same conclusion is reached by

D'Espine regarding the significance of the degree of development of the bacilli. In some cases very distinct segmentation was seen—sometimes five or six cells in juxtaposition. Sometimes there were small round shining points, which may have been spores. He thinks, however, that it is better to speak of unicellular bacilli and multicellular bacilli in process of segmentation. These two forms were met with indifferently in chronic cases which caused no anxiety, and also in cases which were very near their termination. Hence he believes that it is an illusion to regard the developmental character of the bacilli as affording any prognostic indications. In a case of acute miliary tuberculosis the scanty expectoration showed no evidence of bacilli, and hence in this variety, in which diagnostic help is so much needed, it seems unlikely to come from this source. In conclusion, D'Espine insists on the necessity of numerous and repeated examinations on different days, before the absence of the bacilli is regarded as certain.

THE PATHOLOGY OF INTERSTITIAL NEPHRITIS.

A DISTINGUISHED German pathologist, Dr. Aufrecht, has for some time maintained the opinion that all forms of diffuse nephritis begin in a similar manner; and that in all, even the interstitial variety, the inflammatory process is essentially "parenchymatous," and starts from the epithelium of the glomeruli and urinary tubules. In support of this view, he published some time ago a series of experiments on temporary ligature of the ureter. He found that the first effect was to be observed in the epithelium, which became granular and cloudy, and gave rise to fibrinous tubercasts. During the first few days the interstitial tissue of the kidney was perfectly normal, and only on the fourth day was there a dilatation of the Malpighian capsule, whilst the cellular elements between the tubules presented a swelling of their nuclei. Subsequently the walls of the vessels became increased in thickness, chiefly in consequence of a swelling of the adventitial and muscular layers. At the same time further changes could be perceived in the epithelium of the urinary tubules. The epithelial elements became transformed into small pale cells with a distinctly visible nucleus. They did not, however, appear to perish, although the interstitial tissue subsequently increased in bulk in consequence of the swelling of the nuclei, and cell multiplication, with a corresponding narrowing of the lumen of the tubules. Thus by ligature of the ureter a morbid process was set up, ultimately interstitial, but beginning distinctly in the intra-tubular epithelium. Reigert has urged that the interstitial changes are secondary to destruction of the tubular epithelium; but in these cases the epithelium persisted, although in an altered condition, while the interstitial changes were being established.

Straus and Germont, in France, have recently

also studied the effect of ligature of the ureters in the guinea-pig. They did not, however, find any interstitial changes, and are inclined to attribute the absence of these to the strict antiseptic precautions observed in their experiments. Where such precautions are not observed, micro-organisms may find entrance; and through these, directly or indirectly, the interstitial process may be produced. This objection cannot, however, be allowed much weight. It is a gratuitous assumption to suppose that micro-organisms are capable of producing such effects and no others, and quite illegitimate as a means of explaining a discrepancy between the results obtained by two sets of experimenters. The French observers have, moreover, confirmed Aufrecht's observations on the mode of origin of tube-casts by the production from the epithelium of separate clear spherules, and their union within the tubules. They have also confirmed the thickening of the adventitia and muscular coat of the smaller vessels, and the thickening of the membranæ propria.

But the evidence which Aufrecht has adduced to show that in one form of diffuse nephritis the morbid process commences within the tubules cannot be regarded as necessarily applicable to all forms of renal inflammation. Experimental evidence is needed regarding the process in other forms of nephritis, which proceed to a greater degree of structural change than that which follows the transient ligature of the ureter. Some further evidence Aufrecht is now in a position to supply. In a communication to the *Centralblatt für die Med. Wissenschaften*, in which he reviews the facts above alluded to, he states that by the subcutaneous injection of small quantities of cantharidin, suspended in oil, he has succeeded in producing almost all forms of nephritis—the so-called acute parenchymatous form, the diffuse parenchymatous-interstitial form, and even the contracted kidney, with granular surface and marked depressions. All these varieties of nephritis were produced by the same method, the only difference being that to give rise to the contracted kidney the injections of cantharidin had to be frequent. As a rule, the largest and strongest animals required the greatest number of injections; but in one case, a single injection in a rabbit which had just completed a period of lactation set up an acute parenchymatous nephritis, which was fatal. This interesting pharmacological fact has afforded Aufrecht the opportunity of studying the evolution of these morbid states. In the earliest stage the glomerular epithelium was found to present considerable swelling, and was separated from the wall of the capsule. The tubular epithelium was cloudy, swollen, and contained clear refracting bodies, which, becoming free, produced tube-casts, just as in the case of ligature of the ureters. Subsequently the epithelium of the glomeruli became swollen, as well as the nuclei of their vessels. That these changes are really inflammatory is shown by

the appearances presented in a further stage, when it deserves the name of "parenchymatous-interstitial nephritis." The changes in the epithelium of the convoluted tubules were manifested in a still more considerable degree. The cells were small, flat, and pale, but were nowhere absent, though some of the glomerular epithelium had disappeared. The vessels contained little blood, as if the swelling of the nuclei had prevented the passage of the blood into them. The interstitial tissue was, however, increased in area in all parts, in consequence of swelling of the nuclei, especially between the convoluted tubules and in the neighborhood of the glomeruli. There was no indication of an excess in the number of cellular elements in the interstitial tissue, or of any migration from the vessels. From these facts Aufrecht concludes that the changes must be ascribed to a specific affinity of the cantharidin to the epithelium, exciting in the latter some chemical process, which ultimately influences also the interstitial tissue in the way described.

Granular degeneration of the kidney, in its most perfect form, was produced by twenty-five injections of cantharidin (.0025 gramme), extending over four months. The microscopical appearance of the organ was similar to that of the same condition in man. By the contraction of the interstitial tissue the glomeruli and renal tubules were much narrowed. The former were denuded of their epithelium, and their structural elements could scarcely be recognized. The epithelium of the renal tubules was shrunken, and the bodies of the cells had a protoplasmic aspect. Here and there the lumen of the tubules was occupied by casts. These results Aufrecht holds to be evidence of the etiological and pathogenetic relation between parenchymatous nephritis and the contracted kidney, and that even in the latter the morbid process begins within the tubules.

IN PERILS BY HYSTERICAL DELUSIONS.

DRIVERS perils beset the professional life of a medical practitioner, but there are few, if any, so difficult to escape as the hot and scathing breath of scandal, through the half hysterical and half vicious calumnies of women. It is cause for sincere congratulation and thankfulness that the proportion of instances in which this perpetual and universal danger to which members of our profession are exposed is signaled by a catastrophe, is so small as to be almost insignificant. When, however, a scandal does occur, it is notorious, and the effects it produces are calamitous in a degree which seems to be enhanced by the fact that medical men habitually incur the direst risks, and, except in the rarest instances, with impunity. Nevertheless, it cannot be disguised that the practitioner is always very much, and in a most important sense, at the mercy of his female patients. Even though the wholesome and expedient precau-

tion of never seeing a woman alone be rigorously adopted, it is impossible to assure the character against aspersions which do not need to be clearly defined in order to render them damaging. It is only too true that whatever may be the ending of a slanderous assault on the reputation of a medical man he cannot fail to be the sufferer, unless, indeed, the most fortuitous circumstances should combine to clear his character. We have at this moment in recollection a case in which a charge was brought with every appearance of plausibility by a young woman against a hospital physician; and in such a way that, but for the spirited friendliness of his colleagues, he must have fallen a victim to the calumny, when, by the most wonderful good fortune, the true nature of the imputation was suddenly and unexpectedly made apparent by the patient developing an attack of acute mania within a few hours of the narration of her perfectly coherent and precise story. It is seldom indeed that a medical man so placed has his character so promptly and triumphantly vindicated.

As a matter of fact, the presumption is always against the truth of any assertion made by a female patient maligning her "doctor." It is in the highest degree improbable that any man who has passed through the training indispensable for a medical qualification should—unless he be insane—so far forget his position, or be affected in such a manner, as to commit himself. Nothing short of the most conclusive evidence ought to suffice for the proof of guilt in the case of a qualified man so situated as to be the subject of an imputation. The whole conditions of a medical or surgical procedure are incongruous with the bare idea of offence. We do not hesitate to declare that, except on the clearest and most incontrovertible evidence, we would not believe it possible that a brother so placed should offend. On the other hand, nothing is more likely—we had almost said natural, but let us rather say morbidly probable—than that a woman affected with any of several maladies which call for surgical interference, should develop one of those prurient states of mind which are, indeed, *symptomatic* of the diseases to which we allude, and become the victim of a characteristic delusion of which the medical man in attendance is readily made the primary figure. Knowing these facts, patent as they must be to every member of the profession, and recognizing the besetting peril of practice among women, it is inexplicable on the one hand, that medical men should ever neglect the precaution of having a trustworthy female witness present during the whole of every necessary examination or operative proceeding; and on the other hand, that any member of the profession should for one moment cherish an evil thought of a brother practitioner, or entertain a suspicion of his integrity while the imputation cast on his honor is as yet unproved. The danger of a baseless charge is so great that no man should despise or underrate it; and the improbability of

actual wrong-doing is so high that no reasonable person should entertain a belief in the fact of its occurrence so long as there remains room to doubt it. We cannot too strongly insist on the duty of protecting ourselves, and defending others from the least breath of scandal. No medical man is justified in trusting to the honor of his patient. Setting aside the possibility of a malignant purpose, it should be distinctly borne in mind that no woman who suffers from a uterine or ovarian trouble of any kind, or who is the victim of hysteria or mental disease of whatever class or description, is safe from the sudden development of a psychological reflex that may easily take the form of a personal delusion which shall place her medical attendant in an equivocal position. This contingency, which need not involve any overt or recognizable disturbance of the intellectual faculties as a whole—and which may therefore lead to the fabrication of a perfectly coherent and circumstantial story—does not appear to be generally understood and anticipated. The present is not—unhappily—an inopportune moment to remind the profession generally of a fact which is continually present to the mind of the alienist, and of which lunacy practice affords frequent and conspicuous examples. Looking to the facts of the case, it is, indeed, surprising that practitioners who are almost daily placed in a position of extreme delicacy enjoy a large measure of immunity from the consequences of a danger which perpetually overshadows them. Let him that thinketh he standeth in no peril of this description take heed lest he fall a victim to its toils.

THE MENTAL ELEMENT IN TREATMENT.

At a time when pathology is doing so much to remove the study of medicine from the empirical to the exact, and when observation of the therapeutic effect of various drugs bids fair to largely increase our knowledge of specific remedies, there seems at first sight little reason why the medical mind should even for a moment be drawn aside from the objective to the subjective view of disease, as the tendency of advancing research is constantly to diminish the number of maladies in which an important part is played by conditions out of reach alike of the scalpel and the microscope. The time is not so long gone by when, even within the profession itself, many familiar diseases were supposed to depend upon spiritual, perhaps extra-terrestrial, causes, the operation of which was scarcely a legitimate object of inquiry. Up till the present moment, indeed, large numbers of the people look upon disease generally as a direct infliction of Providence, while many more believe special outbreaks to be the consequence of a more than usually perverse departure from the paths of rectitude. A certain phase of this belief is favored by the profession, but our constant effort is to ascertain the nature of those laws whose silent but certain rule we can break only at our peril. There

are departures from health in abundance which, whether serious or slight, we cannot satisfactorily explain or demonstrate, and a very little of superstitious awe is required to see in these the direct interposition of an offended Spirit.

We do not need to express the very slight hold which all such feelings have upon the medical profession, but it may be useful to bear in mind the large share which superstition and sentiment take in shaping the lives of many of our patients. There are conditions coming frequently within our ken as physicians which we might with much probability of truth view simply as diseases of sentiment or will, and these in people whose business and general mental capacity cannot be suspected. Trivial twists of mind may or may not depend in all cases upon a physical change in the brain, but there can be no doubt that we have many apparently functional disorders of mind as well as of body to deal with. Even though the really important disease from which our patient suffers be gross and easily named, there may as a result ensue a condition of mind which the thoughtful physician will recognize and appreciate, whether as a help or hindrance in his work. The dictum that a favorite drug is useful for a particular disease may not unfrequently be found fallacious if the mental condition of the patient is overlooked, and one chief difference between the thoughtful, intelligent, and successful physician, and another who is neither consists in the attention which the first, perhaps unconsciously, devotes to this factor in his case. We are too much in the habit of treating our patients simply as machines which have got out of order, and inasmuch as their feelings are always deeply concerned in bodily ailments, we would do well, so far as we can, favorably to affect them in that quarter. Sympathy is a powerful drug in the hands of a skilful administrator, and we should no more neglect its use than we would other weapons of our armamentarium. Everyone practically acquainted with what is called the natural history of disease knows well that a particular malady affecting a patient of sanguine temperament may be looked upon with more composure than, all other things being equal, would be the case were the sufferer of phlegmatic constitution. In the one case we can rely on a resiliency which will fail us at the critical moment in the other; and many recoveries take place which upset our prognosis, because apparently the object of our care "will not kill." Men who cultivate a hopeful demeanor in the sick room will more readily elicit this helpful buoyant spirit than others who are constitutionally grave and desponding, and men of the latter character may unwittingly hinder the recovery they are so anxious to promote. Physicians prone to gravity in all things are heavily handicapped in their work, but a steady recognition of the fact may lessen its ill effects, while, by a sort of compensatory law, they have often the happiness to inspire a

confidence which may be equally useful to the patient.

Though the therapeutic effects of hope and confidence are not detailed in our text-books, they are enough often to turn the scale in favor of recovery; and yet they are but two of the many mental medicines which a judicious physician or surgeon may exercise in the management of disease. There is much solidity in the faith placed by families in their ordinary attendant on the ground that he knows the constitution of each of its members, and when this is not the case his intimate acquaintance has not been turned to good account. In no respect has the family physician such an advantage over the consultant as in this, and obviously it is an advantage which upon fit occasions can be shared and utilized. A full recognition of the value rightly attaching to the mental treatment of physical ailments will improve the usefulness of the physician, give him a higher place in the affection of his patients, and materially assist in promoting their return to health when suffering from very various diseases, functional or organic.

Reviews and Notices of Books.

Quain's Elements of Anatomy. Edited by Dr. ALLEN THOMSON and Professors SCHAEFER and THANE. Ninth Edition. London: Longmans, Green & Co. 1882.

THE name of Quain has long disappeared from the list of editors of this work, and now that of Sharpey is also missing. The late Professor Sharpey had been so long and honorably associated with the production of its successive editions; his writing and supervision conferring on the chapters on the general anatomy of the tissues and the anatomy of the viscera their especial charm of style, their marvellous accuracy, and progressive development in accordance with whatever has been new and at the same time true in modern research, that it is hard to realize the issue of an edition without his name on the title-page. But, alas! he has passed from amongst us, and we are reminded by a simple preface of the great debt which anatomical and physiological science in England owes to his writings and example: "This ninth edition of 'Quain's Elements of Anatomy' is dedicated to the memory of William Sharpey, M.D., LL.D., F.R.S., formerly Professor of Anatomy and Physiology in University College, London, and during thirty-five years one of the editors of the work." The chief responsibility of the revision has therefore devolved on Dr. Allen Thomson, who now for the third time appears as editor, in association with Professor Schäfer, who was responsible for most of the histological portion of the preceding edition, and Professor Thane, to whom has now been allotted that part of the subject which deals more especially with descriptive anatomy. We congratulate Professor Thane on his succession to so honorable a distinction, and we consider the choice an admirable one, having regard both to Professor Thane's extensive and accurate anatomical knowledge, and to the fact that to his predecessors in the Chair of Anatomy at University College the work itself owes its origin, its special fea-

tures, and many of its most marked improvements.

The first volume of the new edition contains the descriptive anatomy of the bones, joints, muscles, vessels and nerves, and a special chapter on superficial and topographical anatomy, whilst the second volume is devoted to general histology, the anatomy of the viscera, and embryology. The chief alteration in the text of the descriptive anatomy is in the chapter on the bones of the head, to which a short but very clear account of the methods of modern craniometry, with examples of the varieties of the skull in some typical races, has been added. As minor changes we find the position of the liver in the living subject described according to His, the classification of the cranial nerves according to Soemmering, and the divisions of the mediastinum mainly in accordance with the views of Struthers. The superior division of the mediastinum is introduced, and its boundaries and contents are for the first time laid down in a textbook. We much prefer the divisions of the pleural interspace which were suggested by Professor Wood in his article on "The Arch of the Aorta," in the *Journal of Anatomy and Physiology* for 1868, to those of either Professor Struthers or the editor, and it is in that article that the great importance of a more accurate division is first referred to, and the "superior mediastinum" as a distinct region named and defined. The laborious and careful investigations of Wood on the true position of the aorta and the thoracic contents, which have only been introduced into the last two editions of "Quain's Anatomy," demand far more notice than the general description given by Struthers. Even the very term "superior mediastinum" is used by Wood. The sections on the bones, joints, muscles and nerves show marks of careful revision, and those on the vessels are now much improved by colored drawings. We could wish that some of the illustrations of the bones, especially those of the skull, and even of the more important nerves, had been replaced by new and larger woodcuts, for when the details are so very numerous, any representation which is overcrowded with reference-numbers is of but little value to the student. The descriptions of the bones and joints, although admirably done from a purely scientific standpoint, must be greatly enlarged and modified before they will come into general use by medical students. Whether topographical anatomy as a separate subject is not a little out of place in this work is a question on which opinions will be divided, but all anatomists will agree that Professor Thane and Mr. Godlee have given us a most accurate and thorough epitome of the relations of the various structures to the surface, which cannot fail to be of great value to the physician and surgeon.

In the second volume more considerable changes have been made than in the first, for in the past six years great advances have taken place in histological and embryological research, and the most important and trustworthy observations have been incorporated in the text. These alterations have been made very judiciously, and have been supplemented by many original investigations by the authors themselves. In the histology of the cell and of the tissues we find the latest views of the editor, Klein, and Flemming, illustrated by many new and beautiful drawings from specimens made by Professor Schäfer himself, whilst the researches of Key and Retzius, Ranvier, Recklinghausen, Ehrlich and other less known microscopists have every attention. Many new drawings from Henle, Schwalbe, and Luschka have been added in illustration of the anatomy of the central nervous system, and so much new matter has been introduced

into this part of the work that it almost seems to be a new treatise. The most important alterations in the chapter on Embryology are due to the researches of His, and particularly to those of the late Professor F. M. Balfour, whose important contributions to this branch of science have considerably modified many of the older teachings on the subject. The value of the monograph on the Development of Elasmobranch Fishes, and of his masterful treatise on Comparative Embryology, can only be correctly estimated when we see the observations and views contained therein at once accepted and acknowledged by the father of embryology in Britain, Dr. Allen Thomson.

The careful and thorough revision, the many improvements, and last, but not least, the bibliography at the end of every section in the second volume, not only again mark out "Quain's Anatomy" as the best work on the subject in the English language, but make it in many respects superior even to such classic works as those of Henle, Cruveilhier, and Sappey. It is now a text-book of which every English anatomist must feel proud.

It is but justice to the publishers to add that they have not failed in performing their share of the task of producing the work. The type is unusually clear and bold, and by extra care in printing many of the old engravings have been almost transformed.

The Student's Guide to Materia Medica and Therapeutics in Accordance with the British Pharmacopœia.

By JOHN C. THOROWGOOD, M.D., F.R.C.P., etc. Second Edition. London: J. & A. Churchill. 1882.

A Medical Formulary Based on the United States and British Pharmacopœias, together with numerous French, German, and Unofficial Preparations. By LAWRENCE JOHNSON, A.M., M.D. London: Sampson Low, Marston, Searle & Rivington. 1882.

Catalogue of the Collections in the Museum of the Pharmaceutical Society of Great Britain. 1878. Compiled by E. M. HOLMES, F.L.S., Curator of the Museum.

WHATEVER satirists may say to the contrary, the value of medicines in the practice of physic is only beginning to be realized. The growing efficiency of chemistry as a hand-maid of medicine, analyzing medicinal substances and separating in minute forms their active principles, and the closer study of the action of medicines, both from a physiological and pathological point of view, have resulted in therapeutical discoveries of the greatest interest and value. To take one instance only, that of the action of pilocarpine, the active principle of *jaborandi*. What action of any of the older diaphoretics will compare in certainty and efficiency with that of pilocarpine, which will produce salivation and diaphoresis within ten or fifteen minutes of its administration? Of course the discovery of such powerful agents involves a corresponding obligation in those who use them to do so intelligently and carefully. Hence the increasing importance of works on *materia medica*, three of which we have named at the head of these remarks, and which, in their several ways, will be found very useful on the table or in the carriage of the practitioner.

Dr. Thorowgood's book has worthily reached a second edition. It assumes a knowledge of, or the means of reference to, the *British Pharmacopœia*. But it explains the principles of the chief pharmaceutical processes employed in making the preparations of the *British Pharmacopœia*. It

would be greatly enhanced by a more complete supplementary notice of drugs which, though not in the British Pharmacopœia, are used by the best practitioners in this or other countries. Unfortunately, the British Pharmacopœia does not at any given time include some of the most valuable preparations and drugs. Notwithstanding this defect, Dr. Thorowgood's book is a most excellent one, not only for students, as he modestly says in the preface, but for practitioners. It gives a clear and concise account of the chemical and pharmaceutical bearings of a drug. But the therapeutical part of the book is also admirably executed. It indicates the personal opinion and experience of the author, in a way not fanciful and far-fetched, but judical and practical.

The work of Dr. Lawrence Johnson, of New York, has a plan larger than, and different from, Dr. Thorowgood's. It aims at giving the drugs and preparations in common use, and includes those of all the Continental, British, and the United States Pharmacopœias. It seeks too to give not merely pharmacopœial preparations, but formularies from leading hospitals and practitioners. It is weak in the statement of therapeutical doctrine and experience, but is nevertheless a work of very great convenience, and one implying much labor and trouble on the part of the author.

The Catalogue of the Collections in the Pharmaceutical Society of Great Britain is a collection which every practitioner would do well to take an opportunity of seeing whenever it presents itself. It is useless for a practitioner to attempt to keep pace with the rapid achievements of organic chemistry and advanced pharmacy. Every week discovers a new alkaloid or a new preparation. But there is no place where an inquiring practitioner can spend a more profitable half hour than in the museum of the Pharmaceutical Society, where he is not unlikely to have at once his pleasure and his knowledge enhanced by meeting Mr. Holmes, the author of the very valuable catalogue under notice, which we may hope soon to see superseded by a new edition.

Diseases of Women. By ARTHUR W. EDIS, M.D. Second Edition. London: Smith, Elder & Co. 1882.

When so fully reviewed the first edition of this work that we shall content ourselves with a few remarks on the second edition. Of the errors which we pointed out many have been corrected, but some retained. For instance, our author adheres as tenaciously to the pathological view of "glairy cervical mucous like white of egg" as this clings to the place of its birth. This is an accurate description of the normal and healthy secretion of the cervix, which may, indeed, be associated with other pathological conditions, but shows that, whatever else is wrong, the secreting apparatus of the cervix is right. The retention of such an error as this must result in the unnecessary and prolonged treatment of numbers of healthy women, and it is in our opinion as easy and as rational to cure this condition as it would be to put a stop to the secretion of gastric juice by the stomach or saliva from the mouth. We are not sure how far the actual words of the description are answerable. "Glairy" is a mysterious and ill-sounding word, and "glairy tenacious discharge" sounds terrible indeed. What woman could live comfortably with a "glairy tenacious discharge" from her uterus? Although Dr. Edis has become decidedly less heroic in his second edition, we think that the mention of any operation endangering life should include a careful definition of the objects in view,

the risks run, the prospects of success, and the indications calling for, or at least justifying, the procedure. Such an operation as division of the cervix should surely not be left as a "something to be done." In treating the subject of Sterility, Dr. Edis recommends (p. 478) the preliminary elimination of male incompetence. Is the examination necessary for ascertaining this, then, to become a practice with "the student and junior practitioner"—to whom the work is addressed—whatever may be Dr. Edis's custom in such cases? It remains to say that the second edition has in no way changed the opinion we formed of the first.

Ogilvie's Imperial Dictionary of the English Language. Edited by CHARLES ANNANDALE, M.A. London and Edinburgh: Blackie & Son.

THE amount of information contained in the older editions of this work has rendered it invaluable to English-speaking peoples for the last quarter of a century, and we cordially welcome this, the latest edition, and predict for it a large and well-deserved sale. Enriched as it is by the addition of new quotations illustrative of the various changes a word may undergo, and the shades of meaning it may possess, it may be regarded not solely as a mere dictionary, as that word is commonly understood, but as a valuable addition to the English encyclopædic literature of 1882. We note with special pleasure the correct and clear meanings that are given to scientific words—medical, chemical, zoological, etc.; and can well understand the pains and trouble that have been taken in these various departments; the woodcuts are numerous and admirably executed; the classical quotations and derivations with which the work abounds are extremely appropriate to a dictionary of a language which is indebted for words to so many different sources as is the English language. Printed in clear legible type, on good paper, and bound in a solid and useful form, this book fully merits the name "imperial,"—a word which is defined in it, amongst other meanings, as "anything of unusual excellence." It is one of the few works of its kind that we are able to speak of in terms of high commendation, and we feel that Mr. Chas. Annandale and his coadjutors deserve praise for their labors, which, it is stated, have extended over ten years.

Animal Plagues; their History, Nature, and Prevention. By GEORGE FLEMING, F.R.C.V.S., F.R.C.S., etc. Vol. 2. London: Baillière, Tindall & Co.

PREVIOUSLY to the outbreak of cattle plague in this country, the history of animal plagues had not attracted much attention, and when the ravages of the malady forced veterinarians and stock-owners into a state of unaccustomed activity, it did not seem to occur to those who were most concerned that the disease was not a new one in veterinary medicine, and for some time England presented the remarkable spectacle of a people seeking with much effort and by circuitous paths information which was lying ready to hand, or at least to eye, in the veterinary literature of Germany and Austria. Had the history of the cattle plague been familiar to English stock-owners in 1865, the saving to agriculture would have been immense, but at that time there was no accessible English work which gave any useful information on the subject, and our farmers, even if they had known anything of the distinguished continental authors who could have enlightened them, are somewhat prone to depreciate the benefits of foreign imports.

It is difficult to convey an adequate idea of the

scope and objects of the work on Animal Plagues without entering further into details than our space will permit, but there need be no hesitation in asserting that the two volumes on Animal Plagues, added to the companion volumes on Veterinary Sanitary Science and Police, and Rabies and Hydrophobia, are evidence of the remarkable industry by the aid of which their author has surmounted difficulties of no ordinary character.

The volume now before us is, we are told, the finish of the writer's labors in this direction. In the first volume, which was published in 1871, the history of epizootics, and incidentally of epidemics, included the period from B.C. 1490 to A.D. 1800. In the present volume the history is continued from 1800 to 1844, after which date the writer remarks, it is not his present intention to carry on the record, as from that time "Veterinary literature became largely developed, and there is no difficulty in tracing the origin and extension of the more remarkable at least of the animal plagues which visited the civilized world." Nevertheless to present in one view a record of the principal epizootics which have appeared since 1844 would be a satisfactory conclusion to the work; and although it might present no difficulty to Mr. Fleming, we question if any of his professional brethren are likely to attempt it.

In carrying out his self-imposed task, the author has adopted the system of chronological reference, instead of attempting a complete history of each form of disease. Commencing in the first volume with the murrains of Egypt, in the first chapter he gives an account, necessarily a concise one, of the plagues which the earliest historians have alluded to between 1490 B.C. and 400 A.D. Then, in the next chapter, in the space of some ninety pages, is compressed the history of eleven hundred years—from A.D. 400 to A.D. 1500—an unprofitable period, as the writer describes it.

Coming gradually to more modern times the accounts of epizootics in various parts of the world become the more interesting, for the reason that it is possible to connect the animal plagues of a former period with those which are familiar to this generation of stock-owners. As a concise record of the rise and progress of animal plagues from the earliest times, the value of the work to the veterinarian cannot be over-stated, and it may not be out of place to suggest that the agriculturist will find in it matter well worthy of his attention. In the last twenty years the stern logic of facts has convinced farmers that the ravages of the most deadly diseases of the lower animals are not, in their outcome, to be lightly estimated; and they are not now disposed to laugh, as they did in 1869, at the idea of legislating for the movement of animals merely because they had a few blisters on their tongues and feet. Mr. Fleming's work is likely to find readers among a class to whom a few years ago its teachings would have seemed to possess no meaning.

The Practical Working of Direct Vaccination from the Calf. By BENJAMIN BROWNING, M.D. Reprinted from the Transactions of the Society of Medical Officers of Health.

IF Dr. Browning had contented himself with giving some account of the methods to which he had resorted for the vaccination of calves, his pamphlet would have merited more approval than we are now able to accord to it. The earlier pages are devoted to an attempt to show that calf lymph should be employed to the exclusion of humanized lymph. A few words will suffice to demonstrate the error into which he has fallen. He begins by showing that absolute immunity from small-pox

is not always to be procured by the use of humanized lymph, and he then makes the bold assertion, that animal lymph "never fails in preventing small-pox." This last statement appears to be based upon the fact that 150 persons vaccinated by him with calf lymph, though living in infected localities, had not subsequently suffered from small-pox. As matter of fact, there is no definite evidence of the amount of protection relatively afforded by humanized and animal lymph, but the history of small-pox hospitals gives ample proof that those exposed to the disease can be efficiently protected by the use of humanized lymph. Again, Dr. Browning states that the success attained in the use of the lymph which he cultivated was 97·13 per cent., but no information is given whether he refers to the number of individuals vaccinated, or to the number of insertions made; probably the former is intended, but there is again no evidence to show what he means by success, or whether he applies this word to cases in which vesicles are developed on only a proportion of the places of insertion. That good results are attained by direct vaccination from the calf there is no doubt, and the report which we recently published on the Animal Vaccine Establishment of the Local Government Board is sufficient evidence on this point; but Dr. Browning's pamphlet is calculated to give rise to the erroneous impression that the use of stored animal lymph is to be entirely trusted to, a belief which should not be encouraged.

We feel, however, with Dr. Browning, that there is ample room for the development of calf vaccination, and although we cannot agree with all the observations which he makes, with reference to the methods to be adopted, some are deserving of attention.

Medical Annotations.

"Ne quid nimis."

PASTEUR'S RESEARCHES.

A LETTER was read at a recent meeting of the Académie des Sciences from M. Pasteur, giving an account of his progress in some researches in which he is at present engaged in the district of Vaucluse. He has gone there to investigate a disease of pigs, which, in one valley of the Rhone, has recently been fatal to 20,000. The disease is called "le rouge des porcs;" and M. Pasteur announces that he has discovered its cause to be a very minute organism, which in point of size resembles that of chicken cholera. It differs, however, in its physiological properties, since it has no action on fowls, but it is fatal to rabbits and pigs, especially to white pigs. M. Pasteur has convinced himself, by experiments, that one attack affords protection against another, and he has succeeded in inoculating pigs with organisms which have been weakened by culture, and in thus rendering these animals insusceptible.

THE CONTAGIOUS DISEASES ACTS AT DEVONPORT.

At the annual meeting of the subscribers to the Royal Albert Hospital at Devonport, which has been recently held, many statements were made in regard to the working and efficiency of the Contagious Diseases Acts, of sufficient weight and importance to give them more than a local interest. The report of the Select Committee of the House of Commons has materially strengthened the hands of the supporters of these Acts, and that this is recognized by their antagonists is im-

mediately apparent. Tracts and addresses have been circulated in Plymouth, Devonport, and Stonehouse, urging that the report is one-sided and not in strict accord with the evidence laid before the Committee. It is therefore of the utmost importance that we should have laid before us the views of those inhabitants in the Three Towns who subscribe to and support the local hospital in which the patients are detained who are under these Acts, as well as the views of the chief naval authorities in charge of the Government establishment at Devonport. These are most explicitly stated in the report of the Hospital Committee and the speeches of Mr. Edward St. Aubyn, its chairman, Mr. J. May, a former mayor of Devonport, Admiral Sir Houston Stewart, K.C.B., and the other admirals and civilians who were present at the annual meeting. The opponents of the Acts now endeavor to show in a most characteristic and ingenious manner that they are unnecessary in that district. Before the Select Committee Inspector Anniss had given perhaps the strongest and most convincing proofs of their efficiency that had been laid before the committee. He showed the value of these Acts not only directly so far as the diminution of venereal disease is concerned, but also in their deterrent and reformatory effects, which Mr. Stansfeld and his supporters so persistently urge as being beyond the scope of, and altogether apart from, their necessary operation. The Watch Committee of the Devonport Council, evidently jealous of the activity of the special inspector, claim that sufficient importance has not been given to the labors of their own superintendent. So that instead of allowing that at any rate much good had been done, the supporters of the opposition to the Contagious Diseases Acts are actually trying to make capital out of petty local rivalries, in which the only dispute is as to whom the credit of the present condition, of the Three Towns is due. If the only object and effect of the Acts is to perpetuate, extend, and render safe the immorality of the districts under the Acts, why should they not at once confess that their estimate of their value in the Plymouth district is at direct variance with the local one? We should then have no difficulty in forming our own conclusions as to which is the more likely to be the correct estimate? During the past year the number of patients in the lock wards has greatly diminished, and at the end of November there were only twenty-eight patients in the hospital. This is the smallest number since the introduction of the Acts, and can it be seriously urged that this does not show that they have been most effectual in dealing with the disease, against whose spread they were especially introduced? Sir Houston Stewart's remarks on the efficiency of similar measures at Malta are very important, for it is continually stated and restated that such restrictions have always been found, in the foreign ports in which they are in operation, ineffectual against the spread of syphilis; and evidence on this point is rarely of such cogency and force as the statement we quote from the worthy admiral's speech:—

"The President, after having thanked the meeting for the compliment paid him, said: 'With regard to the Contagious Diseases Acts I should like to say a few more words. Some years ago I commanded a vessel in the Mediterranean which had a crew of 1350 men. It is the custom on that station for the fleet to winter for six months at Malta, and then be ready to go to sea. I am now speaking of my own vessel, not others of the squadron. During the six months we lay in Malta harbor the Acts were in force, and when the cruising season came round my ship was able to go to sea without any venereal cases. During the absence of the

fleet from Malta some influence prevailed with the then Governor, and the Acts were suspended. Well, the ships returned to Malta and wintered there under the altered circumstances, and in my ship alone when the cruising season came round again we were obliged to leave thirty men behind suffering from disease. You know what that means—three or four guns unmanned, besides other things which had to be neglected. The then Commander-in-Chief in the Mediterranean, and who has since been Commander-in-Chief at Devonport—I mean Sir W. F. Martin—took the subject up. The Governor was a man of sense and judgment, the Acts were put in force again, and with what result? The following winter we again went to Malta, and were able to go to sea in my ship at the end of six months without any cases of disease.'"

HOMŒOPATHY AT THE ANTIPODES.

THE Tasmanian papers contain interesting accounts of the fate of a petition to the Board of the Hospital of Hobart Town, said to be signed by 1,700 people, to set apart a ward for the treatment of cases under the homœopathic system. It should be stated that the Board consists of thirteen laymen and four medical officers. Mr. Dodwell asked the chairman for a return of the number of persons admitted into the hospital who had wished to be treated homœopathically. The chairman said that no such application had ever been made. In the discussion of this question Lord Beaconsfield's case naturally turned up, with disastrous results to the homœopathic argument. The usual statistics showing almost the entire abolition of mortality from fatal diseases under homœopathy were trotted out, but without effect. The medical officers of the Board showed easily that such a system would not conduce to the harmony or efficiency of the hospital, and the Board unanimously negatived the proposal. Even the gentleman who brought it forward voted heartily with the majority. When will homœopaths see the necessity to abolish their shibboleth? As regards their statistics they deceive no one, as comparing homœopathy with an old system of practice as exploded as itself. Nobody with ague would be persuaded by a whole cartload of such statistics to forego the use of good doses of quinine. One set of well-recorded cases of pneumonia, like Dr. Bennett's, without a death, exceeds all the statistics they can bring, even if the question were one of statistics, as it is not.

CHRISTMAS FESTIVITIES.

Few people of middle age view with equanimity the festivities the present season brings with it. This often makes them unjust to those who at the extreme of life are able to enjoy the good things if only indulged in with moderation. Middle-aged prejudice is unusually severe against plum-pudding; yet this article is a highly efficient food, yielding a force equivalent to 250 foot tons. It is also an admirable vehicle for the administration of fat, an article of diet as a rule usually objected to by children. Plum-pudding, in reasonable quantity, is certainly to be preferred to the so-called "wholesome" cakes, which have little fatty matter in their composition. A good wedge of cold plum-pudding is not an unwholesome lunch for young and growing lads to put in their pockets when out for a day's skating or hunting. Elderly people, too, are often able to compete with the younger members of the family in the enjoyment of Christmas cheer in a manner that amazes and discourages their middle-aged relations. The fact is, as has been happily pointed out by Professor

Michael Foster, the digestive elements are long preserved, so that a man who in the prime of manhood was a martyr to dyspepsia, by reason of the sensitiveness of his gastric nerves, in his later years, when his nerves are blunted, and when therefore his peptic cells are able to pursue their chemical work undisturbed by nervous worries, eats and drinks with the courage and success of a boy.

A NEW DEODORIZER.

A STATEMENT was recently made at a meeting of the Burslem Town Council by Dr. Oldham that smoke is really a guardian angel, and instead of a nuisance is really a blessing in disguise. Dr. Oldham contended that the smoke from the factories of his district, blending with the atmosphere, acts as a deodorizer, and thus counteracts the evil effects of bad drainage. The theory that there is virtue in smoke possesses, perhaps, the proverbial two grains of truth hidden in the bushel of chaff. The deodorizing properties of charcoal are well known. It has a wonderful affinity for, and destructive power over, noxious gases. A small handful enclosed in a respirator and placed across the nostrils makes imperceptible to the most delicate olfactory nerve the strongest of odors. The question is, To what extent does coal, smoke, or soot possess the deodorizing and air-purifying properties of charcoal? The healthiness of London, compared with other large towns, is well known, and the fact that it is one of the smokiest inhabited spots on the earth's surface is admitted by all; and the question again arises, Is there any connection between these two facts? If the smoke nuisance has to be tolerated to cure the effluvia of drains, we should, however, prefer attention being paid to the old motto that "prevention is better than cure."

HYDROPHOBIA.

A CASE of death from hydrophobia has been reported from Rochdale. According to the report of the inquest contained in the *Leeds Mercury*, it appears that in June last a dog ran into a shoemaker's shop in Rochdale, and lay down; the owner of the shop went to stroke it, on which the animal bit him in the hand. On Nov. 24th the man presented the first symptoms of hydrophobia—some spasm on an attempt to drink. By the advice of a medical man, he took a vapor bath, and seemed to be better. Apparently growing worse, he was taken, on Nov. 27th, to the workhouse, and there was "seized, and his arms strapped," treatment which his son declared was "barbarous." The chief attendant in the "imbecile ward," states that on admission the patient "was very violent, and became insensible at times. Dr. Pinck, the surgeon, ordered him to be put into a padded room. He was accordingly put to bed, and some medicine was administered, and two inmates were directed to attend to him." He died at eight o'clock the following morning. The coroner expressed the opinion that the patient's arms ought not to have been strapped. It is not easy to form just opinion of the treatment of such a case without further details than the report affords, but it certainly does not seem to have been very satisfactory, although we are scarcely inclined to apportion the blame in the same way as the coroner. In the later stages of hydrophobia there is often considerable maniacal violence, rendering some mechanical restraint inevitable; and if a patient in such a state is taken to a workhouse in the absence of the medical officer, it is natural that the officials, recognizing the necessity of restraint, should apply it in the way they are accustomed to

adopt in violent cases of insanity. But why, we would ask, was the patient taken to the workhouse at all? What could be more calculated to aggravate his excitement than forced removal to such a place, during the stage of the disease in which the mental state is most disturbed? Surely a master shoemaker, living apparently in his own house, could have been treated there during the brief duration of such a disease. The only chance of recovery, infinitesimally small though it be, is afforded by the maintenance of absolute tranquility of mind and body, and its furtherance by sedative treatment. If a case of hydrophobia is removed at all, it should be in the early stage of the disease, before excitement sets in. But if moved, why was such a patient taken to the workhouse? Rochdale, according to the Medical Directory, contains an infirmary and dispensary, with nine beds, four surgeons, and a resident medical officer. What is the use of such an institution if a case of hydrophobia has to be taken to the workhouse?

SIMULATED INSANITY.

A CASE tried the other day at the Toulouse assizes possessed no little pathological interest, as one of the three prisoners, a young man of eight-and-twenty, who was accused of committing a series of thefts from shops, had become insane from having, between the time of his arrest and his trial, simulated madness. When first arrested he made several attempts to escape, but finding that there was no chance of this he fell into a state of lethargy and pretended not to understand what was said to him. Three doctors were commissioned to examine him, but they reported him to be perfectly sane, and he was accordingly put into the dock with his two accomplices. He refused, however, to answer the questions which were put to him, and his counsel stated that though he had at first only pretended to be mad he had finally become so in reality. The Court, without directing the jury to acquit him on the ground of insanity, were so far convinced that such was the case that they adjourned the trial and ordered him to be removed to an asylum, pending a fresh examination of him by a specialist from Montpellier.

THE COMPOSITION OF CERTAIN ORGANIC LIQUIDS.

THE Strongylocentrus lividus (Brandt), belonging to the class of echinoderms, contains in its interior a liquid which is taken by the inhabitants of certain districts in the South of France under the impression that it is a digestive tonic, and it seems to have such an action when taken in the dose of half a wineglass daily. It thus constitutes a sort of animal mineral water. Its composition has been ascertained by MM. Mourson and Schlagdenhauffen. When fresh it is neutral in reaction, but in a few days it becomes turbid, acquires a fetid odor, and deposits brownish flocculi. Its reaction is then alkaline, and it contains ammoniacal and sulphuretted compounds; 1,000 parts of it contain 959 of water, and 41 of solid matters, of which 37 are fixed salts, consisting chiefly of chloride of sodium, with some chloride of magnesium, small quantities of the sulphates of calcium and magnesium, and traces of chloride of potassium, and carbonate of calcium. There are also three parts of organic matters containing fatty matters or ptomaine, a little urea, and a little albuminoid matter. From this analysis the liquid apparently consists of sea-water, with an excess of carbonic acid and nitrogen (as if modified by the products of respiration), excrementitious matters, and some products which are probably derived from the organs of generation. The ptomaine

seemed to have an action on the frog, although the effect was not fatal, because the quantity that could be obtained was insufficient to produce a full toxic condition. It is conjectured that the ptomaine may be the same which is present in some bivalve mollusca, as mussels, and at a certain time of the year causes poisonous effects. The same investigators also analyzed the liquid contained in hydatid cysts and cysticerci. The nutrition of living hydatids must be effected by passage into their interior of the serum of the blood, according to the laws of endosmosis. Analysis showed that clear hydatid liquid does contain a small quantity of albumen, although too little to be revealed by the ordinary method of testing with heat and nitric acid. Moreover, all hydatid liquids contain a variable quantity of a ptomaine, which it is conjectured may be the cause of the toxic effects (urticaria, peritonitis) which have sometimes been observed to follow the irruption of these liquids into one of the serous cavities of the human body. Nevertheless experiments on frogs yielded only a negative result. They seem to be most abundant at the period of evolution of the echinococci, and scanty during the inactive stage, a fact which may explain why the rupture of a cyst is sometimes followed by serious consequences, and sometimes by none. All these liquids are extremely putrescible. The liquid contained in the large vesicle of *cysticercus tenuicollis* contains a relatively considerable amount of albumen, and possesses very marked poisonous properties. The symptoms produced by its inoculation are closely similar to those produced by the inoculation of the poison of certain venomous animals. Injected into the peritoneal cavity of rabbits, it causes their death with all the signs of decomposition of the blood. A distant analogy of the physiological relation and chemical composition of these liquids and that of the liquor amnii led to an examination of the latter also. The investigators succeeded in demonstrating the presence of a ptomaine in this also, obtained at the time of labour by a puncture of the membranes. Its quantity was very small, but their conjecture that if it is ever present in larger amount it may furnish an explanation of some of the accidents of gestation.

FASTING IN ACUTE RHEUMATISM.

DR. CAREY E. WOOD, professor of chemistry in the medical department of Bishop's College, Montreal, in an article in the *Canada Medical Record*, recommends starvation as the treatment of acute rheumatism. He gives a history of seven cases restored to health by simply abstaining from food for from four to eight days. Amongst other advantages of the treatment cardiac complications are almost entirely averted. And he says he could give the history of forty more from his own practice. His patients were allowed to drink freely of lemonade or of cold water. In no case did the treatment fail! He is inclined to think from these cases that rheumatism is only a phase of indigestion, and that by giving complete and continued rest to all the viscera that take part in digestion the disease is attacked in *ipsa radice*. If we mistake not, Dr. Gill, of Canterbury, has anticipated the author as regards his theory of the origin of the disease in disorders of the viscera concerned in digestion. We are quite disposed to think that the rôle of starvation or fasting in therapeutics is far more considerable than has yet been described. It is an old Scripture that "fasting" is half the battle in expelling some devils. But we confess to being not a little sceptical in regard to Dr. Wood's remedy for rheumatic fever—a disease occurring often in subjects of delicate constitution.

Besides the disease itself is most exhausting, being compounded of pain, sweating, and high temperature, and these extending over a long time. While it is our duty to record such statements as Dr. Wood's, it is equally our duty to say that they do not commend themselves to us as embodying the truth either as regards the pathology or the treatment of this remarkable disease, which, till Dr. Mac-lagan's discovery of the power of salicin over it, was an opprobrium to medical science, and which even now in some cases taxes all the resources of the physician.

SCARCITY OF SUBJECTS IN AMERICA.

A REPORT which has reached us from America shows that the scarcity of subjects in our metropolitan and provincial dissecting-rooms, to which we alluded at the beginning of the winter session, has prevailed there too. Philadelphia is just now excited over the capture of a band of grave-robbers, or, as they are better known in this country, resurrectionists, who were caught with six bodies, intended for the medical college in that town, in their possession. An investigation shows that the robbers had almost cleared one of the cemeteries. The recovered corpses have been identified, and the men are now in gaol waiting their trial. The dearth of material for dissecting is a subject that will shortly have to be dealt with, and some alteration be made respecting the present limited supply.

MYOSITIS OSSIFICANS.

At a recent meeting of the Vienna Medical Society Professor Podrazki exhibited a soldier affected with the rare condition which has been termed myositis ossificans. Four weeks previously the man had applied for treatment, on account of an intense inflammation of the muscles on the front of the right upper arm, apparently set up by severe gymnastic exercise. The muscles were large, hard and uneven, and the elbow-joint was fixed in flexion. The hardness was removed, and some increased mobility was obtained, by massage and the application of cold. At the end of two weeks a hard, round, movable tumour developed in the flexor of the elbow, which was evidently due to an ossification of the brachialis anticus. At first it was movable, the upper part appeared to be cartilaginous, and it was evidently not connected with the periosteum. Podrazki has seen, in the course of nineteen years, two cases in the practice of Pitha quite similar to this in their characters. In those two cases neither iodide of potassium, nor any other treatment adopted, had any influence. In a discussion which followed, Professor Wein-lechner stated that he had twice seen similar small spots of ossification in the muscles on the front of the leg, due, in each case, to a traumatic cause. Kundrat expressed the opinion that some supposed exostoses on the thigh proceed from muscles. Their form and seat correspond to certain muscles. Their greater frequency in men, and especially in muscular individuals, suggest that their origin is traumatic. They constantly become adherent to bone in the course of their growth, and hence are commonly thought to be primary exostoses.

VASCULAR DILATATION.

THE mechanism of dilatation of the vessels has for a long time occupied the attention of MM. Dastre and Morat. Previous researches have led them to conclude that the sympathetic is a mixed system of nerves, containing fibres which dilate as well as those which constrict the vessels. The investigators have shown that this is true of the vaso-

motor fibres for the neck, face, ear, and limbs. This principal point having been established, it becomes easy to follow the course of the nervous excitations, which, proceeding from certain parts of the sensory apparatus, provoke reflex dilatation of the vessels in various parts of the organism—a course which includes, necessarily, centripetal fibres, a centre, and the efferent fibres contained in the sympathetic. As a type of the reflex, they have recently studied that which is known as the auricular reflex, or Snellen's reflex; and their results have been communicated to the Académie des Sciences. The principal sensory nerve of the ear is the great auricular, a branch of the cervical plexus. Sensory impressions on the external ear are by this nerve conducted to the spinal cord by the second or third cervical roots. If the nerve is divided and its central end stimulated, reflex congestion of the ear is produced, which is sometimes enormous in amount. This vascular dilatation is preceded by a slight constriction if the exciting current is of moderate intensity; but if the current is strong the dilatation occurs at once. The effect is produced by the mechanism of the vaso-dilator nerves which come from the spinal cord by the eighth cervical and first two dorsal pairs, and which pass thence into the sympathetic. In order to ascertain the whole of the course traversed by the excitation, it is only necessary to find its path in the spinal cord. For this purpose MM. Dastre and Morat have made the following experiments. In a white rabbit the spinal cord was divided unilaterally, somewhere between the third and seventh cervical pairs. The operation was followed by a bright congestion of the whole head, especially of the ear, on the corresponding side. The congestion disappeared at the end of a few hours; it must therefore be ascribed to an excitation, and not to a paralysis. When the circulation had become normal the two auriculo-cervical nerves were divided and then the central extremities were stimulated. On the normal side reflex congestion at once resulted; but on the side operated on no effect was produced. The operation was also performed in another manner. Instead of a hemisection, the cord was divided entirely, artificial respiration being maintained. After one or two hours, when the congestion from the operation had disappeared, the auriculo-cervical nerve on each side was stimulated, but no effect was produced. The conclusion is, that the interruption to the continuity of the cervical cord between the second and eighth cervical pairs abolishes the vaso-dilator reflex of the ear. The integrity of this spinal segment is therefore a necessary condition for the phenomenon. A division of the cord below the sixth dorsal has no effect on the reflex.

"OVERLAIN."

THE *Sussex Daily News* of Dec. 28th records another name to be added to the ghastly roll of children suffocated in bed, or, to use a well known and too familiar expression, of children overlaid. The mother at the inquest deposed that she took the child, aged four months, to bed with her about half-past eleven. She fed it about two o'clock, and waking up again at twenty minutes to six found the child dead. It was lying under her left arm. She and her husband and two children slept in one bed. Dr. Arthur, who was called in when the child was discovered to be dead, in the course of his evidence very properly expressed a wish to direct public attention once more to the great sacrifice of infantile life in the country caused by children being overlaid. He suggested that when it was not possible for the parents to obtain a crib or bassinette for a child, they should get an

orange-box, which could almost always be had for the asking. The substitute recommended by Dr. Arthur is a perfectly suitable one, and his remarks are practical. We fear that many an infant holds its life by a feeble thread. If its parents have "a good night," all is well; but if they have exceeded the bounds of moderation in eating and drinking, or are unfortunately troubled with nightmare and dreams which cause restlessness, the life of the infant is imperilled and often sacrificed. No doubt in many cases genuine sorrow is felt, and contrite tears are shed, but the evil still continues to be a reproach to our nineteenth century humanity and civilization.

THE ADMINISTRATION OF CHLOROFORM TO CHILDREN.

We regret the fatal case of chloroform administration which has recently occurred at the Children's Hospital, Great Ormond-street. The facts are as follows:—A little girl, aged five years, was suffering from disease of the knee-joint, and an abscess in connection therewith required to be opened. According to the newspaper report, "but little chloroform had been administered—enough to dull sensibility," and after the necessary incision had been made, the duration of which was only momentary, it was found that the heart had ceased to beat. Artificial respiration was at once adopted, but without avail. A post-mortem examination, which was made by Mr. Pepper, revealed nothing special, and death was considered to be due to "syncope produced by the influence of chloroform." The coroner's jury seems to have taken a reasonable view of the case, only appending to their verdict the suggestion that, if practicable, parents should be informed when it was proposed to give their children chloroform. We are far from wishing to minimize the importance of this accident, infinitely rare as it must be admitted to be. In no branch of practice has the use of chloroform been more precious than in that of children's diseases—alike in saving the patient from terror and actual suffering, in rendering the surgeon important aid, and, it must be added, not unfrequently in assisting the physician in various methods of diagnosis. So widespread has been the confidence in the safety of this anæsthetic for children, and so much more manageable has it been found than ether, that in children's practice the employment of chloroform has scarcely been challenged. But this accident ought to induce all who have to give anæsthetics to seriously reconsider Mr. Warrington Haward's valuable experiences on Ether Administration, published years ago, many of which, it may be added, referred to children. Without venturing on any special criticism of the Children's Hospital case, we may state our strong conviction of the importance of two points in chloroform administration alike in children and adults—(1) That the risk of cardiac failure is diminished by giving a small quantity of alcohol a short time before the chloroform; and (2) that when any operation, however slight, is contemplated, complete is far safer than partial anæsthesia, in which the reflexes are only blunted.

CHLORAL-POISONING.

At an inquest on the body of a lady who had died from the effects of an overdose of chloral, a juryman innocently remarked that the bottle which had contained "the chloral was not labelled 'poison' as he thought it ought to be." Chloral is not classed as *poison*. It is one of the most dangerous, because insidious, of poisons; but, unhappily, the law—and we regret to say some members of the medical profession—do not so re-

gard it. Because in certain small doses chloral or chloral hydrate produces a slightly comatose condition which burlesques sleep, and which those who are ignorant of the real nature of "physiological rest" mistake for sleep, the public are permitted to employ, and medical men do not scruple to recommend, these pernicious poisons as though they were innocuous. It is high time that attention were directed to the subject of "narcotics" generally, and the use of chloral and bromide of potassium in particular. Incalculable injury is being done, and public opinion is being grievously misled by the tolerance given to the use of "sleeping draughts," *falsely so-called*. In regard to this matter and that of the reckless use of hypodermic injections of morphia, the profession should seek to form a deliberate judgment and gravely deliver itself. At the present moment we lie under a heavy responsibility, which it is idle to deny and vain to disown.

POTTED PUTRESCENCE.

In addition to the perils which lurk in the pot and its accessories in connection with "potted meats," we are now being brought face to face with another source of danger and annoyance. It seems that the meat itself is too often putrid, or very nearly so, before it is preserved. In fact, if we are to accept the obvious inference from recent revelations in the potted meat and sausage trade, it must be recognized that the preparation of food by mincing and "preserving" offers special facilities for the disposal of material which would otherwise be useless on account of commencing decomposition. The matter is so serious that it becomes a question of expediency whether, looking to the knavish practices to which unscrupulous tradesmen resort, it is safe to use a preparation which, for aught the consumer can tell, may have been compounded of foul and poisonous substances with which he would not feed the dogs in his kennel. If the public would be safe potted meats must be eschewed altogether. The admixture of spices and the general treatment of the flesh reduced to the consistency of paste, render it impracticable for any unskilled person to determine whether what he has purchased is fit for food, and as tradesmen are not to be trusted it would perhaps be better to forego the use of potted meats altogether.

THE FUNCTION OF THE PANCREAS IN FEVER.

DR. STOLNIKOW, of St. Petersburg, gives, in a communication to Virchow's *Archiv*, the results of his observations on the changes in the activity of the pancreas in fever. He refers, in the first place, to the well-known disturbances of the digestive organs that accompany and characterize febrile states of the system; to the thirst, dryness of tongue, nausea, loss of appetite, and abdominal pain; to the changes in the salivary secretion observed by Mosler, such as the deficiency in its quantity, its acid reaction, the absence of sulphocyanide of potassium and of the diastatic ferment, so that it is incapable of converting starch into sugar; and again to the changes observed by Manassein in the gastric juice, which, like the saliva, is diminished in quantity, and so altered in properties that it cannot exert its proper digestive power. But he says few or no attempts have been made to trace the changes occurring in the pancreas and its secretion, though there are good *a priori* grounds for believing that corresponding changes would occur. As the pancreas secretes a fluid containing powerful diastatic and fat-dissintegrating ferments, as well as a ferment acting on albumen, the inquiry has a special interest for

Russian physicians, since many of the inhabitants of the more remote provinces are chiefly fed on starches and fats. In his experiments he first made a pancreatic fistula in accordance with the directions in Cyon's "Methodik," and after ascertaining the normal mode and kind of secretion, he injected purilage into the dog on which the investigation was made. The result was that the quantity of the pancreatic secretion was at first augmented to a considerable extent, the rise being from 2-3 ccm. per hour to 70-79 ccm. per hour. This effect was brief, and was followed by diminution, and when the quantity had diminished the increase usually observed after the ingestion of food failed to occur. The cause of the increase in quantity he considers to be excitation of the secretory nerves of the gland by the septic poison; its subsequent arrest he attributes to the paralysis of the nerves, the septic poison in fact acting in the same manner that atropia does on the nerves of the salivary glands. In regard to the quantity of the special ferments contained in the pancreatic juice, they also would appear to be at first augmented and then diminished, the diminution being occasioned by the depressing influence exerted by the septic poison both upon the trophic nerves and upon the cells themselves, in which pathological processes are established. The influence of the fever in producing a persistent depressing effect is greatly in excess in its duration over its exciting effect, and hence he considers that the employment of pilocarpine in fever has a logical foundation.

EPIDEMIC OF SORE-THROAT.

An epidemic of sore-throat has been prevalent in the neighborhood of Kingston and Surbiton, and the anxiety caused by it is increased by the circumstance that its exact nature and origin are not as yet clear. From the imperfect information available, it would appear that the disease exhibits less of an infectious character than is usually the case when diphtheria is prevalent. But still the number of persons who have suffered is considerable. In 1880, some fifty cases and ten deaths from diphtheria were traced to an infected milk supply in Surbiton; but the district was singularly free from the disease in 1881. Although infected milk is suspected to have borne, at least, a share in the production of the present outbreak, no definite information as to this is as yet forthcoming.

MORTALITY FROM SNAKE-BITES IN INDIA.

SIR JOSEPH FAYRE contributes to *Nature* for Dec. 28th an article on this subject, to which, as is well known, he has devoted much attention, and that with great benefit to the natives and residents of India. As a result of the representations of Sir Joseph the Government have published a resolution which seems to indicate the carrying out of an organized scheme for the destruction of venomous snakes in the Dependency. And it is time that this matter should be taken up with intelligence and determination, seeing that in 1881 18,910 human beings fell victims to snake-bite. "For the purpose of destroying the reptiles it is absolutely necessary that a fixed system of rewards should be established," says Sir Joseph. These rewards, it would appear, have been given too indiscriminately, not sufficient care having been taken to ensure that the snakes killed were really of a venomous kind. Some improvement has, however, taken place both in the number of snakes destroyed and in the cost at which the extermination was effected. Thus in 1880 212,776 snakes were killed at a cost of 11,663 rupees, whilst in

the following year an expenditure of 11,961 rupees was accompanied by the destruction of 254,968 of the venomous tribe.

Correspondence.

"Audi alteram partem."

THE DETECTION OF THE TUBERCLE BACILLUS.

To the Editor of THE LANCET.

SIR—In your last issue you publish a long and somewhat incoherent letter from Dr. G. A. Heron, in which he impugns the veracity of my statements with regard to the new stain I have brought out for the bacillus of tubercle. Most of the objections raised in his letter were mentioned by him at the Medical Society's meeting, on the 4th of December, and refuted by me to the entire satisfaction, I think, of all present, saving of course Dr. Heron. He has, however, now done me the honor to review the various papers I have published on this subject, and to draw from them deductions not at all flattering to my truthfulness. I cannot allow these to pass without remark. Immediately after the meeting of the Medical Society, Dr. Heron appears to have called on Mr. Beck, the agent or salesman of the Badesche Anilin Fabrik, and he gives the result of his interview. On referring to the price list of this company I find that they do not quote fuchsin in it; what then could they do when a customer asked for fuchsin, but sell him the nearest thing they had to it? Does this, however, prove that fuchsin and magenta are the same? As to the use of these names on the Continent I can say nothing, but that they are used in the trade here to signify the same thing is not correct. Let Dr. Heron refer to the price lists of Messrs. Hopkins & Williams, Messrs. Jackson & Co., and Messrs. Becker & Co. He will there find magenta and fuchsin both quoted, the one (fuchsin) at double the price of the other. Does Dr. Heron suppose that firms of this standing are trying to defraud the public by selling the same substance under two names, and charging in the one case double what they do in the other? Dr. Heron admits in his letter that he knows nothing of the chemistry of the anilin compounds. He is therefore probably unaware that magenta is a very comprehensive term, and includes the hydrochloride, acetate, nitrate and sulphate of rosanilin. Does Dr. Heron think that all these will stain the tubercle bacillus? If so I would advise him to make some original investigations into the subject; he will then be able to speak with some authority on the matter.

The facts of the case are these: When Ehrlich's method was first published he mentioned fuchsin as the stain used, as well as methyl violet and gentian violet. By this fuchsin I understood the fuchsin sold by Messrs. Hopkins & Williams, and Messrs. Becker & Co., and which I had used for a very long time for various staining purposes. I therefore made the stain by the method given, and tried it. I certainly could see the bacilli, which I never could do by Koch's method. But they soon faded, which was exactly Dr. Heron's experience, vide *British Medical Journal*, Oct. 14th. p. 735, where he says: "These anilin dyes are apt to fade very quickly; they may illustrate markedly the presence of the tubercle bacilli at the first examination of a prepared specimen, and within twelve hours there may not be one of the organ-

isms visible." Upon this I determined to try to find a better method, and for this purpose I made a very large number of experiments and at last succeeded in making a stain which will not fade and is easily used—applying the anilin oil to make a definite compound and not for the sake of its alkalinity, as Ehrlich did; using, also, a rosanilin salt and not fuchsin, which is, I believe, a by-product in the manufacture of rosanilin. Dr. Heron says in his letter, "I have repeatedly examined the bacillus under an ordinary $\frac{1}{4}$ in. object glass, and with very ordinary London daylight as my only illumination."

In his account of Ehrlich's method, published in the *British Medical Journal*, October 14th, page 735, he says, "a power of 500 diameters is sufficient." If Dr. Heron is now using the same stain he did in August how does he account for this difference of opinion, that in August, he advised a 1-10 in. object glass to "easily verify" that which he can now see with a $\frac{1}{4}$ in.? At the Worcester meeting he told me he could see the bacilli with a $\frac{1}{4}$ in., but that he required special illumination. If the specimens he made then were so easily shown why did he not exhibit some at the Worcester meeting? In his account of Ehrlich's process in the above-mentioned paper he states, "In the specimens I prepared in this way before the section of pathology at Worcester, the bacilli were seen in large numbers." By whom were they seen? When I left the room everything was over, and there were only a few people there, and from the time the section opened in the morning until I went away, Dr. Heron had not shown a single specimen under the microscope. I exhibited there two specimens of the bacilli in sputum under precisely similar conditions. The one prepared by myself, the other after Ehrlich's method by one of Dr. Koch's assistants. In mine the bacilli were very plain, in the other not one was to be seen. The power used was one of Messrs. R. & J. Becks 1-6", economic series. In the Ehrlich specimen they could be seen by artificial light. For the rows of bead-like bodies I would refer Dr. Heron to Mr. E. M. Nelson's drawing published in the *English Mechanic*.

In giving me a description of some preparations I sent him for examination, Mr. E. M. Nelson (who exhibited the specimens sent over by Dr. Koch to Mr. Cheyne at the various societies) says, "they are by far the finest specimens I have ever seen. The slide of sputum under a 1-25 N. A. 1.38 is a picture indeed. I could see the bacilli in that slide with a 2-3 and A eyepiece, with a $\frac{1}{4}$ inch of 40" and A eyepiece they were readily seen. Could bead them with a $\frac{1}{4}$ of 95."

Dr. Heron admits that his specimens have faded; now mine have not, and those I showed at Worcester are as bright as ever, while two slides that were exposed to the daylight for over three months remained unaltered.

In conclusion, I would refer to the experience of the large number of men in this country, who after using Ehrlich's method are now using mine.

I am, Sir, very faithfully yours,

HENEAGE GIBBES.

Gower-Street, Dec. 25th, 1882.

SUDDEN DEATH AFTER DIPHTHERIA.

To the Editor of THE LANCET.

SIR—Mr. Percy Pope gives cases of sudden death after diphtheria. I have known three cases of sudden death in India during convalescence from diphtheria. Inman, in one of his books, if I remember rightly, gives cases of similar sudden death during convalescence from certain fevers, and I think his explanation of the phenomenon is

that, as the heart is a muscle, it becomes as weak as any other portion of the muscular system, and being a most important muscle, on the proper action of which life depends, any sudden effort during convalescence which calls upon the heart to make an instantaneous and powerful contraction, finds it unequal to the task, and, as if paralyzed, ceases to act. An emotion such as would cause a sudden outburst of laughter or any exertion on the part of the convalescent might be sufficient to cause the heart to collapse. If this be the case the remedy is a scrupulous care to prevent the convalescent from making the slightest exertion, and to prevent the occurrence of any emotion whatever, and to force him to keep the recumbent position until, by tonics, stimulants, food, and sleep, the muscular system—and with it the heart—acquires tone enough to meet demands on its contractile force.—I am, Sir, yours obediently,

E. BONAVIA, M.D.,

Surgeon-major, Indian Medical Department.
Etawah, India, Nov. 2nd, 1882.

PERMANGANATE OF POTASH PILLS.

To the Editor of THE LANCET.

SIR—Permanganate of potash pills, containing one or two grains of the salt, are recommended by Drs. Ringer and Murrell for amenorrhoea. Having during the last few days heard of cases of their spontaneous combustion, which it is very probable will occur if the common excipient containing glycerine, now generally used by dispensers, be used to mass them, I wish to point out that any readily oxidized excipient should not be used. Having prepared a quantity of the pills, I found the following basis to answer best:—Vaseline, two parts, paraffin wax, one part; melt, stir till cold, and add kaolin, three parts; mix well. This binds the powered permanganate together, and with a little dexterity the pills may be rolled out without much difficulty, and dusted over with kaolin. They may be coated with sandarach dissolved in absolute alcohol, and rendered tasteless. Cocoa butter may be used as an excipient, but it in time reduces the permanganate, and it is troublesome to manipulate. In solution a dose of permanganate of potash is very nauseous; in a tasteless pill, which dissolves slowly and yet can be easily disintegrated, it is, besides, more agreeable to the stomach than in solution.—I am Sir, yours truly,

WM. MARTINDALE.

New Cavendish-street, London, W., Jan. 8th, 1883.

SEWER VENTILATION.

To the Editor of THE LANCET.

SIR—The two great sanitary questions that are employing the attention of medical men at the present time are with regard to (1) the disposal of sewage in our large towns, and (2) the ventilation of the main sewers. As regards the former, it may safely be said that nothing should be thrown away which can really be made use of, and therefore the question resolves itself into which is the better system—irrigation or precipitation. As regards the latter question, I think it may safely be said that closed sewers are bad, inasmuch as the gases generated and various disease germs are likely to find their way even through the traps into the neighboring houses. But there are two ways of ventilating the sewer, i. e.—at the road level, and above the roofs of the houses by means of air shafts.

Those who advocate road gratings say that air is the best antiseptic, and the greater the number of ventilators the purer the air and the greater the

safety. There can be no question, I think, that ventilators tend to lessen the generation and accumulation of sulphuretted hydrogen, and to dilute that already formed; but still they must, at the same time, allow of the egress of various disease germs. Air may be sweet, but it may be dangerous, just as water may look clear and sparkling, and yet be poisonous. The life of germs is at present, I believe, scarcely ascertained, but we know that scarlatina and, it is said, cholera germs, even after long exposure to the air, will, on being subjected to heat and moisture, readily break forth into life, and reproduce themselves. This no doubt, in great measure, accounts for the successive outbreaks of disease. It certainly seems to me that ventilating ground gratings is approaching very closely the old system of open sewers, which was long ago condemned. I know of many places where these road ventilators have been adopted and become a nuisance, and there are no doubt many who could testify to the same fact. The only way to ventilate the sewers so as to prevent their being a nuisance and a source of danger is to run up air-shafts by the sides of the houses above the roof level. When two ways exist of remedying a nuisance, surely it is best to choose the one which involves the less danger. Of this I should say there cannot be a question.

I am, Sir, your obedient servant,

F. P. ATKINSON.

Kingston-on-Thames, Dec. 18th, 1882.

CHARGES AGAINST MEDICAL MEN.

To the Editor of THE LANCET.

SIR—Whatever may be the result of the Hounslow inquiry, the sad circumstances culminating in the suicide of the late Dr. Edwardes very pointedly direct the attention of medical practitioners to the ever present and real danger they are subject to, of charges of immorality or indecency being brought against them by hysterical and erotic female patients. A medical man cannot be too cautious when dealing with young married or unmarried women. When a morbid thought has once seized upon a mind debilitated and weakened by disease, who can answer for the result? A complete and coherent delusion may be created with lightning speed in such hysteria-affected brain, and so convincing may be the apparent chain of evidence, that a recognition of mania might never occur, or, at any rate, not until an unsullied reputation has been irretrievably ruined and undone. Accusations of this kind made by female patients against their medical attendant should always be entertained with the greatest caution, and ought to be very carefully investigated, for I have known conviction in a court of law follow, on more than one occasion, charges which were afterwards found to be entirely baseless and imaginary.

JAMES GREENWOOD, Barrister-at-Law.

January 9th, 1883.

"PERMANGANATE OF POTASH IN GONORRHOEA."

To the Editor of THE LANCET.

SIR—No doubt many of your readers have tried injections of permanganate of potash in gonorrhoea. May I ask, through the medium of your columns, those who have done so to kindly give me their results. For some time past I have prescribed from two to four drachms of Condy's fluid to half a pint of water as an injection, a small syringe being used many times a day in all cases that have come under my treatment, and in

all stages, from acute to old standing gleet, with the result of a cure within a fortnight in every case. The injection is almost painless, and, I believe, altogether harmless, the only other treatment required being abstinence from alcoholic drinks.

I am, Sir, yours faithfully,

T. H. F. TOTHELL, M.R.C.P. Edin., etc.

Colombo, Ceylon, Dec. 7th, 1882.

POST-PARTUM HÆMORRHAGE.

To the Editor of THE LANCET.

SIR—The cases in which the injection of perchloride of iron fails to arrest post-partum hæmorrhage are so comparatively rare that the following particulars may interest your readers.

The patient in question, Mrs. J. O—, was a thin, spare woman, thirty-three years of age. Her general health had always been good. In all her previous confinements there had been considerable difficulty in extracting the placenta. On a previous occasion it had been extracted piecemeal, with subsequent profuse post-partum hæmorrhage, and a tedious recovery. In her last confinement (eighteen months ago) I managed to peel it off entire; good uterine contraction followed, and she recovered well. During her last pregnancy she had been in good health. On December 7th there were irregular back pains, with some discharge of liquor amnii, but labour did not set in until the next day at 3 P.M. The presentation was normal, and in an hour a fair-sized male child was born. The uterus at first contracted well, but in a few minutes it relaxed, and hæmorrhage commenced. Traction on the cord failed, and, knowing her condition by former experience, I introduced my hand into the uterus. I was unable to peel off the placenta entire, and had to extract it piecemeal, an operation that took me three or four minutes. The hæmorrhage was very free, and, as it continued, I introduced a tube into the fundus uteri and injected a stream of warm water. This proceeding caused good uterine contraction, and stayed the bleeding for perhaps twenty minutes. During the next hour the hæmorrhage kept occurring at intervals, despite the use of hot water, ice, ergot, kneading the uterus, etc.; and as her condition was becoming critical, I decided to inject perchloride of iron. Sixteen ounces of the solution (one part solution of perchloride of iron to three parts water) were injected during the next five minutes. This had the effect of apparently checking the hæmorrhage, but no improvement followed, and I found on examination that the uterus (on which no external pressure had been made since the iron injections) and vagina were full of clots the color and consistence of coffee-grounds and syrup. These were cleared away, and the iron injection repeated. The patient, however, became more and more restless, and died of exhaustion at 8 P.M., four hours after the birth of the child, and about two hours and a half after the first application of the iron to the uterus.

It has since occurred to me that post-partum hæmorrhage could be controlled by the following apparatus:—A large, thin, india-rubber bag, mounted (after the manner of the epistaxis apparatus) on a large, hollow, elastic gum-stem, through which it could be rapidly distended with warm water. The stem is to be connected by india-rubber tubing with the bottom of a can of warm water, which could be placed at any level above the patient. The bag, which would require to be of such size as to allow of its filling the uterus, to be introduced in its collapsed state. On connecting

the bag with the can there would be an amount of pressure on the interior of the uterus, which could be regulated at pleasure by raising or lowering the can. It could be made sufficient to check all hæmorrhage, and could be gradually dispensed with as the uterus regains its power of contraction.

I am, Sir, yours, etc.,

ARTHUR B. VANES.

Uitenhage, Cape Colony, Dec. 23rd, 1882.

INTRA-UTERINE FRACTURE.

To the Editor of THE LANCET.

SIR—From the rarity of cases recorded in the medical journals, and from the somewhat scanty notice given in some of our text-books to the subject of intra-uterine fracture, I thought that this case might be of interest to some of your readers.

E. T—, the mother of ten healthy children, was about the 25th of August, 1882, in the seventh month of pregnancy, when her foot caught against a broken piece of toy, and she fell down five steps. She incurred no injury, but was very much frightened. On the 25th of the following October, after a natural labour, she gave birth to a small and delicate child—a boy. Soon after birth the child's right clavicle was seen to be very much deformed. The acromial end forms with the rest of the bone a figure something like a V, with the open end pointing forwards. The whole bone is one piece, and feels quite firm. There is free movement in the shoulder-joint.

My explanation of the case is this: That the child's clavicle was fractured about half an inch internal to its acromial extremity at the time of the mother's accident, and that it united, though in an abnormal position, during the remaining two months of the child's intra-uterine life.

I am, Sir, yours, etc.,

E. R. WILLIAMS, M.R.C.S., etc.

Derby, Jan. 6th, 1883.

VENESECTON.

To the Editor of THE LANCET.

SIR—So firmly am I convinced that, at least in cases of heart disease, venesection is one of the most potent remedies we possess to alleviate pain and protract life, that I venture to believe that both the profession and the public should be deeply grateful to Dr. Broadbent for his paper on the subject. For if bloodletting is ever again recognized at its proper value, it will only be by such lucid and scientific expressions of opinion, proved by and grounded on such a large store of clinical experience, having encouraged the profession to resume a remedy abused for centuries and in disuse for a whole generation, and the public to allow the revival of an operation which became a by-word and a proverb in former days.

Only one word, and that with the greatest diffidence, would I venture to semi-criticism. Dr. Broadbent, it would appear, has never found venesection necessary in aortic valvular disease (p. 5, column ii.). May I refer him to cases recorded in the *Medical Times and Gazette* (Dec. 18th, 1868, p. 707) and in a paper by myself in *THE LANCET* where patients with aortic obstruction seemed to be especially benefited by venesection; and, further, may I express a hope that he will not allow it to be supposed that he at all condemns this treatment in this form of disease. I am the more anxious on the matter because I have seen such good results follow its use. Yet, if Dr. Broadbent maintained that in these patients blood should

not be withdrawn, it is more than probable that his high authority would be quoted against the proceeding in any future analogous case.

I am, Sir, yours truly,

BEDFORD FENWICK.

West-street, Finsbury-circus, E. C., Jan. 13th, 1883.

"PHYSICIANS' PRESCRIPTIONS."

To the Editor of THE LANCET.

SIR—In reference to the course said to be pursued by certain general practitioners in the treatment of their patients, which is the cause of some dissatisfaction just now, will you permit me to mention a case which has just occurred within my own knowledge, and which seems to me to be open to very great objection. The practitioner in this case (by means of a manifold writer) wrote a prescription in duplicate, giving one copy to the patient (a lady), with a request that it should be made up by a particular chemist. The patient of course took it to the chemist, who made up the draught prescribed, but declined to give up the prescription, saying he had received orders from the practitioner that it was not to be given up, but was to be returned to the practitioner. The patient thereupon declined to take the medicine, and wrote to the practitioner informing him of what had occurred, at the same time pointing out that she failed to see why the duplicate handed to her was required by the practitioner, seeing that he had a complete counterpart, and that inasmuch as the prescription was dispensed by a person who did not prescribe it, a patient who took the medicine without having the prescription would be wanting in ordinary prudence. The practitioner, strange to say, has taken no notice whatever of this communication, which omission, although somewhat rude, is perhaps rather an indication of the practitioner's inability to combat the patient's reasoning. It certainly seems to me that when practitioners write prescriptions to be dispensed by chemists, it is absolutely necessary for the patient to possess the prescription, otherwise, in the event of harm following the taking of the medicine, it would probably be difficult, if not impossible, for the patient or his friends to ascertain with accuracy upon whom the blame lay, whether the prescriber or the dispenser. At all events, the chemist, knowing that the patient has no copy of the prescription, is not unlikely to be less cautious in the preparation of the medicine.

I am, Sir, your obedient servant,

W. D. S. C.

Upper Teddington, Jan. 9th, 1883.

THE SALICYLATES IN SCARLET FEVER.

To the Editor of THE LANCET.

SIR—At the present time the following case may prove of interest:—Mrs. D.—'s daughter, aged eight, was taken ill on Wednesday, December 20th, with sickness and feverishness. On Friday I saw her; she had sore-throat, fever, and rash out all over her body, and seemed to be very prostrate. I prescribed eight-grain doses of salicylate combined with a little decoction of logwood, as there was some diarrhoea. She continued her medicine four days, when, the more severe symptoms being quite gone, she was allowed to get up, and in a day or two was running about the house quite well. On Friday, December 29th, she was again taken with sickness and diarrhoea, dry tongue, thirst, etc.; skin very hot and dry. I prescribed bismuth, soda, and aromatic confection. Next day (December 30th) her tongue was red and very dry; throat

very sore; intellect dull; chest, abdomen, back, and front covered with profuse scarlatinal rash; skin burning hot; the diarrhoea and sickness were better. I ordered her eight-grain doses of salicylate every two hours.—Dec. 31st: Morning temperature 102°; tongue moist and red; child has taken her medicine regularly; rash well out; seems much better. To continue the medicine.—Jan. 1st: Temp. 102°; tongue still moist; rash dying away on chest, out on legs; pulse 120; throat sore; glands under jaw and side of neck enlarged; nose sore and discharging. To continue salicylate every three hours.—2nd: Nose discharging; glands not so swollen; child more cheerful; temp. 101.2°; pulse 100.—3rd: Temp. 103°; pulse 100; tongue moist and red; throat sore; rash almost disappeared; glandular swellings about the neck much better; discharge from nose continues.—4th: Refuses food and medicine; temp. 100.4°.—5th: Roof of mouth and tongue dry, covered with black fur; almost unconscious. She died at 9 P.M.

I wonder what the result would have been had I given my little patient the salicylate until at least a week had elapsed in her first attack. Her surroundings were highly insanitary. I have at present in the same house four patients undergoing treatment for scarlatina. They are progressing favorably. Another brother of the deceased is now convalescent from a severe attack, accompanied with anginous symptoms.

I am, Sir, yours faithfully,

JAMES COULDREY.

Scunthorpe, Brigg, Jan. 8th, 1883.

THE DETECTION OF BACILLI OF TUBERCLE IN THE BREATH OF CONSUMPTIVE PATIENTS.

To the Editor of THE LANCET.

SIR—By the following simple method I have succeeded in demonstrating with facility the presence of the bacilli of tubercle in the breath of patients suffering from true tubercular phthisis. For which purpose I allow the patient to breathe, at frequent intervals during the day, through two thin sheets of pyroxyline or gun-cotton, one layer in front of the other, and both of which are placed in the outer compartment of an ordinary "pepper duster" respirator. The cotton when so arranged will act as a double filter—the external layer removing from the in-going air all the suspended particles, such as dust, micro-fungi, starch, etc., which are always more or less present in it, and which it is desirable to exclude; the internal layer retaining only those particles which come from the lungs—viz., micrococci, bacilli, and some epithelial scales. It is, therefore, in the layer which has been next to the mouth of the patient that I seek for the bacilli peculiar to this disease. This I do by converting the pyroxyline into collodion by dissolving the former in a mixture of rectified spirit and ether. By this means the whole of the cotton fibre dissolves, but the organisms which have been emitted from the lungs are unacted on by this menstruum, and remain suspended in it, but not visible to the naked eye.

To render the bacilli manifest, my plan is to pour the thin collodion thus formed on a microscope slide and allow the fluid to run uniformly over the surface of the glass, then immediately to turn the glass on one of its edges, that only the merest film of collodion may remain on the glass. The thinner the film produced the more successful will the experiment be. The film is then to be stained. This may be done by one of the methods now well known to the profession, such as that of

Ehrlich or of Heneage Gibbes. I have had excellent results from the former.

I am, Sir, yours faithfully,
R. CHARNLEY SMITH, M.D., D. Sc.

Ardwick, Jan. 1883.

"CASE OF FEIGNED SKIN DISEASE."

To the Editor of THE LANCET.

SIR—The case of factitious skin disease, put on record by Dr. Colcott Fox, reminds me of one that came under my observation some years ago when I had charge of the dermatological clinique at St. Thomas's. A girl of seventeen, a maid of all work, came before me one winter—that is to say, at a time when hands and arms which are exposed to air and wet are apt to get chapped—with considerable chapping and soreness of all these parts. She professed not to consult me about this however, but about a considerable number of holes in the skin of her forearms, which she said were produced by carrying pails of water and other heavy things up and down stairs. She stated that when thus engaged she would frequently feel something give way in her arm, and that, on looking, she always discovered a newly formed hole. At the moment I was inclined to think that the wounds might really be due to the sudden extension in depth and length of some of the pre-existing chaps, determined by the stretching to which the skin had been subjected. A little examination, however, satisfied me that the holes were of artificial production. They were all of exactly the same character; their direction was horizontal or nearly so; they were oval, or rather egg-shaped, with the pointed end always in the same direction; they were between $\frac{1}{4}$ and $\frac{1}{2}$ inch in length; their edges were smooth and vertical, and they looked as though they had been made with a punch; there was no surrounding thickening or inflammation, and their floor was formed of the healthy subcutaneous connective tissue. I concluded she had snipped out pieces of the skin with scissors. I explained my views to my class, out of the girl's hearing; and one of them left the room and presently returned with two or three wounds in his arm, which were the exact counterparts of the girl's. He had made them with scissors; and added that no pain attended their production. I said nothing to the girl on her first visit; but on the second, charged her with deceit, and threatened to inform her mistress. I need scarcely say I did not see her again.

I remain, Sir, yours truly,
J. S. BRISTOWE.

Old Burlington-street, Jan. 5th, 1883.

SUCCESSFUL GASTROTOMY IN JAPAN.

To the Editor of THE LANCET.

SIR—I found the following remarkable account of a unique and scarcely credible surgical feat in a copy of the *Hongkong Overland China Mail* sent to me the other day. Considering the great interest and importance of the operation of gastrotomy, and the prominence it has recently assumed, I thought it might not be uninteresting to your readers to bring before them this tale of operative triumph from the Land of the Rising Sun. Albeit there is a smack of the fabulous about it, there is no reason to deny its authenticity.

I am, Sir, yours faithfully,
D. BEATTIE BAIN, M.B., C.M.

Tay-street, Dundee, November 27th, 1882.

"The *Choya Shimibun* tells an extraordinary story of skill and courage on the part of a Japanese

doctor. It runs to the effect that one morning, as a certain man named Ito was cleaning his teeth, by some means or other he let his tooth-brush slip down his throat. Medical assistance was at once procured, and the unfortunate man, who was suffering the acutest agony, drenched with purgatives, but all to no avail. It was not till the fifth day that a certain Dr. Hashimoto, principal of the highest medical college in Tokio, was called in. Dr. Hashimoto said there was just one chance to save the man, and as the case was desperate it might as well be tried, for the patient would certainly die, and that almost immediately, if nothing was done. The friends consenting, chloroform was administered and two deep incisions were made cross-wise in the man's body. The stomach being laid bare, it was discovered that the tooth-brush was deeply embedded in it, and that, one edge of the handle being sharp, it had worked its way half through. The thing was speedily extracted, and the two wounds, inner and outer, deftly sewn up by the operator, who is said to have won immense renown by the success which crowned his efforts. The *Choya Shimibun* adds that the man to whom the accident occurred is now in a fair way of recovery."

GAS FIRES.

To the Editor of THE LANCET.

SIR—In my practice as an architect I have from time to time recommended the use of open gas fires, not only from their convenience and cleanliness, but because, when more universal, their use will at least assist in abating the intolerable smoke nuisance arising from the ordinary open grate. I have three or four open gas fires in my own house. I am now informed, upon high medical authority, that these fires are most harmful. In a case which has recently come under my notice the gas fire (one of Verity's) has been instantly ordered out of the room, and in the same grate is now burning a coal fire.

The question I would ask is as follows:—Given a good grate and free updraught, is the heat radiated from burning coal harmless, and the heat radiated from asbestos, warmed by an atmospheric burner, dangerous? I write as a layman, not understanding these things, but feeling that a qualified opinion in the matter must be of great value, and I know not how to obtain this except through your columns.

I am, Sir, yours obediently,
SOMERS CLARKE.

Dean's-yard, S.W., Dec. 1st, 1882.

* * Provided that there are efficient arrangements for the escape of the products of combustion, there is no objection on the score of health to the use of gas fires. We have known instances of these fires being fixed in ordinary grates, and in order to increase the amount of heat given off from them the register has been closed. This, of course, is inadmissible.—ED. L.

CASE OF FREQUENT TAPPING IN ASCITES.

To the Editor of THE LANCET.

SIR—B. S—, aged forty-two years (formerly a hospital nurse), was anxious that her case should be noticed in your valuable journal, and as it may interest some of your readers, I am glad to comply with her request. I may briefly state that the patient had been under treatment for many years at various times for congestion of the liver and

stomach, and was eventually brought to death's door from an attack of violent hæmatemesis, from which she rallied slowly. The dropy first showed itself during her recovery. Having diagnosed the case to be one of cirrhosis of the liver, I tapped her early, and removed about a gallon and a half of fluid on Jan. 8th, 1881. Between this date and Aug. 27th, 1882, I tapped her no less than thirty-nine times, and removed 110 gallons of fluid, the patient finally sinking from exhaustion on Sept. 7th. The treatment was merely palliative, the usual remedies for dropy not suiting her. I used a cannula of small calibre, with india-rubber tubing attached, the process of tapping generally lasting an hour; and since it was so well borne, I was enabled to visit other patients in the interim. None of the directions mentioned in the text-books as to the use of compress and bandage were complied with, and the patient lay on her back or side, as she felt disposed. No post-mortem was made, as the nature of the case was evident.

I am, Sir, yours, etc.,

R. H. PATERSON, M.R.C.S.

Edinburgh, Dec. 1882.

News Items, Medical Facts, &c.

IMPROMPTU ON THE VACCINE INOCULATION.

(From the Morning Herald, Friday, June 8th, 1863.)

When Io's charms had amorous Jove estrang'd,
Saturnia to a cow her rival chang'd;
Then Venus cry'd, "The beauty you deface
Shall shield the beauties of a future race;
Her favoured offspring shall from earth remove
The direst foe of beauty! life! and love!"

DOG BITES.—An absurd superstition prevails that the bites of all dogs should be either cut out or canterized, and the poor animals destroyed. It is not necessary to adopt either of these serious courses provided the dog is healthy. In fact they are simply ridiculous, and are calculated to produce groundless fear in the person bitten. Of course in severe cases erysipelas may supervene, but with ordinary care, the wound being cleansed by a disinfecting lotion, no serious consequences will follow. In all cases, however, a doctor should be consulted.

IMITATION BUTTERS.—Of these there are several kinds. *Butterine* is made by a respectable firm and of sound materials, and is a cheap and wholesome substitute for butter when this is dear. It is made, according to one receipt, by melting beef suet in warm water with carbonate of potash; then pressing out the oleo-margarine from the stearine, mixing the former with the soluble matter from cows' udders, a little annatto, and a due proportion of milk, and then churning. *Bosh* is made by a direct admixture of various fats with (often very inferior) butter.

THE CONSUMPTION OF TOBACCO.—Those who take part in the perennial crusade against tobacco, and all who disapprove of its excessive use, will be glad to learn that the consumption of tobacco is as small in England as in any other civilized country. From some statistics on the subject which have been published by a French journal, *Les Mondes*, it appears that in Russia, France, and England the consumption amounts to 1 lb. per inhabitant. In Italy it is rather higher, 1½ lb. Austria comes next with 2-2½ lb. In the United States and Germany the consumption amounts to 3 lb., in Belgium to 4-4½ lb., while Holland has the privilege

of heading the list with a consumption per inhabitant of more than 5½ lb.

A CONTRIVANCE TO PREVENT "BALLING" OF HORSES' FEET.—The *Live Stock Journal* gives an account of a contrivance adopted by Col. Anstruther Thompson, of the Fife Hounds, for the protection of horses' feet from snow, from which medical men may take a hint—many of them finding it difficult to get through their work owing to the delay caused by the insecure footing afforded their horses. Col. Thompson takes a sheet of gutta-percha about a quarter of an inch thick, cuts out a set of plates a little larger than the hoof inside the shoe, softens them in hot water, and moulds them inside the shoe over the frog, so that a face of gutta-percha touches the ice and snow, and "balling" with snow is impossible. These plates remain until the end of the bad weather.

MUSHROOM CATSUP.—A microscopical examination of several samples of mushroom catsup has recently been made by a well-known fungologist, Mr. Worthington G. Smith, and has brought to light several details of its composition that must be highly pleasing to lovers of this condiment. Of four samples manufactured in London, in one he found only matter which looked like mashed-up toast and salt; in another decayed fish, mildew, and broken twigs; in a third, fungus spawn, mildew spores, crushed walnut-husks, and vibriones, large black spores evidently belonging to the genus *coprinus*, and brown ones recognizable as those of the horse-mushroom. Genuine mushroom catsup should exhibit basidia, cystidia, and spores of the true mushroom, salt crystals, and occasionally a pollen grain or fragment of pappus, but nothing more.

THE EFFECT OF THE ELECTRIC LIGHT ON HEALTH.—The above question was lately discussed at a meeting of the Hygienic Society of Hamburg, and Dr. Krüss explained his views on the subject at some length. He referred to the influence of the electric light on the human eyesight, and expressed his opinion that it produces no evil effects, the light having a violet tinge under most circumstances. He referred to the somewhat exaggerated expectations which had been formed as to the distance at which the light was visible at sea; but, on the whole, he considered that the safety of human life at sea had been increased by the use of the electric light in lighthouses. The electric light being free from the disadvantages incidental to the combustion of gas in the consumption of oxygen and the production of carbonic acid, he considered its development as being a hygienic measure of relative importance.

OBITUARY.—Dr. Thomas Hume was born in Dublin, and died at Hanwell, October 21st, 1850, aged eighty-one. He was the constant friend and medical attendant of the great Duke of Wellington, and, as physician to the forces, followed the duke through all his campaigns. A good story is told of him. Going into a newspaper office in the Strand, he laid on the counter an advertisement of the death of a friend, with the usual fee of five shillings, when the clerk, reading it, said curtly, "Seven-and-six." The doctor replied that he had never paid more than five shillings for these simple announcements, to which the pert young fellow said, "Simple announcements! he died 'universally regretted!' Seven-and-six." In placing the additional half-crown down, the doctor said, "Well, young man, that is an additional expense which your executors will not have to pay." He was the last descendant of the celebrated mathematician, Dr. John Wallis.

THE INFLUENCE OF SULPHUROUS ACID IN ARRESTING PHTHISIS.—Herr Kircher, a pupil of Liebig, has been during forty-four years director of an ultramarine factory, in which a special process of manufacture is employed which involves the formation of sulphurous acid by the burning of sulphur. He maintains (according to the *Gesundheit*) that none of his workpeople have ever suffered from consumption, typhus, cholera, or any disorder which is produced by bacteria. He recommends the following treatment in the case of tuberculous patients. They should be brought into a room in which small quantities of sulphur (one to two drachms) are burnt every hour over a spirit lamp or on a stove. At first coughing of a more or less aggravated character takes place, and after eight or twelve days the bacteria gradually disappear and cease to irritate the lung-tissue. To complete the cure, the patients should be brought into rooms which contain some aromatic vapors.

NOTES IN SEWER AIR.—In a paper read recently by Dr. W. A. Hollis, at the Brighton and Hove Natural History Society, on "Notes from a Sunbeam under the Microscope," amongst much that is interesting, the following passage occurs: "Show me a town with a long intercepting outfall, closed by the tide for twelve hours in every twenty-four, and *pro tempore* converted into a bubbling cesspit, and I shall show you a place where, in spite of man-holes and street-gratings, in spite of ventilating-shafts and dip-traps, sewer-gas will occasionally force its way backwards into courts and into houses, to the enfeeblement, and it may be to the death, of the inhabitants. All tidal outfalls ought to be abolished. These regurgitant aerial currents laden with motes, ever present in sewer-gas, will be intensified whenever the barometer or the thermometer is low. Then will they mingle their baleful products with the air we breathe, to the injury of our health, the damage of our reputation, and the curtailment of our prosperity."

FORTY INCHES OF BOWEL PASSED PER RECTUM, WITH RECOVERY.—At a recent meeting of the Baltimore Academy of Medicine, Dr. Christopher Johnston exhibited a specimen of forty inches of intestine passed by a lady in Charles County, Md., per rectum, which, together with notes of the case, had been sent to him by Dr. W. N. Saunders, under whose care it occurred. The patient, who was thirty-two years old, married, and had one child, had always been delicate, and subject to indigestion, constipation, and colic pains. The attack during which the present specimen was passed began with acute epigastric pain, followed in three days by stercoraceous vomiting, which produced slight relief of the pain. For nine days previous to the vomiting there had been no action from the bowels, and a circumscribed hardness could be easily felt through the abdominal parietes. After the vomiting, which lasted three or four days, the sphacelated bowel, together with some of the omentum, was passed. Part of the specimen retained its tubular shape, and contained feces; another part passed mixed with feces. The patient then began to improve, although still troubled with occasional pain in the bowels, especially in connection with her evacuations. The treatment pursued was cathartics, enemata, inflation, anodynes, etc. The specimen was supposed to be a portion of the ileum.

CROTON OIL.—The result of the researches of M. L. Julliard has been published in the *Union Pharmaceutique*. The question which M. Julliard set himself to decide was whether pure croton oil was or was not soluble in alcohol, the account given by different authors concerning its solubility being discordant. It is, however, very generally

known that by repeatedly treating croton oil with alcohol, its purgative, acid, rubefacient, and general active properties are greatly weakened, if not wholly destroyed. According to M. Desnoix, 95 per cent. alcohol will dissolve two-thirds of the oil, but M. Julliard's experiments reversed these figures. The *Dictionary of Adulterations* of Chevallier and Baudrimon states that croton oil is entirely soluble in alcohol at 40°, while the Dublin Pharmacopoeia denies it altogether. The differences in the accounts given in various text-books of the solubility of this oil in alcohol may be attributed to the fact that the greater portion of the croton oil used has, by the time it reaches the consumer, been pretty well adulterated with castor or some other oil, the presence of which it is difficult to ascertain with any degree of certainty. Some authors attribute the active properties of croton oil to the presence of resin; others, among whom may be mentioned Pellatier and Ginbourt, ascribe them to crotonic acid, while Dublanc absolutely denies the existence of this acid, and Schlippe puts them down to a peculiar principle which he calls crotonal, so that none of the authorities are really agreed as to what is the really active principle of this oil.

INSUFFICIENT WATER-DRINKING.—Dr. Maas, Professor of Surgery at Freiburg (Baden), has recently published the results of his investigations on the above subject which he made with special reference to sunstroke. An artificial perspiration (or, rather, absorption of the water in the system) was effected in the case of the animals subjected to these experiments with the result of the temperature of their bodies being considerably reduced. When liberated, the animals drank abundantly of the liquids placed before them, but usually died in the course of the same or the following day, the loss of heat having induced weakness and death. The pressure of the blood becomes diminished under such circumstances, and the processes of nourishment and digestion show reduced activity. In the case of a powerful dog of medium size, the pressure of the blood fell during the four hours' experiment from 128 to 59. Upon dissection it was found that several of the organs were extremely dry and distended. He states the fact that in cases of death from sunstroke, appearances have been noticed upon post-mortem examination, corresponding more or less with those observed in the experiments upon animals. In such cases alcoholic liquors, such as brandy, beer, etc., are not recommended, the first and most urgent requirement being the replacing of the water which is wanting. It is remarked that this is best done by lukewarm or warm water, as they are most rapidly absorbed. The addition of wine, coffee, or tea is also disapproved by Dr. Maas, who recommends the addition of a little acetic acid or citric acid, as the transition into the blood of water impregnated with acid is quicker than it otherwise would be. The importance of a daily provision for the maintenance of the due quantity of fluid in the system is commented upon in the remarks of the *Gesundheit* upon the theory propounded by Dr. Maas, and it is suggested that a pint of water should be drunk every morning on rising, and a similar quantity before retiring to rest; while one to one and three-quarters of a pint of water should be taken after each important meal. The neglect of precautions for keeping up the supply of water causes, it is said, diminution of the quantity of blood, lowering of temperature, and loss of strength, thus indicating premature death.

THE LANCET.

A Journal of British and Foreign Medicine, Physiology, Surgery,
Chemistry, Criticism, Literature and News.

JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

PUBLISHED MONTHLY.

No. 4.

NEW YORK, APRIL, 1883.

ABSTRACT OF A

Lecture

ON

THE OCCURRENCE OF THE MITRAL DIRECT OR PRESYSTOLIC MURMUR WITHOUT MITRAL LESIONS.

By AUSTIN FLINT, M.D.,

Professor of the Principles and Practice of Medicine and of Clinical Medicine in the Bellevue Hospital Medical College.

THE case at the hospital which was recently brought before you, in which were four heart murmurs referable to the left side of the heart, and associated therewith paroxysms of angina pectoris, is doubtless fresh in your recollection. The patient, as you will remember, died suddenly in a paroxysm of angina, and the case furnished an occasion for considering that affection. I have now the heart before me. You see at once that it is considerably enlarged; the weight is 17½ oz. The enlargement is chiefly of the left ventricle. The ventricular cavity is much dilated, the dilatation evidently predominating over the hypertrophy. Directing attention to the aortic orifice, you perceive that the sigmoid walls are thickened and contracted. There had been, evidently, considerable regurgitation, and this stands in a special causative relation to the hypertrophy and dilatation of the left ventricle. The inner surface of the aorta above the aortic orifice is thickened and velvety. The openings of the coronary arteries are much contracted, and this, taken in connection with the insufficiency of the aortic valves, must have had for a consequence a deficient supply of arterial blood to the muscular structure of the heart. In my remarks on angina pectoris I stated that, as it seems to me, the most rational view as regards the pathological condition with which paroxysms of angina are connected is to attribute them to ischemia of the heart. That condition must have existed in this case, and the appearances therefore go to sustain the ischemic theory.

Let us now direct our attention to the mitral orifice. Here there is not the slightest appearance of lesion. The mitral curtains are perfectly normal. Moreover, before the ventricular cavity was laid open, the water test showed competency of the

mitral valves. The specimen has for me great interest in connection with these facts. The patient, in this case, had undoubtedly both a mitral systolic and a mitral presystolic murmur. I found these murmurs present on repeated examinations, the presystolic murmur varying at different times in its loudness, but never absent. The presence of both murmurs was verified by many others. The case served to illustrate their differential characters to clinical classes. It so happened that Mr. Gould, of London, visited the ward on the day before the sudden death of the patient, and he listened to the heart as presenting a good example of the presystolic murmur. This murmur had, in this case well marked, its usual distinctive features—namely, a rough vibrating quality, resembling, in this respect, the sound produced by throwing the lips into vibration with the expired breath. From this peculiar quality I have been accustomed to distinguish the murmur as a blubbery sound. Now, the question arises, How could this murmur have been produced without any mitral lesion? I find no difficulty in answering this question, and I ask your attention now especially to the explanation of the fact that a mitral presystolic murmur may occur without any mitral lesion.

In 1862, in an article on "Cardiac Murmurs," published in the July number of the *American Journal of the Medical Sciences*, I reported cases illustrative of the facts just stated. I am not aware of any case having been reported prior to that date in illustration of this fact, nor subsequently by any other observer. The fact was stated in the first edition of my work on the "Practice of Medicine," published in 1866, as well as in the subsequent editions. I have met with several additional instances within the last twenty years.

As preparatory for the explanation, the mode of production of the murmur, when it represents mitral lesions, is to be borne in mind. Referring to the characteristic blubbery murmur, I believe it to be produced by vibration of the mitral curtains. The mechanism is the same as in the imitation of the murmur by the vibration of the lips with the current of air in expiration. In thus imitating the murmur, note with how feeble a current of air a loud blubbery sound is produced by the vibration of the lips. This at once disposes of the statement which has been made that the current of blood produced by the auricular contraction is too feeble to give rise to so loud a murmur as is the mitral presystolic in many cases. Accepting the

mode of production of the murmur as just stated, it follows that when the murmur is organic the mitral curtains must be flexible, that is, capable of vibrating. Whenever the murmur is due to lesions, the flexibility of the curtains is to be inferred, and generally it is a fair inference that there is contraction of the mitral orifice in consequence of adhesions at their sides, being what is known as the button-hole aperture. If the curtains be rigid and notably contracted, the characteristic murmur is not present; either there is no appreciable murmur, or it is a blowing murmur. It may be wanting, and hence absence of the mitral presystolic murmur is not positive proof that mitral obstructive lesions do not exist.

Now for the explanation of the mitral presystolic murmur without mitral lesions. In all the instances which have come under my observation there have been aortic lesions permitting regurgitation, as in the heart which is now before me. With regard to this specimen, consider the physical conditions in life at the instant when the auricular contractions took place. The left ventricle was filled with blood from the current passing from the auricle to the ventricle through an unobstructed orifice by gravitation, and, in addition, the regurgitant current from the aorta. As a consequence, the mitral curtains were floated away from the ventricular walls, and were not only approximated but in absolute contact. Recollect the physiological experiment by which it is shown that the mitral valves may be completely closed by injecting a liquid into the left ventricle through the mitral orifice. These conditions existing, the auricle contracts and forces an additional quantity of blood into the ventricle. This mitral direct current passes between the valvular curtains which are in apposition, and throws them into vibration precisely as the lips are made to vibrate with the breath. If I have made myself clearly understood, you will admit, as it seems to me, that the explanation is rational and adequate. Looking no further than the mitral orifice, the murmur is inorganic or functional, but, occurring without mitral lesions, it is an effect of aortic lesions allowing free regurgitation. I have as yet met no instance in which aortic regurgitant lesions did not coexist. Under these circumstances the presystolic murmur is apt to be variable in its intensity at different times, and it may not be always present—that is, it is liable to come and go according to variations in the physical conditions involved in the mode of its production.

To this statement concerning the variableness and intermittency of the mitral presystolic murmur without mitral lesions, I will add a fact, which I do not recollect to have seen stated by any author except myself, relating to the murmur when it represents mitral obstructive lesions. The fact is this, the murmur, in the progress of the cardiac affection, may become variable and intermittent. The fulness and cessation of the murmur, under these circumstances, are not of good omen, but quite the reverse. They denote feebleness of the auricular contractions from dilatation. The coexisting signs and symptoms will be found to sustain this view. Do not, therefore, fall into the error of giving to a patient, or to friends, false encouragement when, connected with mitral lesions, a murmur which has been loud and constant becomes feeble or ceases to be heard.

In the case which furnished the specimen before us there was also a mitral systolic murmur, and, as has been stated, the water test did not give evidence of insufficiency of the mitral valves. How is this fact to be explained? I do not propose to discuss the various explanations of the production of a mitral systolic murmur without mitral lesions.

Suffice it to say that in this case, taking into view the considerable dilatation of the left ventricle, it seems to me probable that, although the ventricle held water when filled from an opening made through the apex, the ventricular contraction in life occasioned some regurgitation. A regurgitant stream, be it never so small, may give rise to a murmur. I submit this explanation without undertaking at this time to account for the apparent incongruity that the mitral valves may admit of some regurgitation during life, and yet be found competent after death.

Clinical Lecture

ON A CASE

OF TROPICAL ABSCESS OF THE LIVER.

Delivered at the Middlesex Hospital.

By J. KINGSTON FOWLER, B.A., M.B.,

Assistant-Physician and Pathologist to the Hospital, and Assistant-Physician to the Brompton Hospital for Consumption.

GENTLEMEN—The patient whose case will form the subject of my remarks, and whom I shall presently show to you, is a man aged twenty-seven, well built, of good muscular development, and by occupation a navy. He was admitted into the hospital on April 11th, 1882, complaining of cough and pain in the right side; he came under my care about a week later. He gave the following account of himself: He had enjoyed good health up to four years ago, when he was laid up for six weeks with an attack of acute rheumatism affecting the ankle, knee, and hip-joints; since then, with the exception of an occasional cold and cough, he has remained well. He stated distinctly on several occasions, in reply to questions, that he had never been out of England; and it was not until we had been obliged to take the first important step in treatment that we discovered that he had enlisted in a cavalry regiment in 1869, and in February, 1870, had been sent to India. For the first year he was stationed at Bangalore, in the Madras Presidency, and whilst there was quite well. The regiment was then moved to Secunderabad, and remained there five years, during which time he was twice in hospital: in 1873 for six weeks with Indian fever, the principal symptoms being fever, vertigo, weakness, and loss of weight; in 1874 for ten weeks with fever and pain in the right shoulder and hypochondrium. He remembers that on one occasion during this attack his temperature rose to 106° F., but he had no diarrhoea, dysentery, or jaundice. There can, I think, be little doubt that this second attack was one of acute hepatitis. After recovery he returned to duty, and remained two years longer in India. He left the army in 1877, and has since worked as a navvy.

We now come to his present illness. On April 2nd, whilst working on a "night shift" in a tunnel, he felt sick and giddy and shivered. He went to bed, but though wrapped in blankets the shivering continued more or less during the whole of the following week. On April 6th sweating first occurred; it was continuous, but most profuse during sleep. On the 9th he complained of pain of a sharp character, localized in the right loin and epigastrium. He vomited several times, and suffered also from cough, with expectoration of frothy, but not rusty mucus. There was no pain in the right shoulder, jaundice or diarrhoea. On admission, the skin was of a sallow tint, and he

was perspiring; the tongue was coated and brown in the centre. Temperature 101° F; pulse 84, soft and compressible. There was troublesome cough; the expectoration frothy and of a slightly yellow color. On physical examination no adventitious sounds were heard in the lungs. The cardiac apex was in the normal position, and the sounds normal. The liver dulness was not increased, and the splenic dulness was normal. The urine deposited lithates on standing, and was free from sugar and albumen. On the following morning the temperature was 103° F. He had passed a restless night, and had perspired profusely. On the 14th it was noted that the breath sounds at the right base were weak, and accompanied on expiration by sibilant rhonchi. These sounds gave place soon after to fine crepitant râles. The bowels were freely opened after taking five grains of calomel, the motion being of a dark-brown color. For the next few days he remained in much the same condition. The temperature fluctuated between 99° F. in the morning and 103·4° in the evening. The sweating was continuous and profuse, especially during sleep. The cough was troublesome and expectoration copious, but it was never rusty. At the right base, posteriorly, there was diminished vocal fremitus; the percussion note was flat; the breath sounds feeble, and some fine crepitant râles were heard. The cardiac apex was not displaced. The pulse rose on the 19th to 120, and was soft and dicrotic, and he was evidently losing strength rapidly. I was struck when I first saw this patient with profuse perspiration, and remarked that the case reminded me of two which I had seen at Addenbrooke's Hospital, Cambridge, which proved to be cases of hepatic abscess. I have since then been strongly impressed with the fact that *when obscure disease—e.g., pleurisy with doubtful pneumonia—at the base of the right lung is associated with profuse sweating, the formation of an hepatic abscess should be suspected.* On April 21st I carefully examined the liver, with the following result: the lower ribs on the right side were slightly bulged; there was slight fulness and increased resistance in the epigastrium and some tenderness on pressure there; the liver dulness commenced at the fifth rib, and measured six inches in the right mammary line, and five inches and a half in the mid-sternal line; there was no hydatid thrill or fremitus; the right rectus abdominis was tense. Dr. Cayley kindly saw the case in consultation with me, and agreed that it was quite justifiable to make an exploratory puncture into the liver. I therefore thrust an aspirator needle, one-eighth of an inch in diameter, into the liver one inch below and the same distance to the right of the tip of the ensiform cartilage, and with the point at a depth of about two inches pus began to flow through the tube. After about an ounce had escaped the tube became blocked, and as the object of the puncture had been attained I withdrew the needle. The pus was thick, curdy, blood-stained, and contained solid flakes; on microscopical examination no hooklets of echinococci were found. On the following morning, at my request, Mr. Andrew Clark plunged a large trocar into the same spot and drew off twelve ounces of pus having the same characters as that previously obtained. The cannula was allowed to remain in and a large poultice applied over it, some carbolic tow being placed immediately over the orifice. At 2 p.m. on the same day the temperature had fallen to 99°; but it rose again in the evening to 102·8°. On the 24th, he was ordered sulphate of atropia, 1-100th grain in pill every night, with the view of checking the sweating; this it did very effectually for a time. For the next few days the temperature ranged

lower than before the operation; there was a free discharge of healthy pus from the cannula; the abscess sac was washed out thrice daily with a 2 per cent. solution of carbolic acid; and he took three-grain doses of quinine three times a day. On the 26th the cannula was removed and a drainage-tube inserted. On the 29th the drainage-tube accidentally slipped out of its place; and could not be re-inserted into the abscess sac; I found it lying in the sinus, and removed it altogether. The discharge still continued, but was not free. The range of temperature was between 99° in the morning and 103° in the evening. For the next fortnight he continued in much the same condition; the temperature maintained the hectic type; the sweating, though less profuse, was still continuous, and the discharge was not free. The lower margin of the liver could now be felt two inches below the ensiform cartilage, and it was clear that pus had again accumulated and filled the abscess sac. On May 14th I determined to tap the liver again, and plunged in a trocar, having a diameter of three-eighths of an inch, just above, and internal to, the first opening. Pus flowed freely through the cannula, and in all rather more than twenty ounces were withdrawn. It had not altered in character since the first tapping. Towards the end of the operation, when it was thought that the greater part of the pus had been evacuated, he began to retch, probably as a result of the ether he had inhaled, and the compression of the liver between the abdominal muscles and the diaphragm forced out a large quantity of pus. Coughing and retching are useful, though possibly rather dangerous, aids to the emptying of an hepatic abscess. The cannula was now withdrawn, and a laminaria tent inserted in order to dilate the opening. This was removed in four hours, and replaced by a drainage-tube. The effects of the second tapping were extremely favorable. The lower edge of the liver receded an inch and a half. The temperature fell to the normal at once, and for nearly three weeks did not rise above 99°. The tongue cleaned, the appetite improved rapidly, the sweating almost ceased, and there was a moderate discharge of healthy pus. His progress towards convalescence, however, received a sudden check; for during the night of June 3rd, whilst the dressings were being changed, the tube was accidentally withdrawn, and was not at once replaced. This unfortunate occurrence was immediately followed by a severe rigor, in which the temperature rose to 103·4°. He sweated profusely, the tongue quickly became brown and dry, and when I saw him in the afternoon his condition appeared extremely critical. A long laminaria bougie was inserted and allowed to remain in three hours, and he was ordered quinine in fifteen-grain doses three times a day. When the tent was withdrawn the drainage-tube was replaced without difficulty, and, the discharge being re-established, all the bad symptoms at once disappeared. On the following day he was quite as well as before, and the large doses of quinine were discontinued. Since then he has made steady progress towards recovery. On June 28th, the discharge having almost ceased, I withdrew the tube, as the sinus was evidently granulating upwards, and the sac appeared to have become obliterated. It is quite possible that the tube might have been safely dispensed with earlier, but, warned by our previous experience, I was anxious not to close the wound before it appeared certain that the abscess had healed. The physical signs noted at the right base gradually cleared up, and the lung symptoms ceased to give trouble after the first tapping. The edge of the liver cannot now be felt beneath the ribs, and the sinuses have completely closed. The diet at first was liquid, and suited to his feverish

state, but as soon as the appetite returned I allowed him as liberal a diet as he desired.

I should like now to direct your attention to some of the chief points of interest in this case. First, as to its nature. It was soon clear that this was not an ordinary case of pleurisy with effusion or an empyema depressing the liver. The normal position of the cardiac apex alone negatived such an hypothesis. The physical signs, so far as the lung alone was concerned, were consistent with a rare form of inflammation, of which some of you have lately seen an example, in which the bronchi, even the primary branches in the affected area, are filled with fibrinous coagula. This condition has been named "massive pneumonia." This would not, however, have accounted for the profuse sweating, a symptom almost constantly met with in abscess of the liver, and which formed one of the most marked features in this case. I think there can be little doubt that we have been dealing with a tropical abscess of the liver, the result of the attack of hepatitis, from which the patient suffered whilst stationed at Secunderabad in 1874. It is quite possible that a small collection of pus may have remained encysted in the liver during the eight years which have since elapsed, and during which our patient has enjoyed good health. From some cause, which we can only guess at, possibly a strain whilst at work, the sac may have ruptured and set up an acute inflammation in its neighborhood. Or it may be that without actual pus having been encysted there were residues of the old inflammation lying quiescent in the liver, and around these suppuration occurred. Sir James Paget has shown how this may take place in other parts of the body, and Dr. Murchison suggested this explanation of those cases of hepatic abscess occasionally met with in persons long resident in this country who have suffered from hepatitis in the tropics.

Another point of interest is the prompt relief to all the symptoms which followed on the evacuation of the pus, and continued so long as the discharge was free, notwithstanding that a large portion of the liver must have been destroyed. In some other cases of the same kind which I have seen recovery has taken place with equal rapidity when once a free exit has been given to the pus.

The most common causes of hepatic abscess as it occurs in this country are either pyæmia or suppurative of an hydatid cyst. We may exclude the former, because the abscess was large and single, whereas pyæmic abscesses are usually small and numerous, and almost invariably have a fatal termination. That we had not to deal with a suppurating hydatid cyst is, I think, clear from the fact that frequent careful examination of the pus failed to detect any hooklets of echinococci. You will have noticed that the patient is stated never to have had dysentery.

The connection between dysentery and tropical abscess is a point which has been much discussed, and is still undecided. Sir Joseph Fayrer, in common with many other distinguished Indian pathologists, holds the opinion that "the two affections are independent though often coexistent and due to the same climatic causes; that hepatic abscess does occasionally result secondarily by absorption from the ulcerated bowel, and is then of the nature of pyæmic suppuration, in which case it is apt to be multiple and more serious in character than ordinary tropical abscess." It is, I believe, now generally recommended that the single large abscess, from whatever cause arising, should be opened as early as possible; but considerable difference of opinion still exists as to the best method of operating, whether by incision or with a trocar. If the abscess be distinctly point-

ing, it may be opened by incision, but even then I should prefer to use a trocar, and if it is at all deeply seated, there are decided advantages in adopting that course—viz.:

1. The risk from hæmorrhage is much less; for when the liver is incised there is often a violent gush of blood. This, it is true, soon ceases; but these patients are usually not in a condition to bear a loss of blood which a distinguished surgeon, Mr. Lister, describes as "alarming."

2. There is less danger from septic absorption along the track of the wound, as the pus flows through a cannula or drainage-tube.

3. As a trocar of any diameter may be used, the opening into the sac may be of any size that is considered desirable. For an exploratory puncture I prefer one having a diameter of one-eighth of an inch; but if there is certain evidence of the presence of pus, it is very important to employ an instrument of at least three-eighths of an inch or half an inch in diameter. If a smaller one be used, it is liable to get blocked by the solid shreds of liver tissue which these abscesses so frequently contain.

The site to be chosen for the puncture must be determined in each case by the physical signs, but it is better, if possible, to avoid going between the ribs or cartilages, as the trocar must then pierce the diaphragm, and may wound the pleura and lung; also if the cannula, or tube, be retained for a long time necrosis of the rib is very likely to occur. In inserting the trocar it is desirable to follow the directions of the bulging—that is, if the abscess is pointing upwards, the trocar should be directed from below upwards, and *vice versa*; thus as contraction usually takes place towards the centre of the liver, the sac is brought as nearly as possible beneath the opening in the skin, pressure upon the tube is avoided, and drainage facilitated.

I did not in this case use the carbolic spray at the time of the operation, but by carefully washing out the sac with carbolic lotion and surrounding the opening with carbolized tow, the discharges throughout remained aseptic. As it is not possible in the time at our disposal to discuss fully the whole subject of the treatment of hepatic abscess, I have contented myself with drawing your attention to those points which appear to me of the greatest practical importance.

ABSTRACT OF

Wettsomian Lectures

ON THE

TREATMENT OF SOME OF THE FORMS OF VALVULAR DISEASE OF THE HEART.

Delivered at the Medical Society of London, Jan. 8th, 1883.

By A. E. SANSOM, M.D. Lond., F.R.C.P.,

Physician to the London Hospital, Senior Physician to the North-Eastern Hospital for Children, etc.

LECTURE I.

ENDOCARDITIS.

IN this course of lectures my plan will be to enunciate very briefly the bases on which I believe our therapeutics ought to rest. These are, in my opinion: (1) The teaching of morbid anatomy; (2) clinical observation of disease processes and their correlations. Then I propose to review (3) the lesson of the past as to treatment; and (4) to

adduce towards the elucidation of the various problems the arguments from analogy afforded by experimental investigation—a mode of inquiry rendered difficult, alas! by the stumbling-blocks which a false sentimentalism has placed in our way.

First, then, I will consider the teaching of morbid anatomy as to lesions of the valves of the heart. You will understand that I shall do this very briefly, for my object is merely to note them in so far as they may afford a guide to treatment, and when I speak apparently dogmatically, I do not make an assertion *ex cathedra*, but in the spirit of an inquirer after truth.

We will first consider the disease which most commonly affects the valvular apparatus of the heart and the adjacent endocardium—the disease known as *endocarditis*. In briefly reviewing its morbid anatomy, much will remain unsaid, but I shall treat it first from the standpoint of mere observation, leaving all speculative questions. I would classify the first changes in the endocardium which I shall notice as *exudative*. The curtains or cusps of the valves may be seen to be slightly swollen, and the endocardium to contrast by its dulness with the healthy portions adjacent. But the changes are most noticeable at the free edges of the valves, where may be seen isolated or agglomerated beadlike processes. Upon such processes may be observed sometimes little caps of fibrin. A thin section of a valve thus affected is seen under the microscope to differ from healthy valve structure in that its cellular elements are more numerous, and, especially towards the free edge, are closely aggregated. I wish to insist on the fact that in a valve so affected even the portions which seem to the naked eye unaffected are really infiltrated with cells; only the aggregation is greater at the free edge, where such caps of fibrin are often found attached. The beadlike eminences observed by the naked eye are, according to my view, indications of a more widespread inflammatory change in the valve than might be at first expected.

The second form of endocarditis, or properly-speaking valvulitis, to which I shall call attention, is that which I would term the *sclerous*, or fibrotic form. Here the valve, and it is the mitral which is affected in by far the greatest frequency, is thickened, but the thickening is not due to swelling of the soft tissue. It is felt to be hard and firm. The endocardium of the auricle, near the other valve, is found to be dense and white. The valve-curians, and often the cords and fleshy columns, are more or less rigid. A patch of the endocardium lining the left ventricle, and leading up towards the aortic cusps, is sometimes also found white and thick, and the aortic valves themselves may be seen to have undergone similar changes. In this form microscopic section shows that there is a gradual fibrous transformation of the neoplasm resulting in the production of a quasi-cicatricial tissue.

A third form of endocarditis which I think of practical importance to distinguish is that which is *secondary to endarteritis* (atheroma). In this form it is the aortic valves which are affected in a large majority of instances. Patches of soft flabby swelling may be seen in the lining membrane of the aorta, close to the aortic cusps, involving them in the change, and, perhaps, causing the inversion of one or more; or yellowish patches may be observed, in some cases covered by a soft pulpy material, the blood, perhaps, forcing its way at some softened spot between or within the arterial coats; or the root of the aorta may be hard and thick, the thickening being of cartilaginous consistence, and in such thickening the cusps of the valve may be

involved; or in like situation, and with like deformity of valves, there may be a bony or stony hardness, a calcareous change. The evidence obtained by microscopic investigation is to the effect that in the swollen soft patches are abundant exudation cells with a hyaline or slightly fibrillar matrix. These occur mostly as swellings of the internal coat, but Dr. Wilks has observed them in all the coats of the vessel. The yellow patches show fat granules and cholesterine crystals. There is evidently a fatty degeneration of the inflammatory neoplasm. In the fibrous or semi-cartilaginous variety there is more fibrillation and fewer cells, and in the hard and bony form there is a deposit of earthly salts in the interstices of the fibrous tissue.

The fourth form of endocarditis to which I shall call attention is that termed *ulcerative endocarditis*. Swollen and dull portions of the endocardium of the valve may be seen to present here and there a yellowish or greyish discoloration, and to be covered by a finely granular débris. The superficial endocardium in such situations has become necrosed. Through such breach blood may find its way, and, spreading between the layers constituting the valve, may form an aneurism thereof; or the ulceration extending through both layers the valve may be perforated. More commonly a considerable portion of the valve is eroded, and upon the eroded surface fibrine is deposited in the form of single or multiple vegetations. The finger readily detaches these vegetations, and the surface below them is found to be covered by a friable material.

Secondly, the rise and progress of endocarditis as evidenced by clinical observation. The fact which stands out pre-eminently in this connection is the association with rheumatism, acute and subacute. Amongst English observers (Fuller, Sibson, Budd, Latham, and others), the figures approximate tolerably closely and indicate that in acute rheumatism endocarditis becomes manifest in one out of every two or three cases. Continental observers, however, record a less proclivity, the figures of Bamberger, Lebert, Wunderlich, and Roth showing a proportion of one in five to eight cases. The statistics collated for me by Dr. Gabbett from the records of the London Hospital show that in 1880 113 cases of valvular complications were noted in 244 cases of rheumatic fever—a proportion of 46.3 per cent., and in 1881 170 in 295, or 60.6 per cent. The increasing proclivity to valvular complications with repeated attacks of rheumatic fever is well shown.

The first sign by which endocarditis is rendered probable is in my opinion a prolongation of the first sound of the heart, which may afterwards develop into a distinct systolic murmur. Such murmur is, however, not absolutely pathognomonic, for it may be due to regurgitation from adynamia of the left ventricle. Such modification is commonly heard directly the patient comes under observation. I have observed also as indicating signs reduplication of heart sounds, and in these cases a *presystolic* murmur subsequently develops. Rarely a diastolic aortic murmur is the declaratory sign. Endocarditis is by no means necessarily attended with pyrexia, nor even by any sign or symptom whatever referred to the heart.

I will now inquire concerning those cases of endocarditis which are not associated with a history of acute or subacute rheumatism. These may conveniently, for purposes of investigation, be divided into two classes: (1) those which are observed in early life, and (2) those which develop after maturity. In the latter class are the cases of gradual onset which involve the aortic orifice, and sometimes the mitral subsequently, which are

traceable to sub-inflammatory changes at the root of the aorta, and degeneration afterwards. In these cases the endocarditis and valvulitis are consecutive; they have no necessary connection with rheumatism, and their consideration may be conveniently deferred. The study of endocarditis as it occurs in the early periods of life is, I think, at the point at which our investigation has hitherto been advanced, a matter of very great importance. Almost every practitioner is familiar with the fact that cases of disease of the valves present themselves which have shown evidence of such disease for many years, from very early periods of the life of the patient, and yet inquiry fails to elicit that the subject of such disease has ever suffered from rheumatism in any form. It is surely a matter of importance, therefore, that we should endeavor to learn how such disease originates in the period of childhood. In acute and subacute rheumatism in the child the proneness to endocarditis is greater than in the adult. Typical rheumatic fever is much less common in the child than in the adult; the articular manifestations are slighter, but I consider the morbidity of the endocardium to be greater. Of thirty-two cases of acute and subacute rheumatism occurring in children under twelve years of age admitted into the North-Eastern Hospital during the past three years, twenty, or 62 per cent., presented signs of endocardial affection. The development of endocarditis, however, in the child has not so close a relation with the other phenomena of rheumatic fever as in the adult. It may precede, or may succeed even after long periods, the attack.

But there are other diseases besides rheumatism in the child with which endocarditis stands in close relation. These are chiefly scarlatina and measles. In relation with scarlatina endocarditis may occur either with or without the intervention of articular symptoms. Post-scarlatinal rheumatism is well known, and bears a close similarity to ordinary rheumatic fever; associated endocarditis is, therefore, rendered probable. But I have shown from recorded cases that such endocarditis may become manifest after scarlatina, not only without the intervention of articular phenomena, but long after the period of fever has passed, and during a time when there is no elevation of the temperature of the body, no pyrexia whatever.¹

Again, there is evident proof that endocarditis can arise in close relation with measles. I have recorded a case in which both pericarditis and endocarditis occurred a fortnight after the commencement of convalescence from measles. At this time a perilous attack of chorea developed. There was here no obvious manifestation of rheumatism nor hereditary tendency thereto. It appears to me that the influence of measles in predisposing to endocarditis has been much underrated, and *a fortiori* the frequent sequence of these diseases as observed in children becomes an agency, and that, as I think, very probable, not only to the production of the endocardial disease, but to acute rheumatism itself.

Excluding these causes, there yet remains a considerable minority of cases of endocarditis in children in whom no traceable disease has led up to the valve deterioration. The condition is only betrayed by various morbid conditions, the results or concomitants of the valvular disease. I have noted twenty-seven of such cases. They have been marked by (a) disorders of the nervous system: hemiplegia, hemianæsthesia, epilepsy, chorea; (b) disorders of nutrition: wasting, anæmia, etc.; (c) disorders of respiration or circulation: cough,

dyspnoea, or the usual phenomena of progressive cardiac failure. Sufficient is this evidence to prove, I think, that in the child endocarditis can arise and progress without special symptoms, without pyrexia, without the disturbing influence of any acute disease.

As regards the *pathogenesis* of rheumatic endocarditis, I do not think the evidence at all justifies the conclusion, that its first cause is extrinsic to the body or that it is of malarial origin and of the nature of an organized germ. On the other hand, there is much to prove that the "poison" is generated by a perverted metamorphosis, by retention of effete products in the blood. It is quite probable, I consider, that lactic acid is one, but not the only product capable of acting as the pathogenetic agent. Such agents may be many, between fibrin on the one hand and the excreted morbid acid on the other. It is not proven, but yet not improbable, that disturbance of a tract of the spinal cord—a postulated chemical coördinating centre—may be a mode in which the disorder can be originated and prolonged, as Dr. P. W. Latham has argued.

I must now approach another part of my subject and inquire concerning the efficacy of extant methods of treatment in regard to rheumatic endocarditis. It has been claimed of almost all methods of treatment of rheumatism that have been advocated, that they have been instrumental in controlling or preventing the cardiac complications of the disease. The individual experience of observers has been cited again and again to point the efficacy of this or that remedy or method in mitigating the chief danger of rheumatic fever. Yet proof of such vaunted efficacy has soon been found to be unsatisfactory, and it may be confidently asserted that no antidotal treatment is yet known—that we have, for instance, no drug which can influence endocarditis as quinine influences ague, or as mercury and iodide of potassium influences syphilis. The discussion so ably sustained in this Society during the last session, which has been fully reported, has put the claims of various forms of treatment of rheumatic fever to a numerical test. The results of treatment by rest and mint-water, by alkalies, by blistering, and by administration of salicin and its compounds were compared, and it is fair to assume that if any agent other than these had been efficient in the treatment of rheumatic fever or of endocarditis evidence would have made this apparent. The result of the discussion, which it is unnecessary to epitomize, was to show a strong concurrence of testimony to the effect that the administration of salicin or the salicylates very decidedly reduced the suffering and the fever of rheumatism, but in no marked degree influence the development of endocarditis and other cardiac complications. *Prima facie* this seems to be a strange conclusion, for one might imagine that an agent that reduced in such marked degree the pain and fever which must contribute to disturb the heart even if it had no decided effect upon the rheumatic process within the heart, would with great probability influence for good the inflammatory process in pericardium as well as endocardium. The conclusion is forced home, however, alike by individual experience, for we find that pericarditis and endocarditis are shown by physical signs to arise and progress in patients who are fully under the salicin treatment, and by statistical inquiry from large numbers of cases treated by the salicin compounds, compared with those treated in the presalicylic era, such as has been carefully followed out by Dr. Gilbert Smith. Dr. MacLagan, to whom the profession and the public are indebted for the introduction of agents which have at any

¹ Lectures in Medical Times and Gazette, Oct. 25th, 1879, p. 472.

rate been proved to contribute to the comfort of suffering patients, himself allows that the hopes that they would ward off cardiac complications have not been realized. I consider that there are strong reasons why a mode of treatment which is efficacious in rheumatic fever is powerless as regards cardiac complications. To put the matter clinically or practically. We observe, let us assume, a patient in a first attack of rheumatic fever. He presents (1) a murmur indicating an endocardial complication. I think I must have convinced you that such endocarditis may have arisen not during the attack from which he is at present suffering, but from the disease acquired insidiously at any time previously. It is obvious that any remedy would fail to influence the cardiac complication in such a class of cases. Or (2) a modification of sounds, or actual systolic murmur, developing at the apex, makes us suspect the present rise and progress of endocardial inflammation. But such may have its commencement long before the advent of the other symptoms, for no sign will betray the gradual swelling of a valve. A swollen valve is not necessarily incompetent. On the other hand, a veritable systolic murmur at the apex is no conclusive proof of endocarditis, for it may be due to adynamia of cardiac muscle. Here, then, is a double source of fallacy in the statistics of the cardiac complications of rheumatism. Or (3) the patient manifesting no evidence of valvular impairment is, at the termination of his attack of rheumatic fever, discharged as free from cardiac disease. I do not think that such conclusion is to be justified. A valve may be inflamed and give no evidence of incompetence, the patient may be discharged and show no signs of cardiac trouble, but a slow process of shrinking or of sclerosis may be going on; and when the patient next presents himself there may be undoubted evidence of endocardial mischief. This is, I consider, by no means of infrequent occurrence; and this is one reason why a second attack of rheumatic fever is attended with such notable evidence of a highly increased ratio of cardiac complications.

For such reasons as these, I think it is impossible—the sources of error being so numerous—that we can get from statistical inquiry satisfactory evidence as to the efficacy of different plans of treatment in warding off endocardial disease; and I dissent from those who hold that a remedy which is efficacious in the treatment of acute rheumatism ought to show, on numerical inquiry, a favorable influence on the correlated heart disease. I consider the treatment by salicin and the salicylates, even though no favorable results are manifest as regards cardiac complications, to be the most favorable to the patient of all forms of treatment hitherto known. In such cases it may be legitimately asked whether I adopt an altogether pessimist view of the treatment of endocarditis. Can nothing be done? My answer is, much; but it must be in the direction of *preventive treatment*. My own experience is strongly towards the conclusion that endocarditis is more prevalent, as well as more extensive and severe, among the poor than among the well-to-do. This question is one that might with advantage be put to the numerical test; we greatly want the evidence of the family practitioner to compare with that afforded by our hospital statistics. The predisposing causes to the advent of endocarditis, which as I have shown can arise without the intervention of obviously rheumatic phenomena, are most probably (1) exposure to vicissitudes of temperature, (2) an irregular and improper dietary. These are the impulses to a perverted nutrition, resulting in the retention within the blood of those excrementitious products which we may call “the rheumatic poison.” At-

tention to the clothing and proper feeding of infants and children constitutes in my mind, therefore, the treatment of the first importance as regards endocarditis. There is no need nowadays to insist on the importance of preventive treatment as regards the zymotic diseases. This is well recognized. Is it not quite as important as regards the subtle disease we are considering? I would, whilst recognizing the difficulties of such proceeding, strongly recommend the periodic medical examination of children, even though they present no obvious signs of disease.

Of no less importance is the treatment in regard to the zymotic diseases which are correlated with endocarditis—viz., scarlatina and measles. The subject of an attack of scarlatina should be watched with great care for long periods after convalescence. Moreover, the slightest sign of throat ailment, especially with children, should be looked upon with suspicion. I have no doubt whatever that in a large number of instances ulcerative tonsillitis of zymotic type occurs in children unnoticed and unknown, and that in many such a renal complication is instituted which is also neglected. The rise of endocarditis in such case is, as I have said, not during the period of fever. I do not recognize the influence of morbid germs in *directly* occasioning the inflammatory change in the valves. Such change is a consecutive and secondary effect. The teaching I would enforce, therefore, is that the subject of scarlatina, or of the allied forms of throat affection, should be watched, protected, dieted, and treated for periods much longer than is now usual. And as regards measles. There is, unfortunately, a widely-spread tendency to regard measles as a very slight ailment that requires little or no treatment. Experience tells, however, that it is not only the immediate precursor of bronchopneumonia frequently, and heart disease occasionally, but that it effects a deleterious change upon the powers of nutrition, which lasts, as in the case of scarlatina, for long periods. The subsequent treatment, therefore, of the subjects of measles should, in my opinion, be much more protracted than it is at present. Such is an outline of what I consider the common-sense treatment of the first causes of endocarditis. During its rise and progress in an attack of rheumatism, I prefer the treatment by salicin or the salicylates in sufficient doses (usually twenty grains every four hours, till subsidence of the pain and pyrexia, and afterwards the same dose thrice or twice a day). From the evidence of Dr. Isambard Owen, there is a good case in favor of combining with this the administration of full doses of alkalies. Vesication by the application of liq. vesicatorius in the left axilla, I think also of service.

It now only remains for me to allude to the clinical significance of *ulcerative endocarditis*, with regard to indications for treatment. It happens sometimes that this affection arises and runs its course with little or no evidence that the endocardium is impaired. Such cases often present a strong resemblance to typhoid fever. Here treatment is of no avail, the disease is uniformly fatal. By far the most frequently the disease is engrafted, as it were, on chronic disease of the valves. It appears to me that such cases can be divided into two classes, the infective and the non-infective. In the infective cases there are extraordinary disturbances of temperature, multiple emboli and septicæmic signs or even abscesses. It is in such that micrococci are discovered. They are, I believe, specific organisms, associated with some subtle zymotic influence or virus, as in the puerperal cases. It is not that the micrococci induce the endocarditis, but they complicate the already existing endocarditis by inducing necrosis of the dis-

eased tissue. In other cases, though nearly all are characterized by embolism, the proof of infection, and, as I think, the probabilities thereof, are wanting. In a case lately under my care in the London Hospital there was no marked pyrexia whatever, the temperature never exceeding 101° F., and for the most part keeping close to the normal. I consider it most probable that in some such cases the ulceration is induced by mechanical causes. Drs. Wilks and Moxon have pointed out that a great mass of vegetation may cause ulceration of the heart-wall by direct pressure, or a fibrinous clot swinging in the blood-current coming sharply into contact with the muscle, may by friction start an ulcer.* In like manner I think it very probable that a weighty vegetation, or a mass of vegetation, upon a valve may, by agitation in the blood-current, so disturb the nutrition of the endocardium, which constitutes its base, as to start the process of necrosis. The treatment of ulcerative endocarditis, when once established, is hopeless, but the lessons taught by a study of the cases are, I consider: (1) that more than ordinary care should be exercised to keep the subjects of valvular disease of the heart from possible sources of infection; (2) that any threatening of endocarditis should be treated by the most perfect physiological rest attainable; (3) that nutrition should be sustained to the highest degree practicable.

Clinical Lecture

ON

PREGNANCY NEPHRITIS.

By REGINALD SOUTHEY, M.D. F.R.C.P. Lond.,

Physician and Lecturer at St. Bartholomew's Hospital.

GENTLEMEN—I am about to direct your attention to a form of disease which is certainly rare, and of which too few examples pass under our notice in a general hospital. Medical men sometimes practice for years without seeing a case of pregnancy nephritis; and when they do encounter one, find how little formulated their ideas are on the subject, and how unprepared they are to give a prognosis or treat it properly, or offer a reasonable explanation of the evident close causal connection that exists between pregnancy and renal disease. Let me say a few words in preface about the malady. It assails women previously healthy in sequence to their becoming pregnant, begins insidiously without fever or pain, and proceeds to some grave symptom—rapid general dropsy, sudden convulsion, uræmia, or cerebral disturbance—before the patient is aware that anything serious is the matter with her. Mere albumen in the urine of a pregnant woman does not necessarily signify pregnancy nephritis. Abeille¹ found albumen in 1 out of every 10 pregnant women. Van Arsdale and Elliott² found it in 1 in 56, a proportion which appears to me more reasonable. Dr. Roberts, uniting the statistics of Blot, Meyer, Devilliers, and Regnaud together, infers the liability of pregnant woman with albuminous urine to eclampsia to be about 1 in 4. The eclampsia is usually not expected, although precursory symptoms, such as headache, vomiting, delirium, and clouded intelligence, are noticed in several recorded cases. As to the time of occurrence of the convulsions, which is the most dangerous of the

uræmic manifestations, various valuable statistics have been collected. Thus, the nearer to its natural term the pregnancy is conducted, the more likely, in these albuminous cases, is eclampsia to supervene. The subjects of pregnancy nephritis who are prematurely confined most probably escape the eclamptic complication. There are valuable figures collected by Von Wiegner, who tabulated 455 cases showing that the convulsions preceded the commencement of labour in 109 instances, attended the act of parturition in 236, and followed its completion in 110. Now to our case.

Annie B—, aged twenty-three, a domestic servant, was admitted into Faith ward for general dropsy, February, 1882. Her face, legs, abdominal walls, and skin everywhere were extremely anasarcaous. The eyelids were so swollen that she could scarcely look through them; her abdominal cavity also contained ascitic fluid, but besides this she was obviously pregnant as well, although she stoutly denied the imputation of it, for we were able to count distinctly the sounds of the foetal heart and feel the outlines of a child in utero. The catamenia had been absent for six months. There was evidence also of some hydrothorax on both sides, the fluid being largest in amount on the right side; the heart sounds were loud and clear.

History.—She had had scarlet fever at fourteen; otherwise perfectly good health. She told us her present illness began by swelling of the legs, which she first noticed three weeks ago, and was succeeded by cough and shortness of breath, her chief complaint on admission.

State on admission.—Besides her general anasarca and dropsy, her countenance was dusky, her lips somewhat livid, and her mental condition was very apathetic and drowsy. She was rational, but not reliable in her answers. Her pulse was 72; respiration 28; temperature 98·4°; tongue furred and bluish; appetite bad; bowels open, solid action; urine scanty, sp. gr. 1028, high colored, and containing one-quarter its volume of albumen. Her sight, she informed us, was bad, and had been failing for a week, not longer, and certainly was worse the day after her admission, for she then groped about for objects on her locker like a person nearly blind.

The diagnosis, so far as pregnancy nephritis was concerned, was not difficult. But what form of pregnancy nephritis was here, for all are not alike, either in their symptoms, their course, or their issue? and towards prognosis, the distinction which experience has taught me to draw between them severally is, in my opinion, very important. 1. There is eclampsia parturientium, a series of epileptic convulsions concurring with the act of parturition, and coinciding with highly albuminous scanty urine, or with anuria (total defect of urine), preceded by no well-defined or usually noticed symptoms of renal disease, for neither slight nor severe anasarca of the legs attending the later months of pregnancy can be accepted as incriminating evidence of prior or primary renal disease. 2. There is chronic Bright's disease, chronic insidious parenchymatous diffuse nephritis, complicated by pregnancy, quickened and rendered more imminently dangerous by uræmic symptoms, or local inflammatory complications, *pari passu*, with each week of advancing pregnancy. 3. There is pregnancy nephritis proper, a cortical glandular nephritis, an acute change in the nutrition of the renal epithelium, which commences sometimes as early as the third month of pregnancy, but more often in the sixth, and is attended by diminished urination, albuminuria, anasarca of face and limbs, retinal symptoms, uræmic symptoms, vomiting, neuralgia, lung oedema, asthma,

¹ Pathological Anatomy, 2nd Ed., p. 120.

² *Traité des maladies Albumineuses.* Paris: 1863.

³ *New York Journal of Medicine.*

mental perturbation phenomena, convulsions, and sometimes death; but is usually suddenly terminated by premature delivery and subsequent profuse diuresis, and complete recovery. Now, our case, proved to be of this last kind, and this is the form of which I have had most personal experience.

To return to our case. Mr. Barnes, my house-physician, instituted a careful examination of the eyes. He found the fundus of the right eye extremely hazy. The disc, except for a very pale ring at its periphery, was nearly of the same pink color as the surrounding fundus. The margin of the papilla was swollen, and the retinal veins somewhat large; but no hæmorrhages or retinal effusions were observed. Left eye: The disc was swollen, red, and indistinct, but better defined than that of the right eye; the veins of the fundus were enlarged; a dark spot of hæmorrhage was apparent on the outer side of the large descending vein. The patient took fluid nourishment well. She was examined by Dr. Matthews Duncan, who advised gentle purgation, and, if eclamptic symptoms supervened, the induction of premature labour. The fifth day after her admission, meantime making no complaint of labour pains, the patient asked for a bedpan, and told the nurse that she would find something in it—in fact, a dead foetus, to which she had given birth. This was on Feb. 14th. The after-birth came away naturally. The patient lost very little blood; but, in consequence probably of the labour-pains and straining, there was slight hæmorrhage in each upper eyelid, and the conjunctivæ were very cedematous, and both eyes very painful and hypersensitive to light. The temperature was never elevated, the lochial discharge established itself, the general cedema rapidly subsided, her face and legs were obviously less swollen the second day after her delivery, and she passed at least two pints of urine; specific gravity 1025, still containing a quarter of its volume of albumen. She complained of frontal headache and of her eyes, and her sight was so bad that she could only uncertainly count fingers held up between her and the light. The patient took nourishment well, and the only medicine ordered was effervescent tartrate of soda.

Feb. 17th: Passed 85 oz. of urine.

			sp. gr.	1020	album.	¼
18th	"	120 oz.	"	"	10.2	"
19th	"	120 oz.	"	"	10.2	"
20th	"	110 oz.	"	"	10.2	"
21st	"	104 oz.	"	"	10.15	traces
22nd	"	124 oz.	"	"	10.15	traces
23rd	"	132 oz.	"	"	10.13	traces
24th	"	100 oz.	"	"	10.17	nil

On the 18th the note says: Slept well, still headache, tongue clean; pulse 100; respiration 36; temperature 98°. Sight no better. Patch of white effusion on apparent inner side of right disc, which is still red and swollen: Extensive detachment of lower half of right retina in the form of three large cusps. Left eye: Retina red and swollen as before labour, but two hæmorrhagic effusions now visible. On the 28th the sight of both eyes was obviously improved; that of the left was fairly good; right still much impaired.

On March 6th we obtained another ophthalmoscopic examination of her eyes, when, to my surprise, no trace of the previously detached half of the right retina could be discovered; there was intense swelling of the disc with blurring of its edge; the whole fundus was cloudy and indistinct in its deeper layers, and several patches of effusion here and there surrounding, and also surrounded by, spots of pigmentation, could be seen. The seat of previous detachment and bulging of the retina was the part where most pigmentation was apparent.

From Feb. 24th she ate a mutton chop daily, and took a good milk dietary and custard pudding.

The lochial discharge ceased early. All albumen had disappeared from the urine within a week after her delivery. She took a steel mixture during her convalescence, and was discharged quite well and with no complaint about her sight, and able to read the print of the daily papers, on March 15th.

Apart from its interest as a case of pregnancy nephritis, this woman's record shows how completely acute retino-choroiditis and partial detachment of a large portion of a retina may be recovered from. *Desinit causa tollitur effectus*. Unfortunately, in other forms of Bright's disease, while we encounter the same retinal complication, we seldom find a similar capacity of recovery.

So early as 1840, Rayer (vol. ii., p. 399) called attention to pregnancy nephritis, described its principal symptoms, and noticed the tendency of the mother to die of convulsions, and of the foetus to be born prematurely and dead. Lever, in Guy's Hospital Reports, 1843, observed that the urine of nine out of ten parturient women who had convulsions was albuminous. Frerichs, in 1851, first attributed the eclampsia parturientium to uræmic intoxication; and from that time to the present few forms of renal disease have been more written about; the symptoms being calculated to attract attention, a large proportion of the eclamptic cases dying, and a fair proportion of those who survived the act of parturition a week recovering.

In a clinical lecture it would be impossible for me to do justice to the various speculations that have been ventured on the etiology of the nephritis. Many accoucheurs still attribute it to mechanical pressure, notwithstanding Bartels' arguments to the contrary. That the enlarging uterus should press upon the renal veins is scarcely intelligible; that it might press upon the neck of the bladder and increase the urine pressure on the ureters, the pelvis of the kidney, and the tubuli uriniferi, is far from unreasonable however. In favor of mere mechanical pressure as its cause are the established statistical facts:—(1) That this nephritis happens mainly, if not only, in the latter months of pregnancy; (2) that it affects primiparæ principally; (3) that it complicates twin rather than single pregnancy; and (4) that the anasarca and albuminuria subside rapidly after parturition. I can only mention, not discuss, here the primary impurity of the blood theory, Bartels' uræa excess, Gubler's albumen excess, leukæmia and hydræmia—all incident to pregnancy; Peter's overworked kidney theory, and the still more recent vasomotor spasm of the renal arteries theory—these may do duty to explain some particular cases of eclampsia; they will not explain all the urinary symptoms of pregnancy nephritis, or the pathological changes most commonly found in the kidneys of those who die.

From Leyden and Wagner I give you the ordinary morbid changes which are found in the kidneys of typical pregnancy nephritis (Wagner, "Morbus Brightii," p. 196). The kidneys are to naked-eye inspection little altered, slightly enlarged, rather bloodless than blood gorged, a little soft to feel, and a little yellowish colored. Under the microscope, the tubuli are observed a little dilated, their epithelium swollen, and either finely granular from fat or albumen, completely filling up some of the canals of the tubules. Only a few casts are seen *in situ* in the tubules. The glomeruli are mostly bloodless, the capsular epithelium is in some detached, in others there is a half-moon of albuminous material between the capillary tuft and capsule. The stroma of the kidney is normal or cedematous. In a few cases (Virchow and Bartels are agreed on their extreme rarity) the ordinary appearances of hæmorrhagic nephritis have been found, and Litzman observed several times recent changes like those described above welded

evidently upon kidneys which presented characteristic evidence of old chronic diffuse renal disease. The following case, taken from an article by Leyden, confirms the pathological accuracy of the description above given from Wagner:—

A. J—, aged twenty-eight, a previously perfectly healthy woman, passed through a normal gestation in a first pregnancy up to the seventh month, when she noticed that she required to urinate unusually frequently. Shortly afterwards her ankles began to swell and the dropsy rapidly extended to her legs, genitalia, and back. She complained of the weight of her legs and shortness of her breath. Temperature 36.5° C.; pulse 72, regular, of moderate high tension; heart and lungs normal; urine 1,000 cc. per diem, sp. gr. 1035, thick, coffee-colored, presenting moderate sediment, but containing much albumen. The sediment contained no red cells; some white ones, free fatty renal epithelium, and hyaline casts. About a fortnight later labour came on suddenly, the swollen labia suffered some laceration; rigors occurred the day after, septicæmia and death on the sixth day.

Post-mortem Examination.—(The state of the kidneys alone need our attention). Left kidney: Swollen surface of grey-yellowish color, slightly oedematous; veins full; section anæmic; substance doughy; medullary portions, especially the ends of the cones, pale. Right kidney similar, but rather more fatty-looking, doughy, enlarged; its pelvis and ureter obviously dilated. The microscope demonstrated some casts *in situ*; fatty infiltration of renal epithelium; no alteration of vessels or glomeruli; no nuclear proliferations, but here and there a few groups (foci) of micrococci in the stroma (patient died of septicæmia) between the straight tubes of the pyramids. The writer says that these appearances differ *in toto* from scarlatinal nephritis; there is no venous hyperæmia, rather arterial anæmia, and secondary to it fatty necrosis of renal epithelium.

A point I wish to insist on, even if my own case has not illustrated it enough, is that the kidney in true pregnancy nephritis does not suffer any irreparable injury; that its disturbance is mainly functional at first; that less urinary water is secreted; and that what is secreted is of high specific gravity, high color, but affording little sediment, and seldom blood; that later on the evidence is forthcoming of nutritional failure in the renal cells. The most characteristic features of the malady agree entirely with my daily clinical experience of ordinary acute parenchymatous nephritis—scanty high-colored urine, with little sediment, but having a large percentage amount of albumen. As the case goes on from first appearance of dropsy and albuminuria, both these steadily increase, until convulsions, or premature parturition, or both these together, ensue. The rapidity with which the dropsy disappears and the urine becomes normal again after parturition, was noticed years ago by Regnaud and Devilliers, who recorded a case in which all albumen had disappeared fourteen days after delivery. In our own case six days after delivery the woman's urine contained not a trace; and although for three weeks longer we were able to find a trace usually, yet this was of small pathological importance, far too little to signify much. She was passing a healthy amount of urine and of urea, and no albumen in her discharge. *De futuris non est predicandum.* The prognosis for her is good, unless she becomes pregnant again, when the same nephritis is apt to repeat itself. Further experience teaches us that while with each succeeding pregnancy dropsy, al-

buminuria, and uræmic complications recur, the woman becomes more tolerant of her fœtus, the nephritis is continued for a longer time, and the damage to the kidney is more extensive and more apt to pass on to chronic nephritis when delivery is over. Indeed, I can record one case in a relation of my own, who suffered pregnancy nephritis with three successive pregnancies. The first fœtus was born somewhere short of the sixth month, but had been dead six weeks at least; the second was born in the seventh month dead; the last was carried to term, born alive, and is now alive. Between the first two pregnancies all albumen disappeared from her urine; after her last pregnancy and delivery albumen remained persistent until her death by uræmia.

Advice upon treatment.—Distinguish between the three varieties of pregnancy nephritis already noticed. Eclampsia parturientium with albuminous urine, but without notable dropsy, is relieved by chloroform, chloral, amyl nitrite, nitro-glycerine, bloodletting, warm baths, by all those things which relieve spasm, by completed delivery. Chronic Bright's disease, complicated by pregnancy, is best treated upon the ordinary plan for Bright disease, and its several accidents, by hot baths, warmth, careful dietary, gentle purgation. True pregnancy nephritis demands the induction of premature labour, the earlier the better, and requires that the medical man should plainly inform his patient of the risks to life entailed by any future pregnancy. The dropsy may also require relief by draining with fine cannulas, to avoid the risks of laceration of the genitalia and invitation of septicæmia.

ABSTRACT OF

Lecture

ON THE EVOLUTION OF THE STETHOSCOPE.

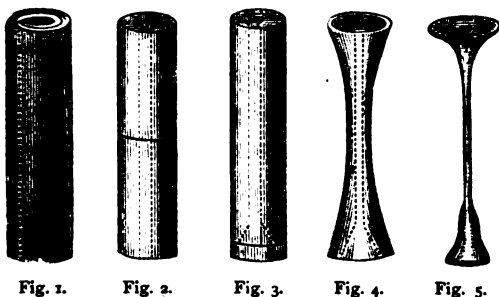
By SAMUEL WILKS, M.D., F.R.S.,

Physician and Lecturer on Medicine, Guy's Hospital.

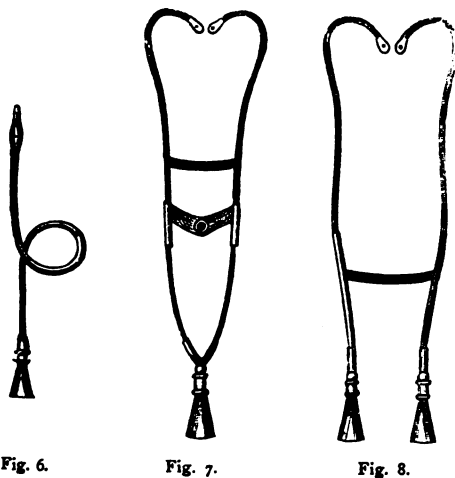
INSTEAD of placing on the table every imaginary form of stethoscope manufactured out of every possible material gathered from the shops of the instrument makers, I will carry you back to the origin of the stethoscope, and you will see how, on the principle of selection and the survival of the fittest the primitive instruments have departed from the scene and are now only to be found amongst the fossilized curiosities, the relics of former ages, on the antiquated shelves of some very old medical practitioner. The stethoscope, as you know, was invented by Laennec. He relates how in the year 1816 he happened to recollect a well-known fact in acoustics of solid bodies conveying sound, and he goes on to say: "Immediately on this suggestion I rolled a quire of paper into a kind of cylinder and applied one end of it to the region of the heart and the other to my ear, and was not a little surprised and pleased to find that I could thereby perceive the action of the heart in a manner much more clear than the application of the ear." "The first instrument which I used was a cylinder of paper formed of three quires completely rolled together and kept in shape by paste." Laennec then goes on to describe how he copied this roll of paper in wood, metals, glass and other substances, and finally he says: "In consequence of these various experiments I now employ a cylinder of wood an inch and a half in diameter and a foot long, perforated longitudinally by a bore three lines wide and hollowed out into a funnel shape to the depth of an inch and a half at

one of its extremities. It is divided into two portions, partly for the convenience of carriage and partly to permit its being used of half the usual length. The instrument in this form—that is, with the funnel-shaped extremity—is used in exploring the respiration and rattle; when applied to the exploration of the heart and voice it is converted into a simple tube with thick sides, by inserting into its excavated extremity a stopper or plug traversed by a small aperture and accurately adjusted to the excavation. This instrument I have denominated the *stethoscope*.

Fig. 1 represents Laennec's roll of paper, and Figs. 2 and 3 the copy of this in wood as he de-



scribes. The latter figure is drawn from an instrument kindly given me by Dr. Galton, of Norwood, being the stethoscope long used by his father. It does not separate into two pieces, but contains the plug which can be removed so as to leave the end hollow. Fig. 4 is the same instrument with the sides cut out to make it lighter and more elegant, the ear piece being the same as before and the mouth also hollowed out. This was the stethoscope used and recommended by the late Dr. Hughes. By making the instrument still more elegant and slender we have the modern stethoscope



in endless variety, as in Fig. 5. It is thus very evident how the modern instrument has been framed out of the original block of wood which was made the counterpart of Laennec's roll of paper.

I know not who invented the instruments with flexible tubes, but I have no doubt that a search into medical history could tell us. I remember, however, that the first flexible stethoscope which I ever saw was the one depicted in Fig. 6, and used by Dr. Golding Bird when he saw out-patients in

the year 1843. Being much crippled with rheumatism, and therefore not wishing to rise from his chair, he found this instrument very convenient; he also was enabled to pass the ear-piece to gentlemen standing near him, whilst he held the cup on the part to be examined. I always thought it was his own invention. But, whether so or not, I do not think any great effort of genius was required to frame a flexible instrument, and then adapt it for the use of one or two ears. This being done, the next step would be to make two mouth-pieces to apply to the chest at different spots. Various modifications of these instruments have been made of late years, but the first notice of them I have any knowledge of in my reading is to be found in a letter to *THE LANCET* of Aug. 29th, 1829, by Mr. Comins, of Edinburgh, headed "A Flexible Stethoscope." This was only twelve years after Laennec's invention. It is difficult from his description to picture the instrument, but it seems to have been composed of jointed tubes, and made for two ears as well as one. Mr. Comins expresses his surprise that the discoverer of mediate auscultation did not suggest a flexible instrument, as he says "it can be used in the highest ranks of society without offending fastidious delicacy."

A very interesting fact was first pointed out to me by Dr. Andrew Clark, with respect to a peculiarity of the binaural in the objective appreciation of sounds; that if each ear-piece be separately used, and any sound be made near the mouth-piece, it is heard in the ear itself, but if the two pieces are employed together the sound is heard at the spot where it is produced. The fact is very interesting in a physiological point of view, and further corroborates the theory as to the value of a double set of senses, or, in a word, of the body being made up of two halves, for just as the two hands feeling different parts of an object gain an idea of extension, and the two eyes by obtaining different views of any substance get a knowledge of its solidity, so in the same way the two ears listening to the same sound more thoroughly appreciate its objectivity.

If you look at this series of drawings you may perceive but little resemblance between the first figure and the last, but take them one by one and you will see that the figures are really progressive. My story of development is not imaginary, but historical.

Clinical Lecture

ON

THE MECHANICAL TREATMENT OF CARIES OF THE LUMBAR VERTEBRÆ.

Delivered on December 7th, 1882,

By Dr. M. JOSIAH ROBERTS,

Instructor in Orthopædic Surgery and Mechanical Therapeutics in the New York Post-Graduate Medical School, Visiting Orthopædic Surgeon to the City Hospitals on Randall's Island, etc.

GENTLEMEN—Let us examine the patient before us, with the hope of eliciting facts that will be of service in determining upon a plan of treatment. To save time I will tell you that this little four-year-old girl is suffering from chronic spondylitis of the first, second, and third lumbar vertebræ. The disease has existed for more than a year. It is slowly but surely affecting a solution of anterior vertebral continuity, while the posterior part of the column has remained intact. The arches and spinous processes of the involved vertebræ retain n

ing their integrity, there is a sinking of the bodies of the healthy segments of the spine above, and a forward curvature of that part of the column. As a result we have a corresponding posterior projection, which in this case, though well marked, has not proceeded so far as to render its ultimate obliteration hopeless. If we closely watch our little patient as she moves about from place to place, picking up pennies from the floor, you can observe two things. First, all her movements are conducted with unusual care for a child, and with great regard to the avoidance of any sudden motion or jarring of her body; secondly, owing to a spasm of the muscles of the back, there is no lateral or antero-posterior flexion and extension in the lower dorsal or lumbar regions. With her spine held rigid she squats upon the floor instead of bending over in the usual manner. Upon placing her in the ventral decubitus, and attempting backward extension of the dorso-lumbar vertebræ, we are at once met with opposition on the part of the tetanized muscles. Furthermore, the patient shows evident signs of discomfort. There is a reflex muscular spasm which prevents movement of the vertebræ. This condition of reflex spasm, securing articular immobility, can also be observed, as I have told you, in cases of osteitis of the hip, knee, or ankle. It is said to be Nature's method of placing the joint at rest and securing freedom from irritation to the diseased structures, which would otherwise result from articular motion. Upon this observation alone has been built up the prevailing system of mechanical therapeutics as applied to the treatment of chronic inflammations of the joints. To carry out this idea, "fixation" splints and "absolute immobility" splints and dressings have been devised for all the principal joints of the body, and are to-day in use throughout the civilized world.

There still remains another principle which is largely used in mechanical treatment of articular inflammations, which we have not yet elicited from the examination of our patient. If, with the diseased segments intervening, we make traction upon the spine in opposite directions (extension and counter-extension), and continue it for a sufficient time, we will find that the tetanized muscles will gradually soften and the patient will experience a greater degree of comfort and less apprehension. This observation has in recent times added another idea to the mechanical treatment of articular diseases—viz., that of extension for the relief of reflex muscular spasm. There are, therefore, two principal ideas involved in the prevailing methods of mechanical treatment: "traction" (extension) and "fixation," and these two ideas have been based upon the observations we have just made.

The point which I wish to make now is that these observations, though correct so far as they go, do not place us in possession of the whole truth. In carrying out this idea of extension, surgeons have generally failed to recognize the fact that the "extension" enforced by means of their mechanical appliances was not the same kind of extension which they had previously made with their own hands, and ascertained to be so acceptable to the patient. Manual extension is elastic; the prevailing mechanical extension is rigid. Let us examine our little patient still further, and see if we can elicit other facts which will point to wider truths and serve as guides to more rational treatment. As she stands in front of me I place my hand upon her thorax, just under the armpits, and lift gently upwards. Holding her with a firm and steady hand in this position, let us observe the result. At once she says "that feels good." In support of the truth of her statement let me inci-

dentally tell you what happened when I first suspended her some weeks ago for the purpose of taking a plaster mould of her body. So great was the relief afforded that within two or three minutes after she was placed in the apparatus and the superimposed weight removed from the diseased vertebræ she fell asleep, and though we continued our work, she remained in this condition until she was taken out of the swing.

Continuing to hold my little patient in this position, the reflex muscular spasm which has existed all along is gradually and surely overcome, and now my assistant, laying hold of her pelvis, makes forward, backward, and lateral movements of the spine in the affected regions, and as you see, apparently without the slightest inconvenience or discomfort to the patient. Thus we have demonstrated that "fixation" of the diseased vertebræ is not essential to the comfort of the patient, and that manual "extension" (which is necessarily elastic extension), combined with thorough support, are really the important factors in overcoming reflex muscular spasms, abolishing the feeling of apprehension and affording entire comfort to the patient.

Now, let us summarize the results of our observation. By efficient manual extension and support, relieving the involved segments of the spine from superimposed weight, we have, without "fixing" or "immobilizing" the carious vertebræ, secured entire comfort to the patient. The traction used to overcome reflex muscular spasm has been made with our hands, and hence has necessarily been elastic; there has been no rigid extension or fixation, only efficient support and elastic extension; neither have we interfered in any way with the proper performance of function by the healthy part of the spine. Could this condition of perfect comfort, so easily brought about by skilful manipulation of the inflamed vertebræ, be prolonged indefinitely, all must agree that it would be of the greatest advantage in promoting speedy recovery. We would thus be enabled at once to so circumstantiate the diseased spine that its motions would not be materially interfered with, and hence an important aid to the maintenance of a normal circulation would be retained throughout the period of treatment. The point which I here wish to emphasize is that articular motion throughout the body, both in the lower animals and in man, like the analogous movements in plants, is of much greater importance than has hitherto been supposed. It aids in the maintenance of a normal circulation, and hence in supplying the requisite nutrition and sustaining a favorable temperature for the growth and development of the individual, the renewal of tissues subject to successional decay, and the carrying on of reparative processes in case of disease. Furthermore, I shall demonstrate to you, that articular motion in disease, in conjunction with muscular action, can, by the aid of properly constructed mechanical appliances, be made to subserve the same general and local purposes which it does in health. One of the main features of this disease, as I have already pointed out, is the lowering of general and local nutrition. Hence, if we can by any possible means secure all the benefits which the united testimony of the profession have ascribed to "rigid extension" and "fixation," without "fixation" and without "rigidity," we will have at once more nearly approximated the condition of health, instead of having imitated the conditions we find in disease. We will have thus gained a great practical point, for "fixation" of a joint necessarily has a depreciating influence upon the local nutrition, and "rigid extension" does not reduce the jar incident to locomotion to the minimum.

We must substitute some mechanical device for this manual support, and for obvious reasons it is important that the patient be permitted to walk; that the support used be portable. To accomplish this by means of a single splint or apparatus, and to have the force which is exerted upon the spine in the various directions elastic, as it is when the hands are used for support, would seem to be a somewhat difficult mechanical problem to solve. That this is possible I wish now to demonstrate.

As I have elsewhere described,¹ the dressing to be worn can be applied directly to the patient, but for reasons which I cannot here discuss, the plan that I shall now employ is to be preferred. It is essential to get an accurate cast of the body upon which we can fashion our mechanical prop, so that it will fit the patient when applied. To obtain a cast we must first make a mould of the body. A tightly fitting knit shirt is now drawn over the cast, and we proceed to apply over it rollers of plaster bandage. Having applied a thin but uniform layer of gypsum over the entire cast, four pairs of light steel brackets are placed in

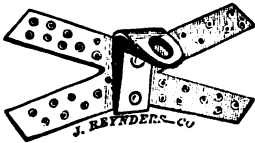


Fig. 1.

position upon it. These have thin perforated sheet-copper arms attached to them, in order that they may be securely held in position by layers of plaster bandage passed over them (Fig. 1). They are arranged in pairs one above the other (*vide*



Fig. 2.

dotted lines, Fig. 6), and temporarily held in place with a rubber band (such as is used to hold bundles of papers together), slipped over the cast.

¹ The Medical News, Oct. 14th, 1882.

Two pairs of brackets are placed behind, one upon either side of the spine, and one on either side of the body, in front of the arms. These brackets are for the purpose of retaining the elastic spinal extension bars, presently to be described, in position. A wet roller, saturated with gypsum, is now carried over the brackets, the projecting part of them only remaining uncovered. This holds them securely in position. When the dressing has become thoroughly dry a circumferential division of it and the shirt into an upper and lower segment is made at the smallest part of the waist. A longitudinal section, four or five inches in width, is next cut out of each segment in front. This permits of their easy removal from the cast without disturbing their shape. As will be seen later on, the same is true in regard to their application to, and removal from, the patient. At this stage we



Fig. 3.

have to call in the aid of an instrument maker. It will be his business to fit and attach metallic clasps to these segments. The clasps extend across the space left by the removal of the wide section of plaster dressing in front, thus completing the circumference of the body. Three of these are re-

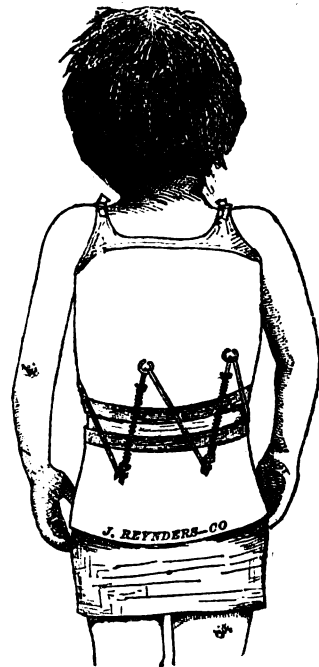


Fig. 4.

quired, two for the upper and one for the lower segment (*vide* Fig. 2). The ends of these clasps, upon one side, are secured to the plaster dressing by hinges; and upon the other side are kept from sliding upward or downward by steel pins projecting through slots made in them. When the segments are applied to the patient, the clasps are closed and secured in position by means of strong bands of elastic webbing buckled over them, as

can be seen in Fig. 2. This arrangement permits of the easy removal and reapplication of the segments at the pleasure of the surgeon. The rubber bands admit of the necessary expansion of the thorax with each inspiration, and at the same time the efficiency of the support is not invalidated. I should also call your attention to the fact that the clasps are curved, so as to correspond to the contour of the chest and abdomen. This prevents undue pressure upon these parts, thereby avoiding

through which the extension bars pass are large enough to admit of a very considerable amount of motion, while at the same time continuous elastic extension of the spine is maintained. You will observe that, by means of this mechanical appliance, we have placed the spine under very nearly the same conditions that it was when I extended it with my hands, and my assistant made forward and backward movements of the involved part.

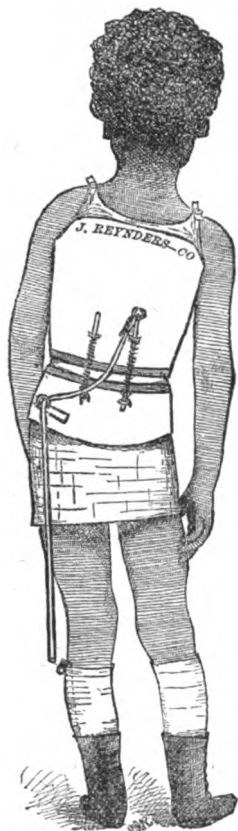


Fig. 5.



Fig. 6.

the objectionable feature common to all corset casings used in securing spinal supports in position. The segments having been placed in position on our little patient, and held by the bands of elastic webbing as above indicated, we now adjust the elastic extension bars. These are four in number. They consist of steel rods turned up at one end, as shown in Fig. 3. Each is provided with a nut and strong spiral spring. They are secured in position by passing their upper and lower ends through the perforations in the projecting part of the brackets, that have been previously embedded between the layers of plaster bandage (Fig. 4). The weight of the body, which is now sustained by the upper segment resting on the springs, serves to keep the extension bars in place. With a wrench the nuts may be moved up or down, and any desired amount of elastic extending force exerted. The improved position gained by suspension is thus preserved. By moving up the nuts from time to time, the kyphotic curve may be still further reduced without producing the slightest irritation. The perforations in the brackets

When rotation of the spine exists in conjunction with posterior curvature, as in this case, it can be very readily overcome in the following simple manner. To the summit of one or more of the extension rods, a nut, bearing two arms curved upward so as to make almost a complete ring (Fig. 4), is screwed. Rubber bands, such as are procurable at stationery stores, are now passed from the summit of one steel rod to the base of another, as seen in the figure. It should be remembered that these do not oppose the action of the steel springs, as would be the case if they were attached directly to the upper and lower segments of the jacket. They are attached to opposite ends of rigid steel bars. Any desired amount of elastic rotating force can thus be exerted, while at the same time continuous elastic extension of the spine is maintained.

Occasionally you will meet with cases in which the spinal column will be tilted to one side (Fig. 5). This is not unfrequently due to unilateral weakness of the muscles of the lower dorsal and lumbar regions. The improved position gained

by suspension is not maintained, no matter with how much skill the dressing is applied. And for this reason the power of the spinal lever is not applied below, or external to the weakened muscles. Were it practicable to carry a rigid spinal prop below the hip joints down upon the thighs, the improved position of the spine gained by suspension would be readily maintained. In a case such as is represented in Fig. 5, it will be found by placing the forefinger of one hand under the right axilla, and that of the other on the left hip, and exerting slight cross pressure, the patient will at once assume the upright position. As a permanent substitute for this finger pressure, I have used with entire satisfaction the following appliance. In the centre of a perforated strip of light tin about four or five inches long and three-eighths of an inch wide, a short thin piece of steel plate bearing a small ring is soldered. During the application of the dressing to the plaster cast one of these is incorporated between the layers of bandage over the left gluteal region, as shown by dotted lines in Fig. 5. As is also shown in the same figure, a nut of the form already described is screwed to the top of the extension rod on the right side of the spine. To this is attached one end of a long solid rubber cord, six or seven millimetres in diameter. The other end is passed through the ring which projects from the surface of the jacket below, and then attached to the shoe. A strip of non-elastic webbing, long enough to reach from the ankle to the knee, is sewed to the top of the shoe on the outer side. This is passed to the inside of the stocking through a button-hole in it just above the upper margin of the shoe. The free end of the strip of webbing is provided with a ring. Through this ring the lowest end of the elastic cord is passed and drawn sufficiently tight to overcome the distortion, when it is fastened by a simple half hitch or knot. This elastic cord does not oppose the lifting action of the spiral springs as it would were it attached directly to the upper segment of the jacket.

Original Papers.

PNEUMONIA.¹

By FRANCIS DELAFIELD, M.D.,
Professor of Pathology and Practical Medicine.

WE use the word pneumonia as a general term to designate the inflammations of the lungs. Anatomically there are four varieties of pneumonia: intra-alveolar pneumonia, interstitial pneumonia, the broncho-pneumonia of children, and tubercular pneumonia. You will observe that I do not use the words croupous and catarrhal pneumonia, and this is with design, for I believe that these terms are utterly inappropriate when applied to inflammation of the lung, and have led to much unnecessary confusion.

The most practical division of pneumonia, however, is according to the clinical groups in which the cases present themselves to us. We will, therefore, describe: The lobar pneumonia of adults; the secondary and complicating pneumonia of adults; the pneumonia of heart disease; the interstitial pneumonia of adults; the broncho-pneumonia of children; acute tuberculosis of the lungs; acute pulmonary phthisis; chronic pulmonary phthisis.

¹ A lecture delivered at the College of Physicians and Surgeons, New York.

The Acute Lobar Pneumonia of Adults.—The inflammatory process regularly attacks at the very first a considerable portion of one or both lungs. The situation of the disease can be seen from the following figures given by Juergensen from an analysis of 6,666 cases: Right lung, 53.7 per cent.; upper lobe, 12.15; middle lobe, 1.77; lower lobe, 22.14; whole lung, 9.35. Left lung, 38.23; upper lobe, 6.96; lower lobe, 22.73; whole lung, 8.54. Both lungs, 8.07; both upper lobes, 1.09; both lower lobes, 3.34 per cent. In rare cases nearly the whole of both lungs will become inflamed at the very outset. The inflammatory process involves regularly the air vesicles, air passages, bronchi, interstitial connective tissue, and pulmonary pleura. It is customary to describe the inflammation as passing through four stages: congestion red hepatisation, grey hepatisation, and resolution.

Congestion.—This stage usually escapes our observation for the reason that the patients do not die until later in the disease. The best example of the lesion that have I seen occurred in a woman, who died five hours after the initial chill. The right upper lobe was found firmer and more consistent than the rest of the lungs, but not hepatized. It was moderately congested and oedematous. The air vesicles contained a little granular matter, a little reticulated fibrine, a few pus cells, and a few epithelial cells, but not enough to fill the vesicles. There was a large number of white blood-globules in the capillary bloodvessels, and a swelling of the epithelial cells on the walls of the air vesicles. This first stage of congestion lasts but a few hours and is succeeded by

Red Hepatization.—The lung is now solid. Its cut surface, when fresh, is dry, granular, and red. The granules correspond to plugs of inflammatory matter which fill the air vesicles, air passages, and small bronchi. These plugs consist of pus cells, fibrine, epithelial cells, and red blood-globules. The air vesicles are not only filled, but distended by these inflammatory products, so that the inflamed portion of lung is voluminous and may compress the uninfamed portions. The interstitial connective tissue between the lobules of the lung is infiltrated with pus and fibrine, the pulmonary pleura is coated with fibrine. Of the fatal cases of pneumonia, in which I have made autopsies, about one-fourth have died in the stage of red hepatization, and the duration of the disease in these cases has been from twenty-four hours to eleven days.

Grey Hepatization.—The lung remains of the same consistence, solid and un aerated, but its color changes. Portions gradually change from red to grey, so that the lung is first mottled red and grey, and then completely grey. The pulmonary pleura continues to be coated with fibrine; the small bronchi, air passages, and air vesicles are still filled with pus, fibrine, and epithelium, and the interstitial tissue is still infiltrated with fibrine and pus. The only changes are that the red globules have lost their coloring matter, the bloodvessels contain less blood, the products of inflammation commence to undergo granular and fatty degeneration. I have found that about one-half of the fatal cases die in the condition of mottled red and grey hepatization, and about one-fourth in the condition of complete grey hepatization. The deaths with the mottled lungs occurred from the second to the eighteenth day, with the grey lungs from the fourth to the twenty-fifth day.

Resolution.—If the patients recover, the lung passes from the condition of grey hepatization into that of resolution. This stage of the inflammation usually escapes our observation, but occasionally patients die from accidental causes, and

in this way I have seen a few examples of this condition. The lung is no longer completely solid or completely grey, but there is a mottling of solid grey and aerated red portions of lung. Some of the air vesicles are completely empty, some contain a little granular matter, some fatty epithelium and pus, some are still filled with the products of inflammation.

The lung may remain in the condition of gray hepatisation for two or three weeks. It then becomes very white and dry, but there is no special change in the inflammatory products. I can see no reason for believing that this form of pneumonia ever passes into the condition of cheesy degeneration.

There are rare cases of lobar pneumonia in which fibrine is produced in unusually large amount, portions of lung tissue are compressed and become necrotic. In this way little cavities are formed containing fragments of dead lung tissue. Later the walls of these cavities are infiltrated with pus, so that abscesses are formed.

It is also possible for the inflammatory process to be characterized by an unusual production of pus, and even an infiltration of the walls of the air vesicles with pus. But I have never seen this condition reach such a degree as to form abscesses. The small bronchi are regularly filled with pus and fibrine, and in some cases the inflammation of the large bronchi becomes quite a feature of the disease. The inflammatory process may be catarrhal with a production of mucus, or croupous with the production of large cords of fibrine, which fill the bronchi. The pulmonary pleura is regularly coated with fibrine, but in some cases the pleurisy is developed to an unusual degree. Both pulmonary and costal pleura may be coated with a thick layer of fibrine and pus, and the pleural cavity may contain a considerable quantity of serum.

In rare cases lobar pneumonia is followed by gangrene of the lung. It is still unknown how this change is effected.

From what has been said it is evident that in lobar pneumonia we have an example of that form of inflammation in which the blood and the blood-vessels take the principal share in the inflammatory process, while the tissue of the organ remains passive. The pus and fibrine are derived directly from the blood; it is only the new epithelial cells that are produced from the lung tissue. With few exceptions the blood continues to circulate through all the vessels of the lung so that no part of the organ loses its vitality. When the inflammatory process, therefore, has run its course and the products have been absorbed the lung is left unchanged in its structure.

Etiology.—Lobar pneumonia occurs in nearly all climates, warm as well as cold. In the United States it is even more prevalent in the Southern States than in the Northern. To ascertain the prevalence of the disease in New York city, I have examined the records of the Board of Health for a period of four years, beginning on March 1st, 1871. These records give all the fatal cases of pneumonia occurring during that period. After excluding all the secondary and complicating pneumonias, the whole number of fatal cases for the four years was 7,873. Of these 3,623 were in children under five years old. In persons over five years old the great majority of deaths occurred in March, April, May, November, December, January, and February. January showed the largest number of cases, then February, April, May, and March in order. Comparing the mortality with the daily temperature and the daily range of temperature, it was found that the number of cases of pneumonia increased regularly with the lowness of

the temperature and the extent of its daily range.

There can be no question that in a moderate number of cases of pneumonia the disease is developed within a few hours after exposure to cold and wet, but in many other cases no such exposure can be discovered. There is a difference in different years and in different places as to the frequency and mortality of the disease. Occasionally local epidemics occur in a single building or a single town.

Considerable attention has been directed lately to the question of the character of pneumonia, whether it is a general disease with a characteristic local lesion, or a local lesion attended with constitutional symptoms. It is not necessary for me to lay before you the reasons for these two opinions. It is sufficient to say that the prevailing opinion is that pneumonia is a general disease, while I am still of the belief that it is a local inflammation.

As a rule, children under five years old have broncho-pneumonia; persons between five and fifteen years of age may have either lobar pneumonia or broncho-pneumonia; persons over fifteen years old have lobar pneumonia.

Physical Signs.—In the stage of *congestion* the regular signs are moderate dullness and a subcrepitan râle. As soon as there is pleurisy a crepitan râle is developed.

While in the condition of *red and grey hepatisation*, the inflamed lung gives dullness on percussion, increased vocal fremitus, bronchial voice and breathing.

In the stage of *resolution* the dullness and the vocal fremitus decrease, the bronchial voice and breathing become less and less marked, crepitan, subcrepitan, and coarse râles are heard.

In the stage of *congestion* there may be no dullness nor râles, nothing but a change in the breathing. The respiratory murmur may be feeble, or harsh and exaggerated. Occasionally a bronchitis of the larger tubes is developed at the outset of the disease, and then we hear coarse râles all over both lungs.

In the stages of *red and grey hepatisation* the percussion note, instead of being dull, may be flat, tympanitic, amphoric, or cracked pot. Vocal fremitus, instead of being increased, may be decreased. There may be neither bronchial voice nor breathing.

In the stage of *resolution*, dullness, crepitan râles, and feeble breathing may persist for an unusual length of time.

All the physical signs are apt to be obscure in old persons, and may even be absent altogether.

Rational Symptoms.—The invasion of the disease is in about one-fourth of the cases preceded by an irregular fever with moderate prostration, lasting from one to four days. In the rest of the cases the invasion is sudden. One or more rigors of greater or less severity are the first symptoms of the disease in most cases. (Lebert 92 per cent., Grisolle 80 per cent.) It is customary to reckon the duration of the disease from the time of the initial chill. The temperature rises at once, and usually reaches its maximum by the second or third day. After this it is a continuous fever, with evening exacerbations, until defervescence takes place. Defervescence may take place at any time from the second to the eighteenth day, but in more than half the cases it occurs on the seventh, fifth, eighth, or sixth days (Juergensen). The fever usually begins to subside in the evening, and requires from six to forty-eight hours for its disappearance. After defervescence the temperature may fall for a few hours below the normal. A temperature of from 99° to 104° F. may be called the

normal temperature of lobar pneumonia in adults. Higher temperatures indicate abnormal forms of the disease. If the inflammation extends and involves other parts of the lungs, then the fever is protracted, or returns again after defervescence. In exceptional fatal cases the temperature is below the normal for two or three days before death. Sweating accompanies the fever in a considerable number of the cases. It is often profuse and persistent. In other cases, however, the skin is always hot and dry. Pain is regularly developed within twelve hours after the chill. It is sometimes slight, sometimes severe, sometimes absent. It is referred to the affected side, usually to the region of the nipple. This pain is apparently due to the associated pleurisy. The pulse should be somewhat increased in frequency and of fair strength—about 100. A feeble pulse of over 120 should always excite apprehension, even if the patient is apparently doing well. Slow pulses of 60 to 70 are met with in exceptional cases. The respiration at once becomes rapid, rising to 30 or 50. Not only is the breathing rapid, but it may be labored, especially during the first twenty-four hours of the disease. In some cases the oppression and dyspnoea are at this time very urgent, so much so that the patient feels that he will die unless immediate relief is afforded. Cough is developed within a few hours, moderate in some cases, harassing in others, often absent in old people. With the cough is an expectoration, at first white and mucous, later mixed with blood and pus so as to have a yellowish or reddish color. The sputa regularly consist of two parts, a thin watery fluid and little rounded pellets of more consistent and tenacious mucus. In bad cases the whole sputa may be thin and dark-colored, like prune juice. I have seen in one case an hæmoptysis of about three teaspoonsful of pure blood at the outset of a lobar pneumonia. Cases with nothing but white mucous sputa are not uncommon; and in old persons there is often no expectoration at all. The cheeks are usually flushed. The tongue is coated with a white fur, and in severe cases becomes dry and brown. The appetite is lost, and vomiting may be repeated several times at the beginning of the disease. The urine is diminished in amount, high-colored, and occasionally contains albumen and casts. Cerebral symptoms are present in greater or less degree in most of the cases. A peculiar irritability and restlessness with inability to sleep are very common symptoms. In more severe cases headache, delirium, stupor, and coma are also present. Such cerebral symptoms are especially marked in alcoholic patients, in old persons, and with pneumonia of the upper lobes.

Complications.—Pleurisy with a considerable exudation of serum complicates about 12 per cent. of the cases (Grisolle). It is apt to persist after the resolution of the pneumonia. If it is a purulent pleurisy, the patients usually die. Pericarditis, usually with the production of fibrine without much serum, complicates some cases, especially if both lungs are inflamed. In some cases the only evidence of such a pericarditis is the fact that the patient seems more seriously ill. In other cases the pericardial friction sound is heard, the pulse becomes more rapid and feeble, the blood accumulates in the veins, the breathing is more rapid and labored. Meningitis may be developed sometimes without symptoms, sometimes with severe headache, great restlessness, delirium, contractions of the voluntary muscles, stupor, and coma. Jaundice is observed in a moderate number of cases. It may complicate mild examples of pneumonia without apparently adding anything to the patient's symptoms; or it may appear in the course of a more severe pneumonia and be attended with

more marked cerebral symptoms. The kidneys may become the seat of a moderate degree of parenchymatous nephritis, or they may have been in the condition of chronic diffuse nephritis before the pneumonic attack. In the latter case there may be general convulsions.

The Course of the Disease.—In regular cases, after a few hours or days of irregular fever and prostration, or without any premonitory symptoms, the patient is seized with one or more rigors, followed by a febrile movement. He at once feels seriously ill, may vomit, and complains of oppression and difficulty of breathing. The next day, after a restless night, the patient lies in bed with flushed face, a hot, dry skin, a tongue coated and white, rapid breathing, a temperature of 100° to 103°, a pulse of about 100, and full; there is pain in the affected side of greater or less severity, cough with mucous expectoration, and the physical signs of congestion, or of red hepatisation. All these symptoms continue; the temperature from 100° to 104°; the pulse 90 to 100; the breathing 25 to 40. The physical signs are those of red and grey hepatisation. The sputa have the color and shape characteristic of the disease. On about the seventh day of the disease defervescence takes place. The temperature falls to the normal, or below it; the pulse and breathing become less rapid; the tongue begins to clean off; the restlessness disappears, and the patient feels quiet and comfortable. The physical signs of resolution continue for a few days, then disappear, and the patient is fairly convalescent.

Cerebral Cases.—In patients addicted to the use of alcohol, in old people, and in cases of pneumonia of the upper lobes, cerebral symptoms are especially marked. Professional and business men are more likely to have cerebral symptoms than are mechanics and laborers. In many of these cases the extent of lung inflamed is small in proportion to the severity of the symptoms. Besides the restlessness, sleeplessness, headache, stupor, delirium, and coma which characterize these cases, there are usually a high temperature, a rapid and feeble pulse, and a dry tongue. Delirium and stupor may persist for several days after defervescence.

In irregular cases the physical signs of consolidation may be slow in appearing. You may examine a patient's chest day after day and find no evidence of solidification of the lung. The longest delay of this kind which I have seen was for eight days. Resolution may be delayed for two or three weeks after defervescence, with persistence of the physical signs of consolidation.

The Pneumonia of Old People.—In people over seventy years old the disease is apt to run an irregular course. The chill, the pain, the cough, the sputa, and the physical signs may all be absent. Fever, cerebral symptoms, a rapid and feeble pulse, rapid breathing, and marked prostration may be the only symptoms. I have seen such an irregular course of the disease in persons not over fifty years old. There are also curious cases reported of pneumonia in old persons, who only seem feeble but are not confined to bed. They present no symptoms to excite suspicion until they suddenly die, and the pneumonia is discovered at the autopsy.

Typhoid Pneumonia occurs usually in epidemics. The cases are characterized by the severity of the constitutional symptoms and the rapid prostration.

Complicated Cases.—Meningitis, pericarditis, pleurisy with effusion, cardiac disease, and chronic renal disease all may alter the regular course of the disease in ways which have been already described.

The Fatal Cases of Pneumonia.—Pneumonia seems to prove fatal in several different ways. There are

cases in which death seems to be directly due to the large area of lung tissue, which is infiltrated with inflammatory products and rendered incapable of performing its natural functions. There are cases in which only a part of one lobe is affected, and yet the constitutional symptoms are very marked and seem to destroy life by their severity. Death is due to one of the complicating lesions: meningitis, pleurisy, pericarditis, cardiac disease, chronic renal disease. A certain number of cases of lobar pneumonia die suddenly. In some this sudden death seems to be due to interference with respiration. The patients are suddenly attacked with rapid and difficult breathing and die in from half an hour to a few hours. In these cases we often find after death congestion and cedema of the uninfamed portions of lung. Other cases seem to die from failure of the heart's action. In severe pneumonia the heart's action is often rapid and feeble, and it may at any time become so feeble that death takes place suddenly. But even in comparatively mild cases of the disease death may take place in the same way. The disease will run its ordinary course for several days, often for a week, then the heart will suddenly begin to act very feebly, the skin becomes cold, the patient passes into a sort of collapse and dies, sometimes in a few minutes, sometimes after several hours. In rare cases death may take place during convalescence from thrombosis of the coronary arteries.

Duration.—The constitutional symptoms last until defervescence takes place—that is, from the second to the eighteenth day. Resolution follows at any time from two to twenty days later. The fatal cases may die at any time from five hours to three weeks after the initial chill. In New York most of the adults die on the seventh, eighth, and tenth days; most of the persons over seventy on the fifth, sixth, and seventh days.

Prognosis.—The prognosis depends on the extent of lung involved in the inflammatory process; on the existence of complications; on the age of the patient (persons over seventy years of age seldom recover); on the social condition of the patient. Laborers and mechanics are more apt to recover than professional and business men. The prognosis is always much worse in patients addicted to the use of alcohol.

Treatment.—The treatment of lobar pneumonia calls for the exercise of much knowledge and judgment on the part of the physician. It is necessary to be practically acquainted with the course of the disease, and to appreciate fully the exact condition of each patient. There is no routine treatment for pneumonia; each case must be managed on its own merits. If we see a patient during the first twelve hours of a pneumonia the question presents itself as to whether we shall try to abort the disease. This may be done in two ways: by general bloodletting, or by large doses of calomel. The latter plan is the one more frequently employed in New York. From twelve to twenty grains of calomel are placed on the patient's tongue, and this dose may be repeated in six hours. In favorable cases either the bloodletting or the calomel may cause defervescence to take place within a few hours. But both these plans fail in more cases than they succeed. Ordinarily no such attempt is made to abort the disease. Our first care is to put the patient into a condition of absolute rest. He is to be kept in bed, fed on fluid food, and given opium in small doses. Everything which can annoy or irritate the patient is to be strictly avoided. If the temperature runs between 100° and 104° it requires no treatment. If it rises higher than this we may sponge the skin with alcohol and water, give diaphoretics, and aconite or veratrum viride in small doses. Large doses of quinine, cold baths,

and cold affusions not only make no permanent reduction in the temperature, but they are positively dangerous. The pulse should regularly be between 100 and 120. If it is above 120 and feeble, we should endeavor to render the heart's action slower and stronger. The most efficient agent for this purpose is alcohol. Either wines, whisky, or brandy can be prescribed. The amount of alcohol used is to be regulated by its effect on the pulse. It is often well to combine with it either opium or the liquid extract of convallaria. This seems to be the only indication for the use of alcohol in lobar pneumonia. Unless it is required as a cardiac stimulant, the patient is better without it. If the breathing is not only rapid but oppressed at the onset of the disease, the patient may often be relieved by the use of wet cups, dry cups, warm fomentations, or mustard plasters over the whole of the chest. If such oppression continues through the disease, it may be mitigated by the use of calomel and opium in small doses, by aconite and veratrum viride, and by diaphoretics. For the pain in the side, the restlessness, and the sleeplessness, the most efficient remedy is opium, selecting the preparation and the dose to suit each patient.

From what has been said, you will infer that many cases of pneumonia require no treatment but rest and opium; and this is true. If the disease is running a mild and regular course, you are not likely to improve matters by interference. The only indications for treatment are to relieve an abnormal development of any of the symptoms which may threaten to disturb the patient.

CASES OF NASAL POLYPUS PROJECTING INTO THE NASO-PHARYNX; WITH REMARKS.

By E. CRESSWELL BABER, M.B. Lond.,

Surgeon to the Brighton and Sussex Throat and Ear Dispensary.

THE following cases present several points of interest both as regards diagnosis and treatment.

CASE 1. Aural Polyp on both Sides; Removal. Right Nostril: Small Polypus removed from the Front with Forceps. Left Nostril: Much narrowed, preventing view from the Front, but Polypus seen projecting into the Naso-Pharynx by Posterior Rhinoscopy; Removal with Cold Wire Snare.—E. S., female, aged thirty-two, was admitted a patient at the Throat and Ear Dispensary on May 30th, 1879, suffering from deafness, vertigo, and discharge from the ears. She had all her life been subject to an offensive discharge from the nose, with hard pieces coming away. Both auditory canals were occluded by large polypi. These were removed in the usual manner, leaving perforations in the tympanic membranes, and intermittent purulent discharge from the tympana. After treatment of the ears, attention was directed to the nasal cavities, and a small polypus was seen by anterior rhinoscopy in the right nostril. On July 30th it was removed by the somewhat unscientific method of avulsion with forceps, a proceeding which, by the way, I do not recommend. A polypus was also seen in the left nostril by anterior rhinoscopy, but owing to extreme narrowness of the nasal cavity on that side attempts to remove it were unsuccessful, only a piece being removed with the snare on Sept. 21st. On Nov. 28th by posterior rhinoscopy, with reflected sunlight, a glimpse of a polypus projecting through the left choana was obtained, and it could also be felt by palpation. The patient was ordered insufflations of tannin, and remained away a few weeks, being readmitted on

Jan. 19th, 1880. Careful examination then showed a polypus of considerable size nearly filling the left choana, and projecting into the naso-pharynx. Voltolini's palate-hook was employed, but produced so much irritation that it could not be borne. The left nostril was so narrowed by deflection of the septum that the polypus could not be seen from the front, although a soft mass was felt with the probe, from which two small portions were removed with the cold wire snare. On Jan. 28th the polypus was removed in the following manner. The author's self-retaining nasal speculum¹ having been adjusted to the left nostril, a large loop of steel wire attached to an ordinary nasal polypus snare was introduced through the anterior nares along the side of the septum until it reached the posterior pharyngeal wall. By means of the left forefinger inserted in the naso-pharynx, the loop of wire (which expanded by its own elasticity) was then pushed round the growth. The wires were tightened by an assistant until the point of the instrument almost touched the polypus, and the growth was then easily cut off by drawing the loop home. Owing to its size, however, the polypus could not escape through the nostril, but had to be pushed back into the naso-pharynx with a probe, being then ejected through the mouth. The day following, both superior and middle turbinated bones on the left side could be plainly seen on posterior rhinoscopy, but no sign of the polypus was visible. The left nostril was so clear that when the patient was discharged, five days after the operation, the movement of the palatal muscles on deglutition on the left side could be seen by anterior rhinoscopy, which affords, I find, a fair test of the permeability of the lower part of the nasal cavity. Ten months later, examination showed no return of the growth.

CASE 2. Nasal Polypus on left Side projecting into Naso-Pharynx; Removed with Cold Wire Snare. Right Nostril: Small Polypus removed from Front of Middle Turbinal. Also small Eredile Growth on Right Side of Septum, near Posterior Nares, removed with Snare. Use of Voltolini's Palate-hook.—This case is very similar to the preceding. E. Y—, nurse, aged forty-eight, was admitted to the Dispensary on April 3rd, 1880, with the following history:—Last September she first noticed an irritation in the left side of the nose, since which the left nostril has been stopped up and has discharged. She also has a feeling of something falling down her throat from the nose, especially at night. It keeps her awake, and produces great dryness of the throat. Since her nose has been affected she has also suffered from palpitation of the heart. On being asked, she denied that she suffered from asthma, but it appeared subsequently that she suffered from a feeling of tightness in the chest, produced by the polypus. An examination of the nose on the ensuing days revealed the following state of parts: By anterior rhinoscopy the upper part of the left nostril was seen occupied by a polypous mass. Posterior rhinoscopy was extremely difficult on account of close proximity of the velum to the posterior pharyngeal wall. It was just possible, however, to see the upper part of a polypus in the left choana. (Voltolini's hook produced too much irritation to allow of its being employed.) On palpation a firm round swelling could be felt hanging down into the naso-pharynx in that situation. On April 10th this polypus was removed in precisely similar

manner to that in the preceding case, the self-retaining speculum being employed, and the tumour being, as before, expelled through the mouth. Powdered tannin was ordered to be blown into the nostril, and six days after the operation the left nasal cavity was so clear that the movements of the palatal muscles on deglutition could be discerned through the anterior nares. On the day following this (April 17th) the left superior turbinated bone and Eustachian orifice could be seen with the rhinoscopic mirror. At that date also the small polypus attached to the upper part of the left middle turbinal was removed with the cold wire snare from the front. A slight attack of catarrh of the left tympanum then occurred, after which she was discharged. In the following June the patient was again seen, and complained of much discharge from, and soreness in, the left nostril. Various remedies were employed to relieve this—viz., the application of the flat burner of the galvano-cautery to the nasal mucous membrane; syringing with solution of lead through the anterior nares; spray of sulphate of zinc (which, as usual, caused temporary loss of smell and taste), etc. Solutions of perchloride of iron and nitrate of silver were also applied to the naso-pharynx, where it was thought that the root of the polypus could be seen and felt. These were all of little or no avail in arresting the discharge; but great benefit was derived from the use of a spray of equal parts of rectified spirit and water through the anterior nasal orifice. Although the left nostril was thus progressing favorably, and was apparently quite pervious, the patient still complained that she was unable to breathe through the nose at night when lying down. Anxious not to dismiss the case in this state, I again tried Voltolini's palate-hook, and by means of it was able to obtain a very good view of the posterior nares. On the left side the nostril was pervious; there was no sign of the polypus and the Eustachian orifice was visible. On the right side, attached to the septum nasi and projecting into the nostril, was a small rounded swelling of about the size and shape of a split pea. The phenomenon that on assuming the recumbent position for a few minutes, the right side of the nose became obstructed while the left remained pervious could therefore be explained by the little growth, which was probably to a certain extent erectile, becoming swollen and occluding the nostril. It could not be felt with the finger in the naso-pharynx, being apparently just inside the nostril. After the patient had been lying down a few minutes it was removed, on August 2nd, with the cold wire snare, through the anterior nasal orifice, with the left forefinger in the naso-pharynx. There was considerable hæmorrhage afterwards. Four days later she reported that the right nostril was much freer, and that she could sleep with her mouth shut, with consequent relief to the previous dryness of the throat. The complete removal of the little growth was confirmed by the rhinoscope. Three weeks later this good result continued, and both nostrils appeared quite free. It may be noted that at this date the application of the palate-hook was less well borne than three weeks previously.

Quite recently (April, 1882) this patient has come under treatment again, complaining of discharge from and irritation in the left nostril, due to a small gelatinous swelling near the front part of the left middle turbinal, which was relieved by snaring off a small piece, and by the application of the galvanic cautery. Palpation (May 3rd, 1882) showed no trace of the polypus in the naso-pharynx.

CASE 3. Large Nasal Polypus, projecting below the

¹ Dr. A. Hartmann, referring to this instrument (Archives of Otolaryngology, March, 1882, p. 85), says that with it it is impossible to press the tip of the nose upwards. He cannot have tried it, or would find that, by applying the band *obliquely* in the manner figured in the British Medical Journal, the tip of the nose is easily raised by means of the double-curved hook.

Soft Palate and arising from the Left posterior Naris; Removal with Cold Wire Snare.—More recently (Nov. 19th, 1881), I have had an opportunity of removing with my friend Dr. Mackey, a similarly situated polypus. In this case (that of a young woman) the polypus hung down below the velum, and palpation showed that it arose from the left posterior naris. It was removed by a wire loop passed through the left nostril in precisely similar manner to the preceding ones, my self-retaining nasal speculum being employed as before. After removal the polypus measured nearly two inches in length, and about one inch from side to side, being flattened antero-posteriorly. It was attached by a narrow pedicle. A few days afterwards, when I saw the patient, the left nostril was pervious.

Remarks.—The interest of the first two cases centres in the hidden position of the polypi owing to the narrowing of the nasal passages. They indicate what is, of course, well-known to specialists—viz., the importance of a careful examination of the naso-pharynx in all cases of obstruction of the nostrils, without which these two patients would undoubtedly have gone unrelieved. For this purpose both palpation and posterior rhinoscopy stood me in good stead in these cases. In the first patient a good rhinoscopic view of the tumour could be obtained without Voltolini's palate-hook,² the application of which instrument produced too much irritation to allow of its being of any service. In Case 2 the hook was also very badly borne at first, but subsequently, after the naso-pharynx had been manipulated with the finger and repeatedly touched with astringent solutions, it was well borne, and was of considerable service in giving a view of the posterior nares, not only showing the clearness of the left naris (after removal of the polypus), but also the presence of the small vascular growth on the septum, causing obstruction of the right nostril. The conclusion, in fact, at which I have arrived from the use of the instrument in a considerable number of cases is the following. I have found that the application of the hook usually produces so much irritation that in ordinary cases where there is a fair space between the velum and the posterior pharyngeal wall, a better view can be obtained without it, and one quite sufficient for general purposes. Where it is of value is, I think, in cases such as the second one just described, in which the space between the velum and the posterior pharyngeal wall is so small ("Rachenenge") that without the hook no satisfactory view can be obtained. In these latter cases it is worth while to accustom the patient to the hook, in order that the soft palate may be drawn forwards and the parts thoroughly inspected. The concurrence in Case 1 of aural polypi in both ears, with nasal polypi on both sides, is interesting, and points, it would seem, to a constitutional tendency to the formation of local hyperplasias of the mucous membranes to a "(polypoid diathesis," if I may so term it). The polypi were not carefully examined, but were probably of the ordinary myxomatous or fibro-myxomatous character. The operative treatment was simple enough, and easily carried out, although in the last case, on account of the size of the polypus, there was rather more difficulty in adjusting the loop of wire around it.³ Dr. Daly, of Pittsburg,

who has recently strongly recommended⁴ this method of operating in the naso-pharynx (i.e., by using one index finger in that cavity as a guide), not only adjusts the wire snare by means of a finger in the naso-pharynx, but employs the galvanic cautery in a similar manner, withdrawing the finger of course before the electrode is heated. That some risk, however, attaches to the employment of the galvanic cautery near the Eustachian orifices by this plan is shown by the fact of ear complications ensuing after the application of the cautery in two of Daly's cases. Into the respective merits of the hot and cold snare and the forceps for the removal of nasal polypi I do not propose to enter on the present occasion. As regards after-treatment, it being impossible to reach the roots of these polypi directly, astringents had to be applied to the nasal mucous membrane generally. The good effect of alcohol for arresting the discharge after removal is seen in Case 2. In these cases it probably acts in the same beneficial manner as after the removal of polypi from the ear. I have also found a spray of alcohol of service in chronic nasal catarrh without polypi, and recommend a trial of it in suitable cases, beginning with a mixture of rectified spirits of wine one part and water three parts, and gradually increasing the strength.

Brighton.

THE LESION OF MYO-CARDITIS.

By JAMES GREY GLOVER, M.D.

THE following case is worthy of record because it presents a good instance of a rare lesion in a very pronounced form, and further because of the association of this lesion with, at one stage, very striking anginous symptoms, and finally with sudden death.

Mr. C—, aged fifty, who was the subject of emphysema and occasional attacks of bronchitis, was seized suddenly, on Sept. 15th, at his office, with symptoms thus described to me by Mr. Samuel Lloyd, of High-street, St. Giles's, who was summoned in the emergency. Mr. C— was suffering "from violent sudden pain in the region of the heart, and alarming syncope. It was impossible to properly examine him. The pain extended down the left arm." Under Mr. Lloyd's treatment he recovered so far as to get home in a cab. In my absence from town, he was kindly attended by Dr. Cribb, who describes him as suffering in the following way:—"I found him in bed free from all cardiac or respiratory distress, but complaining of pain across the transverse colon from side to side, saying he thought it was 'wind.' He complained of a feeling of 'depression,' and attributed his sufferings to indigestion from having eaten roast pork. His pulse was regular and quiet, respiration neither difficult nor accelerated, there was no pallor or appearance of syncope; extremities warm. I could detect no abnormal sound over the cardiac region, but any such sound may have been masked by his thick covering of fat. Respiration sounds deficient over both backs, but the percussion was clear. I concluded that he had been subject to asthmatic attacks depending on emphysematous lungs. Whatever the attack at the office

² This instrument is simply a strong steel retractor, of which the portion bent at right angles to the shaft measures about half an inch across and three-quarters of an inch in length. For full description of the same, and its mode of employment, see Voltolini's interesting work, "Die Rhinoskopie und Pharyngoskopie," and edition, 1879.

³ In this case a snare was employed, which has been made for me by Messrs. Wright & Co., of New Bond-street, and which I showed at the London International Congress (Sub-section of Laryngology). The wire is contained in a steel tube (measuring

rather over nine centimetres in length and two millimetres and a half in diameter) and adjustable at any angle to the handle by means of a screw near the ring for the thumb. This snare is chiefly of advantage for the removal of growths from the front of the nostrils, as with reflected light it can easily be adjusted to any visible part of the interior of the nose. I have employed it in a considerable number of cases.

⁴ Archives Laryngology, vol. ii., No. 2.

might have been, of which I got a very imperfect account, it had clearly subsided when I saw him. I prescribed for him a stomachic alkaline mixture and hot applications to the seat of pain.—16th: Had not slept well, and said the pain came on again in early morning and in the same region—viz., across the diaphragm and especially to the right side over the liver. He described himself as much better and wanted to get up; no dyspnoea or cardiac symptoms. Temperature normal. His bowels had not acted, so I ordered him an aperient draught and light diet.—17th: The draught acted well, and he described himself as very much better and free from pain, but excessively weak, wanted to get up, and I believe did so. He still complained of an uneasy feeling across the diaphragm, but more over the liver than the heart, always indicating the right side rather than the left.—18th: Was up when I called and said he was getting all right, appetite returning and tongue cleaning, was in much better spirits and walked round his room showing me his paintings; said he should go to business next day, which I believe he did.—20th: Went to business and declared himself almost as well as usual, but weak from the attack. Had no return of pain or discomfort, nor did he complain of any thoracic trouble whatever. Arranged to call on me and report on 23rd; on that day, I believe, walked one and a half miles to my house. He said he only came to show himself, and thanked me for my attention, but would like to look in again in a week." He had so far improved as to have returned to his office, but on Tuesday, September 26th, not feeling well, and having pain in the chest, he was induced, against his strong inclination to go to his office, to remain at home, have poultices on, and to send for Dr. Cribb. Dr. Cribb, knowing of my return, sent the messenger to me. I saw Mr. C—a little after twelve in his library, and was just beginning to hear from him an account of his illness, when his head fell back in his chair, and his feet forward, and he died in a few minutes. A friend at whose house he called the night before said he looked ill and "altered" and complained of "a pain at the heart," but said he should soon be better.

Post-mortem examination.—The body was found very fat and the muscles well nourished. The cartilages of the ribs were so ossified as to require the use of the saw. There was a good deal of fat about the heart; but no hardening of the coronary arteries. The pericardium contained about an ounce, or less, of fluid. There was an ecchymosis on its inner surface opposite the base of the heart, to the left side in front. There was also a little recent lymph hereabouts. But the marked lesion was on the front of the apex of the heart, affecting, apparently, both the surface and a layer of the substance of this organ. At this spot there was a well-defined roundish patch, less than the size of a five-shilling-piece. It looked badly damaged and on the road to gangrene or sloughing. In color it was dirty red, with a little dirty lymph about it. The great vessels proceeding from the heart contained decolorized clots of fibrin. The opposing spot of the pericardium had a corresponding appearance—ecchymosed and with a little dirty lymph on it, but with no adhesion. The valves were unaffected. The lungs were emphysematous and congested, but everywhere free from consolidation. The liver was hard, and its capsule at parts opaque. The kidneys were similarly affected, and had a few small cysts on their surface.

Remarks.—I shall not attempt to trace the course of pathological processes in this painful case, nor assign their exact significance. The fibrinous clots in the large vessels probably had much share in causing death. Possibly some similar clotting

may have occurred in the nutrient arteries of the heart and so led to the lesions described above, but the coronaries were free from obvious hardness. Possibly, a patient more willing to rest, from the beginning, might have fared differently. The case is interesting in this further respect as one of the gravest heart lesions, with an absence of physical signs thereof.

Highbury.

THE TREATMENT OF POST-PARTUM HÆMORRHAGE.

By ROBERT BARNES, M.D.

THE very instructive communication of Mr. Coates on "Two Cases of Intra-venous Injections of Fluids for Severe Hæmorrhage" cannot fail to arrest the attention of the profession. In my "Obstetric Operations" I have taken especial care to dwell upon this method of restoration, basing greatly upon Dr. Little's treatment of cholera by this method and upon his subsequent experience. The late Dr. Woodman found the blood-globules in a patient who had undergone saline injection unaltered. Mr. Coates now adds the extremely valuable fact that the injection of plain water also has no deleterious effect upon the blood-globules. This experiment then amply proves a proposition laid down in my "Obstetric Operations"—namely, that an argument in favor of saline fluids lies in the fact that "the drained circulatory system labors not alone under the loss of the vivifying element, but also under the purely mechanical difficulty of vacuity. The heart and arteries have nothing to contract upon. Now, the simple injection of ten or twelve ounces of fluid restores, to a certain extent, the dynamic condition of the circulation." That this should be effected by the simple injection of "twenty-two ounces of warm water," as practiced by Mr. Coates, is one of the most interesting physiological and clinical demonstrations with which I am acquainted. Yet I think saline solution is preferable, and a mixture of saline and defibrinated blood recommended in my book would be better still. This method of saline injections has the incontestable advantages of being always available at short notice, of avoiding risk of failure from coagulation, of enabling us to use simple forms of apparatus, and of being in other ways a more simple proceeding." Almost any syringe will do; but it is important to have a good cannula, such a one as is fitted to Aveling's apparatus. This should be carried in the obstetric bag.

I wish to add a word or two of comment upon the use of ferric chloride to arrest hæmorrhage. Mr. Coates used it in both cases successfully. In the first case "manipulation, hypodermic injection of sclerotic acid, cold affusions, ice internally and externally, the intra-uterine injection of hot water, were all resorted to; but these measures failing to produce more than temporary contraction, ten ounces of a solution of perchloride of iron (one in five) were injected into the uterus. The hæmorrhage ceased." Here is evidence in support of the proposition I have so much insisted upon, that when the diastaltic function is suspended, persistence in remedies which act through that function is useless, and may be injurious. All the means enumerated above are of this class, excepting the last, the ferric chloride, which may still act by virtue of its local styptic corrugating power when all other means have failed. The other case gives similar testimony; but Mr. Coates gives expression to a suspicion that an attack of secondary hæmorrhage in the subject of it might be due to

the separation of a slough formed after the use of the iron injection, and says he fails to find this danger "alluded to in the ordinary text-books." I am quite aware that the ordinary text-books are very defective in instruction as to the principles upon which uterine hæmorrhage should be controlled; but in the "Obstetric Operations" the consequences of using caustic ferric chloride are discussed, and the necessary cautions are described. Two instances of the caustic action of iron are referred to. Neither of these was followed by secondary hæmorrhage, and Dr. Lombe Atthill is cited as having "used the solid perchloride successfully." At present, then, the weight of evidence is against the supposition that strong iron solutions may cause secondary hæmorrhage by sloughing. Nevertheless, I wish to repeat that it is not necessary to use caustic solutions. The case is one for styptics. The distinction between caustic and styptic iron solutions is clear. The styptic solution should, however, be strongly styptic. One in ten may be strong enough, but I prefer one in eight.

The first thing to do is to take care that the uterus is free from blood or clots. To ensure this a stream of hot water should first be sent through. This is a last appeal to the diastaltic force. If it check the hæmorrhage, the iron will not be used. But often it will fail; then the iron comes to the rescue as the last resource. About eight ounces should be injected through slowly and gently. I have well weighed the advantage of swabbing, and prefer the method by injecting. With those who see no danger in hæmorrhage, or who urge that it can always be checked by "ordinary means," it is useless to reason. Nor can the dictum that the remedy is worse than the disease command respect. Hæmorrhage kills if not checked. It has often killed when the "ordinary means" have failed. One might as logically contend that to use the forceps is worse than to let a woman die undelivered, heedless of the *medio tutissimus*—that is, obstetrically interpreted, "axis traction,"—because in unskilful hands the forceps may tear through the recto-vaginal septum, or rend the bladder.

Harley-street.

A NEW METHOD OF CATARACT EXTRACTION WITHOUT EXCISION OF THE IRIS.

By Dr. H. GALEZOWSKI.

THE operation for cataract has always occupied the attention of surgeons, and justly so, and many methods, more or less ingenious, have been devised for the extraction of opaque lenses. One of the best of these methods was incontestably the French operation or method of Daviel by flap extraction, which gave numerous excellent results. Unfortunately, however, it not unfrequently happened that the most severe suppurative inflammation supervened even when the operation had been most skilfully performed, necrosis of the cornea and panophthalmitis destroying the eye. In presence of such facts it came to be asked whether a very large corneal flap was not the cause of the suppuration, and whether it would not be remedied by modifying the form of the incision. It was on this account that the old method by flap extraction was replaced by the method of extraction by peripheric linear incision. Our eminent London colleague, Critchett, whose loss is regretted by all, brought forward an operation which bears his name, and which consisted in a peripheric linear incision of the cornea, iridectomy, and extraction of the lens with a large curette. After this came the method of von Graefe, or modified linear ex-

traction, which, as is well known, was very soon tried in every country in the world and accepted as being the best, for it did not give rise to suppurative complications. As far as I am personally concerned, I had adopted this last method, and practiced it with various modifications, till the last four months. For a long time I obtained satisfactory results, but occasionally I had to record cases of panophthalmitis in patients in whom there was not the slightest reason to anticipate any complication. I have for the last two years employed the most rigorous antiseptic precautions, but this has made no difference. Last year I had five cases of panophthalmitis in ninety-three operations, the results of which I communicated to the International Congress held in London. Quite lately another Parisian oculist has recorded seven cases of panophthalmitis in 150 operations, and in several other records of statistics similar data are to be found. What conclusion should one draw from this? That iridectomy as well as the linear peripheric operation do not prevent subsequent inflammatory mischief. This conviction seemed all the more plausible to me when, at the beginning of the present year, I saw a panophthalmitis appear in one of my town patients who was in an excellent state of health, and who had undergone the operation of iridectomy two years previously with a view of facilitating the subsequent operation. I extracted his cataract under the most favorable conditions; the operation went off perfectly well, and strict antiseptic precautions were observed. What then was my astonishment when, within the first twenty-four hours, the symptoms of suppuration of the cornea with consecutive iritis appeared. It is difficult to find an explanation of this occurring notwithstanding the iridectomy, but it became evident to me that iridectomy did not prevent such complications. I then formed the idea of returning to the old French method of flap extraction without iridectomy, but I took care to make a different kind of flap. The results I have obtained seem to me so satisfactory that I have thought it useful to record them, and to show how unjust it was to attribute to the iris all the accidents which supervene after an extraction of the lens.

In making an analysis of the 959 cases of cataract extraction that I have performed since 1874, and of which I have preserved the records, I came to the following important conclusions:—1. That the excision of a portion of the iris does not in any way prevent inflammatory complications subsequent to the extraction of the lens. 2. That it is often the cause of secondary cataract. 3. That sclerotic or sclero-corneal incisions are far more prone to cause subsequent complications than corneal incisions, and that they do not prevent subsequent severe inflammation of the cornea and iris. In presence therefore of failures in my own practice, which could not in any way be foreseen, and taking into consideration the considerable number of failures recorded by De Wecker, Abadie, and others, I determined to modify the operative procedure and to bring it back as near as possible to the old French method, or method of Daviel. The modification I employ refers to the form of the corneal incision; thus instead of having a large flap whose periphery is at all points 2 mm. distant from the sclerotic border, I make my puncture and counterpuncture in the cornea, just where it joins the sclerotic, but I make the summit of my flap 2 mm. distant from the superior sclerotic border. The incision is therefore entirely corneal. By this procedure the resulting flap is broader and not so high as in the old method of Daviel, and the incision is elliptical instead of being spherical, and in consequence coaptation is easier

and cicatrization more rapid. In giving this form to the incision a gain of 2 mm. on each side is obtained, and this allows even the most voluminous cataract to emerge without difficulty. The pupil dilates under the pressure of the lens and allows its free passage and then returns of itself to its former position, or is replaced by the aid of a fine silver stylet. Up to the present time I have performed fifty-six operations by this method, and I have not had any serious subsequent complications.

The following are the details of the operation I now almost exclusively perform:—The patient is placed upon an operating table or bed, and his eyelids separated by my articulated spring speculum. I then seize the conjunctiva just below the cornea with a fixation forceps, and gently draw the eye slightly downwards. I then puncture the transparent cornea just at its junction with the sclerotic with a very narrow-bladed von Graefe's knife, and at a point 3 mm. above the horizontal diameter.* Pushing the point of the knife downwards to the border of the pupil, which has previously been dilated, I press on the capsule, incising it from below upwards, then, slightly withdrawing the knife, I push it into the transverse diameter of the capsule, which I then incise in its entire breadth, after which I make the counterpuncture at the opposite corneal border at a point also 3 mm. above the horizontal diameter. Then inclining the edge of the knife slightly forwards I cut the corneal flap in such a manner that its summit shall be 2 mm. distant from the superior sclerotic margin. This first step in the operation terminated, I remove the fixation forceps and spring speculum, and let the patient rest for a few seconds. I then continue the operation by elevating thoroughly the upper lid with my little finger, which, as well as the curette, presses upon the sclerotic border of the incision whilst the patient looks strongly downwards. With the thumb of my left hand I gently press upon the inferior border of the cornea, and then the lens is seen first to engage in the iris, then in the incision, and, finally, to emerge from the eye.

It frequently occurs that after the lens has emerged the iris returns of itself, and the edges of the incision come into apposition. In other cases the iris protrudes, and must then be replaced in the anterior chamber by a fine silver stylet. If any of the cortical substance of the cataract remains in the pupil, it is removed by a curette, which is introduced several times into the anterior chamber or the pupil. The operation being finished, and the eye being open, I turn the carbolic spray on to the eye, and dress with carbolized cotton-wool, and bandage both eyes. As a rule the coaptation of the wound takes place in twenty-four or forty-eight hours. In one case it did not take place for six days. On three occasions there occurred slight attacks of iritis on the seventh, eighth, or tenth day, which easily yielded to antiphlogistic treatment, and on one occasion severe iritis appeared within the first twenty-four hours, but yielded to douchees by the carbolized spray and to the application of leeches.

I have had two cases of hernia of the iris, both of which occurred on the fifth or sixth day, and in both cases I had to excise the protruded portion. The final results after extraction by this method are relatively superior to those I obtained with iridectomy. This I have had evidence of in two of my patients who underwent the operation for cataract, one twelve months and the other three years ago. In one of these cases one eye was operated on with iridectomy, and the other without. The visual keenness obtained in eyes operated on without iridectomy is superior by one-third or

one-fourth to that obtained when iridectomy is performed. It will be easily understood that an eye with a round pupil is much better protected against excessive light, is less dazzled, and the dispersion of luminous rays is much less. Since my recent experience has demonstrated to me the considerable advantages of cataract extraction without iridectomy, I never touch the iris except in the following exceptional cases:—1. When during the incision of the cornea the iris bulges forward in front of the knife and is wounded. 2. In traumatic cataracts complicated by posterior synechiae. 3. In cases where the lens covered by the iris does not engage in the incision. 4. I excise the iris when I perceive that it has been torn during the passage of a hard and voluminous lens.

Paris.

ON A CASE OF SYPHILITIC OZÆNA FOR WHICH ROUGE'S OPERATION WAS TWICE PERFORMED,

WITH REMARKS ON LAWRENCE'S AND ROUGE'S OPERATIONS.

By R. CLEMENT LUCAS, B.S. Lond., F.R.C.S.,

Senior Assistant Surgeon to, and Demonstrator of Operative and Practical Surgery at, Guy's Hospital.

THE operation for exploring the nasal cavity by raising the upper lip and cartilaginous portion of the nose, for which we are indebted to M. le Docteur Rouge, of Lausanne, does not appear to have been performed many times in this country; and it is perhaps deserving of more attention than has at present been accorded to it. Although M. Rouge's *mémoire*¹ has now been published nine years, I can only find that the operation has been performed by three surgeons in this country—namely, Mr. Warrington Haward,² Mr. Harrison Cripps, and Mr. Holmes.³ It may, however, have been performed by other surgeons who have not recorded their experience. Among those who have practiced it the operation does not meet with unqualified approval by all. Thus M. D'Ambria⁴ speaks of it as dangerous from phlebitis, purulent infection, and incomplete operation; and Mr. Holmes,⁵ after relating how in one of his cases serious danger was caused by the inhalation of blood into the lungs, states that "the surgeon cannot honestly represent to the patient or the friends that the operation is free from grave danger." Still, for my own part, I am inclined to regard the dangers as trivial; and the difficulties occasioned by the passage of blood into the trachea can be avoided by the means presently to be detailed. Indeed, it is a maxim which I endeavor rigidly to apply to myself, though I should be loth to apply it without limit to others, that whenever a patient dies from surgical hemorrhage some blame should attach to the surgeon.

Whether the operation is one so generally applicable as the originator supposed, or whether its usefulness be limited to a few cases, it is certain that in several instances it has proved of immense benefit, and that it will remain as an established operative procedure. It is a very superior operation to that designed and practiced by Lawrence,⁶

¹ Nouvelle Méthode pour le Traitement Chirurgical de l'Ozène. Par le Docteur Rouge, Chirurgien de l'Hôpital Cantonal à Lausanne. 1873.

² St. George's Hospital Reports, vol. viii.

³ Surgery, its Principles and Practice, p. 598, second edition.

⁴ Thèse de Paris, Dec. 1874, No. 465; London Med. Record May 26th, 1875.

⁵ Opus cit.

⁶ Medical Times and Gazette, Nov. 8th, 1862.

which might be considered applicable to similar cases. Lawrence's operation, an account of which appeared eleven years before Rouge's, consisted in dissecting up the nose without the lip. An incision was made on either side of the nose commencing external to the lacrymal sac and carried down to the margin of the ala; the cartilages were next separated from the bones, and the septum was divided; the nose being then raised, the nasal processes of the superior maxillary bones were divided with forceps, and some inveterate polypi that had resisted other treatment were removed. Lawrence's operation may still be the operation most suitable for cases of polypi of great size which distend the side of the nose and cheek. I performed a similar operation to this, but on one side only, in 1876, for a very large malignant polypus which bulged out the side of the nose and cheek and projected through the right nostril of a man aged sixty-five. It enabled me thoroughly to clear out the nasal cavity, but the skin being infiltrated on the side of the nose, I had to remove so much of this that an aperture was left after the operation. It would have been easy to have closed the aperture by a plastic operation had not the age of the patient, and the fact that he was an inmate of a workhouse, rendered it scarcely worth the risk. The man came under observation about a year later with some return of the growth, which was again scraped away without difficulty; but whilst still in the hospital he was seized with frequent vomiting, and died from cancer of the pyloric end of the stomach.

Rouge's operation proved to be of great service in the case to be related, enabling me to remove pieces of bone which were found too large to be extracted through the nostrils; yet I doubt if it ought often to be employed simply as an exploratory operation where the diagnosis is doubtful. In this patient we were able to detect the necrosed bone with a probe, and to determine that it was movable before operating, and in all similar cases where it may be found impossible to extract the decayed bone with forceps through the nostril I would advise that the nasal cavity be opened up by Rouge's method. It is probable that in some other cases of long-standing ozæna, when there are strong grounds, from the profuse and offensive discharge, for believing that there is dead bone, though this may not be detected by the probe, I should be inclined to explore the cavity from beneath the lip. But if the cases were limited to these, it would very much narrow the field of the operation as designed by the originator. On the other hand, I do not regard the operation as a dangerous one, and any difficulty caused by bleeding into the air-passages can be avoided by the means I adopted. Thus, whilst the patient lies on his back the bleeding from the primary incision tends to flow round the gums, and may be stopped by sponges, one being held on either side, between the gum and the cheek. The bleeding through the posterior nares, which at one time threatened trouble, I readily stopped by forcing a large sponge secured by a string into the upper part of the pharynx behind the soft palate. This latter procedure has another advantage, inasmuch as it prevents the patient from expelling the blood and foul secretions from the nasal cavity into the operator's face. In the Lawrence's operation described I adopted a similar precaution, but as I was operating only on the right side, the posterior aperture of that nasal cavity alone was plugged.

For the following particulars I am indebted to Mr. A. H. Dodd, who acted as my clinical clerk:—

CASE 1.—T. A—, aged nineteen, was admitted into Guy's Hospital on Sept. 7th, 1891. His father died in an asylum soon after the birth of the

patient, and his mother, who had been a drinker, died of dropsy three years ago. He has one sister alive, but lame from birth. For some years he was totally blind from inflammation of his eyes, which occurred about the age of nine. He had an operation performed, and has since been able to use the left eye. It is evident that the blindness was due to interstitial corneitis, and the operation was for artificial pupil. The teeth, however, are not characteristic of hereditary syphilis. For about three years he has worked in an oil-cloth manufactory as a tear-boy, and during this time his nose has been growing flat. At the same time he has been suffering from a foul-smelling discharge from the nostrils, and many small fragments of bone have escaped through the posterior nares. Of late he has been compelled to give up work, the discharge being so offensive that the other men employed refused to work with him. The patient is a strong-looking lad, but unintelligent in appearance. His skin is coarse and blotchy. His nose is small, broad and flattened; to such an extent have the nasal bones fallen in that the bridge is practically absent. Inferiorly the septum is deficient in its middle third, so that the two fossæ communicate. At the upper part of the left side a large loose piece of bone can be felt. There is a small hole in the hard palate by which the nose communicates with the mouth, and there is also an ulcer on the soft palate.

On September 9th I operated as follows:—The patient being under the influence of a mixture of alcohol, ether, and chloroform the upper lip was stretched and everted by the fingers of assistants, and an incision was made through the mucous membrane and cellular tissue in the angle between the lip and gum. Considerable bleeding took place as the lip was dissected up, which was checked partly by torsion and partly by sponge pressure. The nostrils being reached in this way the cartilages were next separated from the bones, and the nose and upper lip raised together from the front of the nasal cavity. Much increased space was thus obtained for the removal of bone by forceps, but whilst I was engaged in this a considerable quantity of blood trickled through the posterior nares down the pharynx, and expiratory efforts drove some of this out in the form of spray, to the great discomfort of the operator and lookers-on. All danger from this source was, however, effectually stopped by a sponge, to which a string was attached, being forced up behind the soft palate. Several small fragments of bone and three of larger size were removed by forceps. One of these fragments was almost square, being half an inch on two sides, and five-eighths on two other sides, with a thickness of three-eighths. Another piece was triangular, measuring on its sides half an inch, five-eighths, and three-eighths. A third piece was irregular in outline, and about half an inch in length. Afterwards the lip was replaced, and a pad of lint being placed over it a piece of strapping was carried across to retain it in position. The patient was ordered a mixture containing iodide of potassium and iodide of iron, and his nose was frequently washed out by Thudichum's method. On the 19th, and again on the 27th, of September, small fragments of bone came away from the nose, and the discharge continued offensive.

On October 7th a large loose piece of bone being felt, I succeeded in removing it with forceps through the right nostril, and it proved to be a necrosed turbinated bone. On the 10th more dead bone was detected, but the piece was too large to be extracted through the nostril. One or two attempts were made to remove this piece with forceps, but on each occasion much pain and a good

deal of bleeding were caused without any result. Accordingly on the 18th chloroform was administered, and Rouge's operation again performed. A black offensive piece of bone, an inch and one-eighth by three-quarters of an inch, was extracted, besides three or four smaller fragments. The lip was afterwards strapped down as before. The patient had no rise of temperature after the operation, and left the hospital on the 25th much relieved, and free from the offensive smell.

Finsbury-square, E.C.

ON THE CURE OF ABSCESES ABOUT THE NECK WITHOUT CICATRIX OR OTHER DEFORMITY.¹

By F. J. B. QUENLAN, M.D., M.R.I.A.

EVERYONE has experienced the trouble and difficulty of curing abscesses about the neck, whether strumous or caused by the irritation of a diseased tooth, without deformity. If the abscess be allowed to burst a most disfiguring cicatrix is the result; and the same consequence, too, often attends the most carefully performed incision. Occasionally a very deep incision made with a sharp narrow and pointed knife is successful, but not more so than the plan adopted in the following two cases.

Kathleen D—, aged eighteen, of Rathowen, Co. Westmeath, was admitted into St. Vincent's Hospital at the beginning of the present winter session suffering from a large and painful swelling of the left lower jaw. There was considerable heat and pain on pressure, and the mouth could not be opened. In the centre of the swelling very deep-seated fluctuation could be felt. Spirit lotion was applied on lint until Oct. 5th, when the purulent matter could be felt a little more than half an inch from the surface. A thin curved needle, about three inches in length, was threaded with fine silver wire, mounted on a handle, and passed deeply into the swelling from above downwards so as to admit of drainage. The wire was thus got through the abscess, and the ends were tied together outside the skin. Spirit lotion was now applied on lint and changed three times a day. From the first there was a small quantity of pus on the lint, and this increased every time until in about a week the abscess was entirely drained. A watery discharge now ensued for three days longer, when the edges of the little wounds began to pucker in. The wire was now removed, and a compress applied over the site of the abscess, and between the two openings, which shortly afterwards closed up, leaving two cicatrices, each about the size of the head of a large pin. These cicatrices were at first red, but gradually became white. She was now able to open her mouth, and it was found that the diseased stumps of the second bicuspid and first two molars remained in the alveoli. These were removed, and she shortly afterwards returned home, all swelling gone and with no appearance of the disease, except the two minute cicatrices already mentioned. She is now in excellent health.

Annie D—, aged thirteen, a pupil in a large boarding school, was shown to me on Dec. 5th, 1881, with a swelling under the jaw, the result of a diseased tooth. It was in a much earlier stage than the former case, and, while fearing it was too late, I ordered three leeches to be applied, the bites to be allowed to bleed as long as they would, but no stuping or poulticing. When the bleeding

was over I directed mercurial ointment to be gently rubbed in with the point of the finger three times a day. This was, of course, for the purpose of producing resolution, and might have succeeded. Unfortunately the mother of the child, who had a great prejudice against mercury in any shape, prevented the latter part of the treatment, and, as a result, suppuration occurred. The same plan was adopted, the matter being got at a good deal deeper. The result was perfectly successful, and I mention the case because, shortly before last Christmas, I was shown the same patient suffering from a slight attack of bronchitis. Curiously enough, it was on the anniversary of the former operation, and I was positively unable to tell by ordinary external inspection on which side the abscess had been. She pointed out the spot, and I could then see with a lens the two cicatrices, reduced by contraction, to minute white points. The offending tooth had, of course, been extracted at the time of the operation, shortly after the removal of the silver wire.

The great point in this procedure is to introduce the little silver seton immediately after suppuration has commenced, and while the matter is still at least half an inch from the external surface. If it be allowed to come nearer, absorption of the areolar tissue will occur, and will leave a hollow over the site of the abscess. Nearer still, the true skin may be injured, and then there will be, in addition to the hollow, a red mark, which will last for a long time. If the seton be introduced exactly as in these two cases, there will be practically no mark whatever. The needle is best introduced mounted on a temporary handle, like that which holds the mirror of a laryngoscope. If held in the fingers it is hard to get the necessary depth. In the case of D— the abscess was exactly over the facial artery; but there would have been no danger in introducing the needle double the depth, for the amount of plasmic matter effused lifted the part well away from that vessel. From first to last there must be neither poulticing nor stuping. This method has never failed in my hands, and I could give other cases, but they would be mere repetitions. Miss D— was the first instance in which I used it, and I merely mention her case to show the satisfactory state of things a twelvemonth afterwards. One of my other cases was done with strict antiseptic precautions, but, as far as I could see, without any corresponding benefit.

Dublin.

EPIDEMIC OF HERPETIC FEVER.

By G. H. SAVAGE, M.D. Lond., etc.

I PROPOSE in this note reporting briefly an epidemic which invaded King Edward Schools, Bridewell (Hospital), Witley, Surrey. I may premise by saying that this resembles the disease described by Trousseau as herpes of the pharynx, but seems to have been unusually severe in its nature. I shall be glad to know if any similar epidemics have occurred in other parts of England. Between Nov. 13th and Nov. 27th, 1882, thirty-nine boys were affected, but only nine cases were complete—i.e.—had all the symptoms. The general nature of a case was as follows: A boy would rise in the morning somewhat languid, and suffering from headache. He would have little or no appetite for breakfast, and complained of cold; in an hour or two he would shiver, and later vomit; the vomiting generally passed off after one severe attack and did not recur; the bowels were never loose, generally natural or confined. Little or no solid food would be taken during the day, and the temperature would be found to be high—from 102° to 104·8° F. There was great thirst, and the face became

¹ Abstract of a clinical lecture delivered in St. Vincent's Hospital, Dublin. Illustrated by two cases.

flushed. At night the restless tossing or even active delirium; in the morning the temperature would be rather lower than at night, and there would be signs of herpes about the lips or lobes of the ears. These herpetic patches consisted of several vesicles aggregated into a patch, and there were often several of these patches. In two cases there occurred scattered vesicles on the inferior extremities. About the same time the patient complained of sore-throat, and this was found to be swollen slightly, red, but not having the appearance of a scarlet fever throat, the tongue was moist with some white fur, the appetite remained bad during the second day, and the temperature slowly fell, rising sometimes on the second night again. On the third morning the herpetic patches had matured, and the throat either presented a dull red oedematous appearance or else exhibited one or two small spots, probably herpetic, the tongue was cleaner, and in only one case did I see any prominent red papillae at and near the tip. By the fourth day the temperature was normal, the patient convalescent. No cases relapsed, and none had complications. There were no evidences of lung inflammation. No local causes could be discovered, for though at first nearly all the cases appeared in one large block, all the later ones were in a new building. No similar epidemic was present in the neighborhood, and though the urinals had not been well flushed I could not trace any direct connection between bad drainage and the origin of the epidemic. Another point of interest in the epidemic was the fact that those attending on the boys suffered more or less from a similar disorder. Thus our chaplain writes to say that his daughter, who tended the cases, suffered, and also two of his servants, who were not brought into contact with the boys, but with the lady nurse only; besides these several other members of the training staff and their families suffered. In these milder cases, shivering, pains in the head and the stomach, sore-throat, and rise in temperature, and in nine herpes of lips, made up the symptoms. Great prostration followed in all cases. Albumen was not found in the cases examined for it, but I suspect that there being no resident medical man the urine was not examined constantly.

Bethlem Hospital, St. George's-road, S.E.

ON A CASE OF DAMAGE TO THE HEART FROM THE INHALATION OF NITROUS OXIDE.

By WALTER OTTLEY, M.B., F.R.C.S.

IN THE LANCET, in 1876, Mr. Cartwright makes some important observations on some of the serious consequences which may follow the inhalation of nitrous oxide, particularly with reference to the effect of repeated inhalations on a heart whose walls are already weak, though its valves may be competent. I have lately met with a case which appears of considerable importance, as showing the effect that several inhalations of gas may have on a heart whose valves have been affected without there being much consequent affection of the walls.

Miss F. O—, aged twenty, had her first well-marked attack of rheumatic fever in July, 1876. After it had lasted more than three weeks the fever recurred, and it was during this attack that endocarditis was first set up; a mitral murmur of considerable intensity remained after her recovery. In January of the following year she had a second attack of acute rheumatism, which passed off, leaving the murmur in much the same

condition; but, as she continued to have rheumatic pains and a good deal of palpitation and dyspnoea, she was sent to Bath, where, under Dr. Spender's advice, she derived much benefit from the baths and other treatment, "the heart became stronger and the murmur less intense," as he has been kind enough to inform me. A second visit in the following year was also attended with benefit, and my partner, Mr. Bartlett, under whose care she had been all this time, found that on her return the mitral murmur was no longer audible. On Oct. 7th, 1882, I was asked to examine her heart in order to decide whether she might safely inhale nitrous oxide preparatory to having some teeth drawn; and as at this time no murmur was audible, and her heart, though somewhat enlarged, appeared in good condition, I had no hesitation in advising her to have the operation performed under nitrous oxide. Accordingly on October 17th she had two teeth extracted while under the influence of the gas, and again two on the 21st, when evidently something did not go quite right. The administration had to be interrupted. The patient felt some pain at the time, and complained afterwards of violent headache and a feeling of confusion, though after the first administration she had recovered quickly. She experienced palpitation in bed two nights after this. A few days later she returned home from the town where the teeth had been extracted, and on October 28th I was asked to examine her chest, as she had been coughing a good deal, and had further attacks of palpitation, and to my surprise found that a loud mitral murmur was again present, conducted towards the left, though not audible at the angle of the scapula; the apex beat was in the nipple line, where it had been before.

I should add that in this patient the murmur has the peculiarity of being very much louder in the recumbent than in the erect position. This to some extent may explain the apparent disappearance of the murmur previously to the administration of the nitrous oxide, as she was only examined by me while sitting up; but I have no doubt that this does not account for all the difference that is now perceptible, for at present not only is a distinct systolic apex murmur audible whilst she is standing, but also she complains that her palpitations and shortness of breath have returned much as before. It appears to me therefore quite clear that the nitrous oxide must be held to be responsible for her present condition; and I have advised her for the future to submit to the pain of extraction rather than to run the risk of further damage by inhaling any anæsthetic.

Ladbroke-grove, W.

ON A CASE OF SPINA BIFIDA SUCCESSFULLY TREATED BY INJECTION.

By E. MUIRHEAD LITTLE, M.R.C.S. Eng., etc.,
Out-patient Surgeon to the National Orthopædic Hospital.

M. E—, aged three weeks, was brought to the hospital last May suffering from spina bifida. The child was well nourished but somewhat pale. There was a large sac in the lumbar region, the bone deficiency extending from the second lumbar to about the second sacral vertebra, the tumour being three inches in diameter, nearly circular, and standing out fully one inch from the body. It rather overlapped the edges of the fissure and was very tense. Its walls were very thin, membranous, and transparent, and on its summit was an ulcerated surface as large as a halfpenny. The tumour appeared in no way affected by the child's crying or inspiring. Both lower extremities were

affected with talipes varus of the usual pronounced congenital type. The mother stated that the tumour was increasing, and that the child moved its lower limbs very little. She readily consented to an operation as affording a chance of cure. The patient was admitted on June 1st, and by the courtesy of my colleague, Mr. F. R. Fisher, I retained the care of the case. The following notes will speak for themselves:—

June 1st: The sac was aspirated, and six drachms of clear fluid removed; remains about three-fourths full. No ill effects followed.—3rd: The sac refilled; it was again aspirated and one ounce and a half of fluid removed.—6th: The patient is very unwell. Starts at slight stimuli. Does not sleep, but cries continually.—14th: Is again in usual health, sac aspirated and six drachms removed. No ill effects.—21st: Sac refilled. Half emptied and twenty minims of Morton's iodo-glycerine solution injected.—22nd: No bad symptoms.—23rd: To be out-patient.—27th: Sac much smaller, its walls thicker and redder. The sore has healed.—28th: Tumour has not shrunk for the last day or two; half a drachm of solution injected and collodion freely applied. From this date the tumour rapidly shrank, until the skin over the fissure was level with the rest of the back. The treatment of the talipes has since been proceeded with, and the necessary tenotomies, etc., have produced no bad effects. Simple evacuation of fluid was first tried as recommended by Dr. Morton. It would, perhaps, have been as well to have proceeded to inject at first.

CASES SUGGESTIVE OF A PROBABLY PROLONGED INFECTIOUSNESS IN SOME CONVALESCENTS FROM SCARLET FEVER.¹

By J. SPOTTISWOODE CAMERON, M.D., B.Sc. Edin.,

Hon. Physician to the Huddersfield Infirmary; Medical Officer of Health and Physician to the Borough Fever Hospital, Huddersfield.

THE question how long the poison of scarlet fever may remain about the person of a patient, convalescent from the disease, is at once so important and so difficult to answer, that I shall perhaps be pardoned, as the following cases are somewhat suggestive, for giving such particulars of them as have either come under my own observation, been furnished me for the purpose by my friend Dr. Stuart, or gathered from the relatives of the patient.

On Tuesday, Feb. 14th of the present year, Ada, the eldest child at home of George B—, a journeyman mason, was seized with vomiting, and complained of a sore-throat. On Wednesday the skin of the chest was covered with "small brown dots," the face was flushed, and the child was feverish. The mother attached no great importance to the symptoms, as the child was delicate and often ailing. She kept her, however, in bed, but next day (Thursday) during her mother's absence, the girl got out of bed and went to the outer door. She would appear to have thus got a chill, for the red-den or rash on the skin disappeared, and on the following Monday the mother noticed a slight swelling or puffiness of the face. There was also swelling of the hands and ankles, and these symptoms so alarmed the girl's mother that next day she asked Dr. Stewart to see the child. This he did on Tuesday, Feb. 21st. Feeling in some doubt as to whether the child might not have had a slight attack of scarlet fever, Dr. Stewart advised that the two other children should be sent away. They

were accordingly sent to Mrs. B—'s mother, next door, and remained there, as we shall see, some eight weeks. I am informed that there was no intercommunication between the houses, but I do not ask any one to accept that literally. The arrangement, however, was probably as efficient, or as inefficient, as the separation of a scarlet fever patient in one room of a moderate-sized house generally is.

The patient was under medical care till March 13th, and was, her mother says, in bed about a fortnight of that time, but loose skin peeled off for some time longer. Later, I cannot learn exactly when, but not till risk of infection was supposed to be over, the house was cleaned down, white-washed, the paint and furniture washed, the mother's and children's dresses and underclothes, the bedclothes, bedticking, even the flocks of the bed itself, washed, while flannels, old blankets, and some other things of little value, and which could not be washed, were burned. The mother's bonnets had never been out of their box, and that, for want of room, had been all the time at the grandmother's. I do not find that Mr. B—'s clothes were subjected to any process of disinfection. Otherwise disinfection was carried out as completely as, perhaps even more thoroughly than, is usually done by people of the same class, and on March 23rd, rather more than five weeks from the date of attack, the father, mother, and convalescent moved to another cottage about a quarter of a mile distant. Rather more than three weeks after, when they had got thoroughly established, the two younger children were brought to the new home. This happened on Sunday, April 16th, nearly nine weeks from the commencement of the patient's illness.

The second girl, Florence, a child of four, slept with Ada that night, and next (Monday) morning was sick, vomited, and complained of sore-throat. On Tuesday she had a rash, more distinctly marked than ever Ada had, and Mr. B—'s mother, who came in, suspected scarlet fever, and advised them to get the doctor. Dr. Stewart's assistant saw the child on the 20th; he saw her himself on the 21st, and informed me of the case on the 22nd, requesting that; as the mother was expecting to be confined, I would take steps in the matter. I saw the children at once, and felt inclined to call both cases scarlet fever. There was a certain amount of roughness of the skin still about Ada, hardly typical desquamation. The younger child had a slightly dusky ring round the isthmus of the fauces, but no very distinct rash. I explained to the father the state of the case—that I could not say more than that probably both children had had scarlet fever, and offered, if he was willing to run the risk, to send them to the scarlet fever ward at the borough hospital, but gave him the alternative of sending them both to some friend who had no children, and who did not intend to be with his wife during her confinement. I gave him an hour to make up his mind, and he elected to send the children to his wife's sister, a married woman without family. They were sent to Mrs. R—'s, about half a mile away, at once, and the house emptied of people and well stoved with brimstone by one of our inspectors. Mrs. B— had a slight sore throat at the time the children were sent away. That night Mrs. R— took the second child, Florence, into her own bed, and next morning (Sunday, April 23rd) she was sick, had a sore-throat, and the following day a red rash. When I saw her, a few days later, she was suffering from a well-marked attack of scarlet fever. The children remained there till after their mother was confined, and till after Mrs. R— herself had quite recovered. Mrs. B— was confined on May 23rd, and did well.

¹ A paper read before the Huddersfield Medical Society Nov. 7th, 1882.

When Dr. Stewart considered the cases ready for disinfection, the corporation officials fumigated Mrs. R——'s house, removed for disinfection the bedding, bedclothes, and clothes, and some eleven weeks from the time they had been sent away the children returned home. A few days later the third child, a boy of twenty months, was attacked in a similar way. His mother brought him, as an out-patient, to my clinic at the infirmary on October 31st. He has never been thoroughly strong since his illness in the summer, and has a trace of albumen in his urine.

The points of special interest about these cases are—(1) That a child, nearly nine weeks after the commencement of her own illness, should apparently have conveyed the poison of scarlet fever to her sister by contact; and (2) that an ailment so little marked, that one hesitated to incur the risk of sending the children to the fever hospital, should apparently have been infectious enough to cause a well-marked attack of scarlet fever in a healthy adult, who, as we learned afterwards, had not previously had the disease.

The amount of scarlet fever in the borough at the time was below the average of the same season during the three previous years. From the middle of April, for six weeks, it was as nearly absent as this disease ever is from a large town.

My own feeling about the infectiousness of scarlet fever at present is, that it is unwise to allow children to mix with others till desquamation has quite ceased, and my experience, during the last few years, of close upon a thousand cases of this disease at the borough hospital, is that the process is seldom completed before the eighth week, is often incomplete at the tenth, eleventh, and even the twelfth week, and is by no means always ended at the thirteenth week.

Huddersfield.

POSITION AS AN AID TO THE REDUCTION OF IRREDUCIBLE HERNIÆ.

By BUXTON SHILLITON, F.R.C.S.,
Surgeon to the Lock Hospital.

THE following case is, I think, of sufficient interest to justify its record.

I was consulted in June last by a rather stout active lady, aged forty-eight years, mother of ten children, for an irreducible left femoral hernia. The hernia had existed for three years. No truss had been worn and no special notice taken of it. For the first year it frequently went back, but for at least eighteen months it had never returned. Recently it had given rise to some pain without any apparent increase in size. On examination I found a very tense roundish swelling, about the size of a large walnut, in the ordinary situation of a femoral hernia. Neither coughing nor change of position appeared to make any alteration in its bulk. I endeavored for a considerable time to reduce it, but without making the smallest impression upon it, and I then sent her home, ordering her to keep perfectly recumbent, to live on low spare diet, and to take repeated doses of a saline purgative. I saw her three days after. She had kept entirely in bed, and had followed my instructions. I again attempted reduction, but without success, and I ordered the same treatment to be continued for another four days, when I again visited her, and again unsuccessfully applied the taxis; it appeared to me to be absolutely irreducible. I then explained to her that I was desirous of trying the effect of position upon the rupture, and that I wished her to remain with her head downwards some few minutes two or three times a

day. She entered fully into the plan and agreed to give it a fair trial. I had a mattress placed on the floor, and I got her to slip off the side of the bed so that she rested on her elbows on the mattress, her sister and nurse, standing on the bed holding her up by her legs. The first day she could not bear this position for more than two or three minutes twice in the day; the second day she three times remained for five minutes. On the third day I saw her, and finding no change I recommended that she should support herself sideways on her right shoulder and arm, one attendant supporting her round her waist, another taking the legs, and a third keeping the left side higher than the right, at the same time that with one hand she gently pushed the tumour in an upward direction towards the feet. For the next two days this was tried three times for five minutes at a time. On the third day, on the third trial (which was continued for seven or eight minutes) it yielded, being, as she described it, slowly dragged into its place. A truss was then fitted, and in a few days she was moving about as usual.

Frederick-place, Old Jewry, E.C.

APO MORPHIA IN CASES OF POISONING.

By AMAND ROWTH, M.D., B.S., M.R.C.P. Lond.

THOSE liable to be called to cases of poisoning are always glad to have an agent handy which, not in itself lowering, will produce prompt emesis, especially in those cases where the jaws are rigidly clenched and the stomach pump absent or inadmissible. This agent I am sure we have in apomorphia, an alkaloid which Dr. W. Murrell has brought before the profession. Though a derivative of morphia, it has no narcotic effects in the doses required to cause emesis. Dr. Murrell recommends it to be kept in a solution of 1 in 50 strength, and to be given subcutaneously in doses of from 3½ to 10 minims (1.15 to 1.5 grain). Emesis occurs in from two to five minutes, the contents of the stomach being usually voided in one rush without previous nausea, but with violent and visible muscular action of the stomach walls. The following two cases will serve to show its utility.

CASE 1.—I was sent for to see Mrs. S——, who was said to have swallowed a white powder and to be then dead. I found her on the floor, doubled up, jaws and hands clenched, blood and froth at mouth, respiration seemed absent, and pulse barely perceptible. She had not vomited. Though evidently dying, I injected five minims of the above solution into her arm, keeping my hand on the pulse. In two minutes and a half by the watch the stomach evacuated its contents with a rush, whilst the pulse seemed to rally for an instant and then finally ceased. Oxalic acid was proved to have been the poison used, and at the post-mortem about two drachms only of fluid were found in the stomach.

CASE 2.—A lady, a dipsomaniac, had obtained access to the wine-cellar and had swallowed straight off two bottles and a half of brandy. She then put the corks in her pocket, hid the bottles, put on her clothes, and went out for a walk with her footman. She walked quite steadily for 300 yards, when she dropped down insensible, and was carried home in a cab. On arrival, ten minutes after, I found her comatose, not able to be roused, respiration stertorous and infrequent, pupils dilated and insensible, jaws clenched, pulse slow and intermittent, two or three beats in every eight. Her stomach was full of fluid. I injected 3½ drops of the solution, and in exactly three minutes and a

half about a pint of alcoholic liquid was expelled, and altogether in about five minutes a quart (measured) of hardly-altered brandy was vomited. The pulse and respiration now improved, the pupils becoming slightly sensible, and I left her for two hours, by which time she could be roused temporarily. After twelve hours' sleep she awoke none the worse.

Apomorphia fails to cause emesis during chloroform narcotism, but no other drug seems to be antagonistic to it, and there is no reason why it should not be used to get rid of even morphia itself. In the dyspnoea of chronic bronchitis, emesis from apomorphia produces temporary relief. If only the certainty, rapidity, and absolute safety of apomorphia were known, it would undoubtedly form part of every practitioner's paraphernalia.

Upper Montagu-street, W.

NOTE ON A CASE OF RUPTURE OF THE HEART.

By OGILVIE GRANT, M.B., C.M.

A CASE of rupture of the heart, which differs in some respects from Dr. Coupland's case in *THE LANCET*, and in one respect from most recorded cases, came recently under my notice. Dr. Coupland, quoting Dr. Quain, says, "He also points out, what all writers from Morgagni downwards have noticed, that the exciting cause of the rupture is some sudden mental excitement or physical effort." In the case which came under my observation neither of these conditions was present. The case was that of a corpulent woman, about sixty years of age, who had never complained of, and was not known to be suffering from, heart disease. She retired to her room much in her usual health, and next morning was found dead in bed. From the position of her bedroom if she had called out she would have almost certainly been heard. At the autopsy the pericardial sac was found distended with large clots of blood. The heart was hypertrophied, and on the surface there was a large quantity of fat. On the posterior wall of the left ventricle, about two inches from the apex, there was a rent, about an inch in length, through which a finger could be introduced into the cavity of the left ventricle; the sides of the rent were irregular and very friable; the valves were healthy and no atheroma was observable. In this case the age and sex of the patient, and situation of the rupture, agree with most recorded cases. The cause—true fatty degeneration—was determined by microscopical examination, and also agrees with most published cases, but the peculiar feature of the case is the fact that the rupture took place during sleep, when the heart would be supposed to be most free from exciting causes, and thus differs from most recorded cases.

Inverness.

CASE OF FIBROUS PAPILLOMA OF THE FEMALE BLADDER SUCCESSFULLY TREATED BY OPERATION.

By FREDERICK THORNE, M.R.C.S., etc.

ON June 18th, 1881, I received an urgent summons from a lady, aged twenty-eight, and unmarried, who had passed a considerable quantity of dark porter-colored urine. This, upon inquiry, had occurred twice before at intervals of twelve months, but as the general health was not in any way affected no notice was taken of it. On examining the water with the microscope I found, as I

thought, a large quantity of hæmatin, but few blood cells, and imagined the case to be one of hæmatinuria; but as I had to convey the specimen in warm weather a distance of twenty-five miles, I now conclude that this appearance was due to commencing decomposition. The hæmorrhage yielded to internal treatment by astringents, but relapses occurred at intervals of a few weeks until January last. The bleeding then increased in quantity and frequency, and soon became constant, being accompanied by all the distressing symptoms of cystitis. The bladder was examined for stone, failing to find which I proposed to dilate the urethra, if only as a means of diagnosis, on the ground that the symptoms justified a suspicion of the existence of some form of papillary disease. My diagnosis was not supported by others who were consulted, the prevailing opinion being that the case was one of tubercular ulceration of the bladder, and it was decided to use injections. These were continued until May, blood being always present in variable quantity in the urine.

I may here mention that the only injection which had any effect in controlling the hæmorrhage was one containing fifteen grains of alum to the ounce of water. Meanwhile I had become more and more suspicious of the existence of some morbid growth, and was confirmed in my opinion by that of Dr. W. Roberts, to whom I sent some specimens of the urine. On May 24th he wrote to me as follows: "The deposit contains large numbers of round-tailed and spindle-shaped cells, deeply stained with hæmatin. Mingled with these are numbers of red blood discs, mostly of withered appearance, but infinitely few in proportion to the deep coloration of the urine. This point reminds me of the state of the urine in cases of intermittent hæmatinuria. . . . My impression at present is that there exists one or more polypoid growths."

Early in June I found in the urinary deposit a small fleshy particle the size of a small pea, in which, under the microscope, I could distinctly trace bloodvessels. An operation was now sanctioned, and on July 11th, the patient, having been placed under the influence of chloroform, I rapidly dilated the urethra, and found, just within reach of my finger, a large soft mass growing from a pedicle attached to the base of the bladder. Seizing this with forceps, I dragged it, with a portion of the bladder, through the urethra, transfixed the pedicle with two sharp hooks, and separated it with scissors. Some adjacent rough patches were removed with the curette, and the stump was freely swabbed with tincture of iodine, and, all bleeding having ceased, returned into the bladder, which was then injected with iced water, with about 10 per cent. of tincture of iodine. By this means another mass nearly as large as the one removed was washed out, it having probably been detached during my efforts to pull the tumour through the urethra. The size of the entire growth was about that of a tennis-ball. After the operation the patient passed water naturally every four to six hours. The temperature and pulse were normal throughout, and all trace of blood disappeared on the fifth day. She progressed favorably until July 21st, when at 4 A.M. violent hæmorrhage commenced, the bladder evacuating large clots every few minutes. Ice was applied over the lower abdomen, and introduced into the vagina, injections of iced water and tincture of perchloride of iron were used, but no means availed to control the bleeding until gallic acid in doses of forty grains, twice repeated, were administered. The first dose was vomited. I adopted this course, having found it immediately effectual in severe hæmorrhage after extraction of a tooth.

No recurrence of bleeding took place, and with the exception of great exhaustion and some anæmia the patient's recovery from this time was uninterrupted. Mr. Butlin kindly examined a portion of the growth for me, and describes it as "a very good specimen of papilloma with a fibrous basis." "It appears," says he, "to be much larger than is usually the case." I believe this disease is very rarely met with in so young a subject, but I am strongly of opinion that in all obscure cases of hæmaturia in the female rapid dilatation of the urethra as a diagnostic measure should be resorted to. I have never known any permanent inconvenience result from such dilatation, for whatever purpose adopted; and it is evident that if such means had been earlier agreed to in this case my patient would have been saved much misery and suffering, and some considerable risk to life from the repeated and long continued hæmorrhages which occurred.

Leamington.

ON BEDSIDE URINARY TESTS.

By GEO. OLIVER, M.D. Lond., M.R.C.P. Lond.

ALL busy practitioners must admit the clinical utility and importance of accurate, time saving, and portable tests, by which they may, during their rounds, decide with precision and certainty, and on the spot, pathological conditions of the urine, or satisfy themselves, and their patients, if need be, without delay as to the soundness of that excretion. From the numerous contributions on portable urinary tests which have recently appeared in these pages, it is clear that practical men, who have long realized the serious inconvenience of carrying about caustic fluids for testing at the bedside,¹ are anxiously feeling their way to more manageable and handy yet equally trustworthy reagents, and I take it the profession at large is prepared to accept any useful suggestions towards this end. Hence the articles of Dr. Roberts on Acidulated Brine, of Mr. Stephen on the Volumetric Estimation of Albumen, of Dr. G. Johnson on Picric Acid, and of Dr. Pavy. The corrosiveness of nitric acid and the causticity and instability of Fehling's solution, rather than want of faith in the trustworthiness of these tests, have doubtless mainly prompted the suggestion of more portable reagents. In the substitutes we therefore seek for compactness, handiness, and portability, without the sacrifice of the generally admitted reliability of the old forms for clinical purposes. Doubtless others besides myself have been trying to supply this desideratum, and may be prepared to offer useful hints. Having, however, attained to certain results which have satisfied my own clinical needs, I feel I should not delay further in communicating them to those of my professional brethren whom they may interest; and I do so with the hope that they may prove useful, especially in the saving of time to busy men, and may facilitate urinary investigation at the bedside. My experiments have embraced the qualitative and quantitative testing of albumen, sugar, and total acidity. I should make the preliminary statement that I have succeeded in all my reagents in abolishing the fluid state, and likewise the solid form, either of powder, crystal, or pellet. It occurred to me some time ago that evaporation of the test fluids I was then using on chemically inert filtering-paper, linen, or other similar fabric, would secure the deposition of the reagents in a finely divided and concentrated state, a condition it was hoped favorable to such a rapid

re-solution of them in the urine as to produce a quick and sensitive action on the constituents sought for. I soon discovered that my pieces of chemically charged paper were, when dropped into a small quantity of the urine in a test tube, very delicate and cleanly tests; and being in the most portable and compact of all forms for clinical work, and, moreover, affording better results than I had previously obtained from the old corrosive test solutions, it was not long before I cleared my spoilt urinary case of the latter; and I can assure my readers I did so with a feeling of satisfaction and comfort. Then, inasmuch as it was an easy matter to graduate the papers with standard solutions of the reagents, I next proceeded to inquire how far this simple process could be carried in determining the quantities of albumen, sugar, and total acidity; in other words, I thus attempted to apply at the bedside the volumetric method of analysis in the form of pieces of filtering paper charged with definite quantities of the reagents with a quantitative color limitation on paper from which the percentage of the constituent sought for could be at once read of. Up to the present I am satisfied in having attained rapid and, for all practical purposes, sufficiently accurate results. I intend shortly, as a matter of curiosity, to scrutinize the figures indicated by my paper method for the estimation of albumen by the side of the burette with its standard solution; and I hope on some future occasion to be able to state definitely how near I can approach quickly at the bedside the results which can only proceed from the laboratory with its attendant delay. I must content myself in the present communication with my notes on—

THE QUALITATIVE ESTIMATION OF ALBUMEN.

When picric acid was brought forward by Dr. G. Johnson as a remarkably delicate test for albumen, it occurred to me as likely to assist in deciding the sensitiveness of the various albumen tests from clinical evidence rather than from the laboratory, to take a series of urines containing very small proportions of albumen, to subject them to all the best-known tests, and to carefully tabulate the results. Since then I have met with twenty urines, among others, which supplied the required condition, all being faintly impregnated with albumen presumably derived from the presence of a small quantity of pus, or of blood, or of both, as determined by the microscope.² The table of results annotated at the time of every testing is before me. All the urines were acid except one, which was alkaline. The reagents employed were the following:—

1. Strong nitric acid.
2. Boiling the sufficiently acid urine and afterwards adding dilute nitric acid.
3. Saturated solution of potassium ferrocyanide, and the urine freely acidulated by citric acid, as suggested by Dr. Pavy.
4. Saturated solution of picric acid as advised by Dr. George Johnson.
5. Acidulated brine after Dr. Wm. Roberts.
6. Standard solution of potassio-mercuric iodide, after Tauret, and recently brought to notice by Mr. Stephen, with this modification—strongly acidifying the urine with citric acid instead of acetic.

The test fluid and the urine were in all the experiments brought into contact, as in Heller's method of using strong nitric acid, and the line of juncture was carefully examined for at least five min-

¹ Hence the fact of many medical men having given up urine testing entirely during their rounds.

² Whenever albumen was detected by any of the reagents mentioned in this paper, the urinary deposit was subjected to microscopical examination, and the impregnation was indicated, or at least suggested, by the presence of blood, pus, or casts.

utes. Out of the twenty urines strong nitric acid failed to indicate the presence of albumen in sixteen instances, boiling in fourteen, acidulated brine in fourteen, and potassium ferrocyanide in twelve; while picric acid and potassio-mercuric iodide gave a distinct and generally a sharply-defined ring of precipitated albumen in every case. The reaction was indicated by varying degrees of rapidity by the different tests; I must name the potassio-mercuric iodide and picric acid as the readiest; and of the two I would, if pressed for a preference, decide in favor of the former. I found as a rule strong nitric acid, acidulated brine, and potassium ferrocyanide much slower whilst bringing to light mere traces of albumen. I should here remark that I do not attach much clinical importance, so far as I can see at present,³ to the ability which the most sensitive of these tests possess in the detection of albumen in minimal proportions; for if I did not do so it might be justly thought by the practical physician that such observations as these indicate an ultra-refinement in testing of no utility in daily-work. They were simply made for the definite purpose of affording data suggestive of the most thorough of all the best tests for the discovery of albumen in urine; and as such they undoubtedly point to the potassio-mercuric iodide and picric acid; and to potassium ferrocyanide and acidulated brine as next in order. I should remark that, with regard to potassium ferrocyanide, I am not quite satisfied that the method (Heller's) followed throughout these observations for the sake of uniformity in obtaining the comparative results, fairly put to the trial the capacity of this test as an albumen precipitant, for on several occasions I noticed the production of a very slight opacity all through the urine instead of a well-defined ring. I am, therefore, with this qualification in my mind, inclined to think somewhat better of it than the above-recorded number of failures might lead anyone to suppose. The outcome of these observations, as well as of more recent ones, suggests to me the grouping of the tests in the following rising order of power to detect small quantities of albumen:—1. Strong nitric acid and boiling. 2. Potassium ferrocyanide and acidulated brine. 3. Picric acid, potassio-mercuric iodide, and the two new tests brought forward in this paper. I have, as a rule, found the members of each group to be nearly equivalent, and confirmatory of each other; and, further, the albumen which strong nitric acid and boiling discovered was always detected with greater facility by all the other reagents, and those tests which comprise the third group frequently revealed traces which the others failed to bring to light; lastly, potassium ferrocyanide and acidulated brine certainly took precedence over strong nitric acid and boiling. As confirmatory of the foregoing observations I may mention that I lately supplied an analytical chemist with some strongly albuminous urine, and he subjected it in the following way to a comparative examination by strong nitric acid and the tests I am introducing in the paper form. After diluting the urine until the albumen was just detectable by the acid, he proceeded to further dilution, when the reaction failed to appear, though still the more delicate paper tests distinctly indicated the presence of the albumen. The albumen precipitants which I find work well as test papers are: potassio-mercuric iodide, potassium ferrocyanide, the two new tests, and picric acid.

1. *Potassio-mercuric iodide* was introduced by Mr.

³ Since writing the above, observations have, however, caused me to modify my first-formed impressions as to the clinical value of the keenest albumen precipitants as at present known.

Guy Neville Stephen to the readers of this journal as an albumen precipitant discovered by Tauret, of Troyes. I select it for production as a test paper because I formed a favorable opinion of it while working it side by side with the other tests, and because it enables one to readily determine the quantities of albumen at the bedside. I moreover found that this double halloid mercuric salt could be evaporated to dryness on filtering paper without impairing its albumen-precipitating power; and the charge thus communicated still retains its integrity, though introduced over six weeks ago. Each paper contains one-fifth of a cubic centimetre of a standard solution, the formula for the preparation of which I hope to give in an article on the "Quantitative Estimation of Albumen at the Bedside," after my return from a holiday abroad. In the mean time I should say it differs considerably from that given in Mr. Stephen's paper. Hitherto, whenever the presence of albumen was indicated by this test paper, corroboration was furnished by picric acid, and the other tests of kindred power; and when the amount of albumen was such as to bring it within the range of less sensitive reagents, these also afforded confirmation. This mercuric salt is said to cause a quasi-albuminous precipitate in the urine of patients taking alkaloids; but I am not yet convinced of the correctness of this assertion, which I must leave, from want of conclusive evidence, neither positively confirmed nor denied. To this test I have repeatedly subjected the urine of one patient taking six grains of extract of opium every night and two grains of eodeia twice a day, of another having two daily subcutaneous injections of morphia and atropia, and of another taking fifteen grains of salicine three times a day with this result: a very faint cloud on adding the paper and a delicate ring by the "contact" method of testing; but the same reactions followed the use of picric acid, and the microscope revealed the presence of pus cells. After giving up the salicine, the urine still gave the same faint indications of albumen in small quantity. But should this source of error exist, it is not likely to induce more than a semblance to the merest traces of albumen, and it is, moreover, easy to guard against it. Then, again, should a patient be taking an alkaloid, this series of test papers provides other equally sensitive albumen precipitants.

2. *Potassium ferrocyanide*, when deposited to saturation on filtering paper, produces in conjunction with citric acid paper a reliable work-a-day test for the detection of albumen in urine. In my hands it has proved almost as sensitive as the other test papers here brought forward. The idea of combining the ferrocyanide with citric acid originated with Dr. Pavy, who proposes to introduce them to the profession as a compound pellet. As thus presented, this albumen test will doubtless be compact, portable, cleanly, and efficient. Perhaps, however, some practitioners may prefer to carry in their visiting lists, or otherwise, a leaflet of combined ferrocyanic and citric paper, rather than a bottle or other vehicle enclosing the pellets. The great convenience of this test paper, as of all the others, must appear when it is known that at the bedside no further apparatus is required for the detection of albumen than a teaspoon or a wine-glass.

3. *Two new albumen precipitants*.—During the past few weeks I have become acquainted with two precipitants of albumen in urine, which so far as I know, have not received attention from the profession—at any rate in this country; and I am not aware that either of them has been hitherto ap-

⁴ Op. cit.

plied as a urinary test. But until lately I felt some hesitation in introducing them to professional notice, lest by doing so I should unhappily create greater uncertainty as to the choice of the best and most generally useful albumen precipitant for clinical purposes than at present prevails; for I take it that medical men—at any rate many of the readers of *THE LANCET*—are just now somewhat perplexed by the rival claims of picric acid, ferrocyanide of potassium, acidulated brine, and potassio-mercuric iodide on the one hand, and by their adhesion to the older methods, in which they have trusted so long, on the other. But favorable observations as to the clinical efficiency of these, what may be styled the latest competitors, and a desire to extend my paper method of analysis to other reagents, which may at least be sometimes usefully employed to determine results of a doubtful character, have decided me to ask my brother practitioners to give these new tests a trial by the side of the others.

(a). *Potassio-mercuric iodo-cyanide*.—While working with mercuric cyanide for another purpose, I found that when alone in saturated solution in water it failed to cause a precipitate in albuminous urine, highly acidulated by citric acid; but when mixed with potassium iodide, it threw down the albumen at once as a voluminous white cloud. The iodide and the cyanide combine, and produce a new double mercuric salt ($4KI, HgCy_2$), which crystallizes out of solution as beautiful colorless needles. When the solution of this iodo-cyanide is acidified by citric or other acid, a gas (hydrocyanic acid) is liberated, which when completely expelled by heat, leaves the albumen-precipitating power of the solution unimpaired. It would therefore appear that this free hydrocyanic acid takes no part in throwing down the albumen, and that the precipitation must be ascribed to the mercuric iodide combination with potassium iodide. If so, this is but another form of the potassio-mercuric iodide test; but whether it will prove in some way more useful than the latter, I cannot as yet say. It can, however, be readily reduced to paper; and when thus employed, I have always found it as rapid and as sensitive as the other albumen test papers, all of which have hitherto afforded corroboration of its integrity and trustworthiness as an albumen precipitant.

(b). *Sodium tungstate* is another delicate test for albumen in urine. According to the *Journal of the Chemical Society* for March, 1874, it is stated that this salt had been employed by F. L. Sonnenschein as a sensitive blood test, producing with ammonia a deep green color, even when the blood was so dilute as not to be recognizable by the spectroscope, and as an albumen precipitant in the presence of acetic or phosphoric acid. I suppose this important observation has not attracted the notice of clinical observers, for I am not aware of any references to it in the medical journals in its obvious applications to urinary analysis. On mixing together equal parts of the saturated solutions of the tungstate (one in four) and of citric acid (ten in six) and of water, I obtained an albumen precipitant of great delicacy, rapid in operation, and one moreover, so far as I have ascertained, devoid of all objectionable qualities. When merely dropped into the urine, or used after the manner of Heller, it has always quickly revealed the same minimal proportions of albumen as could only be brought to light by picric acid and by the other tests of equal keenness. But this combination, when evaporated to dryness on filtering paper, did not give results so satisfactory—they required about a minute to develop—as when, after previous acidification of the urine by citric acid, a paper charged with sodium tungstate only was

used. The further capacity of this reagent as a detector of blood, at any rate in urine, I am sorry to say I cannot as yet confirm. Perhaps one or other of these albumen test papers will be found equally convenient in the consulting room as in the daily round; but should any practitioner prefer for the former a single solution, which will not stain the fingers, be free from all objectionable qualities, and will, moreover, be stable and always ready for use, let me specially mention the acidified solution of tungstate, which has given me every satisfaction, and which I now prefer to any other liquid test for home use. Sodium tungstate is procurable as dry, non-deliquescent crystals, and is, moreover, very cheap; for a shilling will purchase as much as can be needful for the detection of albumen during the whole life-time of the busiest practitioner.

Citric acid.—All the foregoing reagents are inoperative as albumen precipitants unless the urine is highly acidified; their application should therefore be preceded or accompanied by a sufficient charge of acid. For this purpose citric acid is easily made available when deposited to saturation on filtering paper, and in this form it has afforded me uniformly satisfactory results with all the albumen test papers.

Compound papers.—Instead of using citric paper separately prior to the reagent paper, it has been combined by a thin layer of rubber with the latter as a single test paper in the case of sodium tungstate and of potassio-mercuric iodide.

4. *Picric acid* can be deposited to saturation on filtering paper, which becomes a most compact and cleanly vehicle, and which, moreover, quickly delivers its charge to water. Repeated observation has shown me that when united with citric acid, as in the test papers, picric acid is divested of all the objections that have been urged against it. A few drops of albuminous urine instantly turns the bright picric solution, extemporaneously prepared from the test paper, into a muddy one, while the addition of more urine does not redissolve the precipitate as when picric acid alone is used. For the detection of small quantities of albumen (less than 1 per cent.) the "contact" method of testing is necessary; then it is best to make the picric solution in a wineglass, to take it up by the medicine dropper, and to glide it gently over the urine in the test tube.

How to use the test papers.—About thirty minims of the urine are taken up by a nipple pipette, or medicine dropper, and transferred to a short test tube, preferably one about two inches in length. If turbid from urates, it should be gently heated. It is now strongly acidified by dropping into it a citric paper, which is shaken about for a few seconds, and may then be withdrawn or allowed to remain. It is not now necessary to ascertain if the urine is sufficiently acid, therefore without delay the test paper selected is allowed to fall into it. A simpler plan, and one which I find answers equally well, is to drop both the citric and the reagent papers into the urine, so that they may fall together to the bottom, and to one side of the test tube. The latter is now inclined, so that the urine may repeatedly and slowly flow over the paper; when, if albumen be present in small or medium quantity, a whitish cloud will very quickly gather above and below it, the more readily detected by intercepting the light by the hand, etc.; while, in striking contrast, the upper part of the urine will remain clear. If, however, the albumen exists in large proportion, it will not usually produce a haze about the paper, but will coagulate on it, and will slowly fall from it in clots. Then, in any case, on shaking the tube the urine will become less or more opaque, according to the amount of albumen

present. If, on the other hand, the urine preserves its brightness, or if any turbidity it possessed prior to the introduction of the test paper is not increased, it may be inferred it is free from albumen. But inasmuch as it is just possible, though I have never found it so, it may not have been sufficiently acidified to enable the reagent to throw down the albumen, it is advisable to dispose of this suspicion by adding another citric paper; when, if no precipitation occurs, albumen is absent. The whole proceeding, of course, takes up very much less time than that occupied in reading this description of it. The reaction is practically instantaneous when the urine has been freely acidified prior to the introduction of the test paper. It is, however, not so quickly obtained, though the delay only amounts to a few seconds, when, without previous acidification, the single compound test papers are used. The convenience and simplicity of the testing for albumen by these combined papers are very great, for the practitioner only requires to carry them in his visiting list or pocket book and to drop one into a little urine in a teaspoon or wineglass, when, after stirring it about for a second or two, the opacity of precipitated albumen will appear. Those who prefer to develop a zone of precipitation along the plane of contact of a test solution and the urine, can do so by aid of these papers. A test tube and a wineglass are required. Into the latter the reagent paper rolled up is placed with about fifteen minims of water, and, without shaking, is set aside, while a similar quantity of urine is put into the test tube with citric paper. After withdrawing the latter, the reagent, now in solution, is taken up by the pipette and is allowed to trickle down the side of the tube, in which it will collect at the bottom. After developing the ring, the two fluids may be shaken together, when the albumen will be more largely precipitated as a milky cloud.

The keeping power of the test papers.—None of the papers have been bottled or kept from the air and light during several weeks; on the other hand, they have been purposely exposed without covering. Still I cannot discover the least deterioration of their power to precipitate albumen or any change of color or of other physical quality. From the first I rather suspected the mercuric papers might not stand the exposure of daily work for any length of time; but I am now of opinion I over-estimated, if I did not misjudge, this possible source of failure. I am surprised they do not partake more than they appear to do of the deliquescence of the potassium iodide, which is merged in the new definite salts with which they are charged; for it was only after free exposure in a dampish room without a fire, a trial to which no delicate test should reasonably be submitted, that they became slightly limp, but even then without showing any diminution of their albumen-precipitating property. So far I can assert I have seen nothing to cause me to doubt the stability of even these reagents employed as test-papers, and they are the only members of this series of albumen precipitants which *a priori* might be thought at all susceptible to the deleterious effects of atmospheric influences. Though referring to a test touching another subject, I may say that my cupric papers, designed for the qualitative and quantitative estimation of sugar, and made over two months ago, are to-day as good and as sensitive as they were when freshly prepared.

In a leader of the *Medical Times and Gazette* for 1874 will be found the following passage, which tersely expresses the opinion of the writer as to the trustworthiness and adaptability to the requirements of medical work of the tests for the detection of albumen as then known: "The reader

(21)

who has followed us so far will, we think, agree with us that none of the common tests are quite satisfactory, and that we still lack one which shall be cleanly, portable, cheap, and certain." I leave it for my readers to decide whether this remark still holds good.

In concluding these notes on the qualitative tests for albumen, I must state my consciousness of the imperfection of isolated observation, however faithfully recorded, and I would fain seek the scrutiny of many eyes, to correct if needful, or to more truthfully limit, any of the matters here advanced. With this object in view I have asked Mr. Hawksley, 357 Oxford-street, W., to place a limited supply of these test papers at the disposal of the profession, and to furnish gratuitously the series to anyone who desires to put them to a careful trial, and who will kindly communicate the results of their observations to me or to *THE LANCET*. In the meantime I hope that favorable evidence will not be long forthcoming to prove, as I have found, how satisfactorily they meet the requirements of daily work at the bedside, and to indicate which of them should be regarded as the best workable tests.

Harrogate.

ANTE-MORTEM COAGULA IN THE RIGHT CHAMBERS OF THE HEART AND PULMONARY ARTERY.

By JOSEPH EWART, M.D., F.R.C.P. Lond.

I NOTE from *THE LANCET* of March, that Sir Joseph Fayrer has recalled the attention of the profession to a mode of death which may occur after injury and operations in hot and malarious countries, occasioned by the formation of decolorized coagula in the right auricle or ventricle of the heart or both, and often extending, to a greater or lesser extent, along the distribution of the pulmonary artery. He, I think, appropriately associates this very mortal condition with some hitherto not fully understood lowered vitality of the blood and its containing apparatus, induced by the action of malaria upon the vaso-motor centres and the hæmopoietic organs. Under such circumstances, although no very marked or discernible deterioration of the general health may be apparent, and especially if the temperature be high and the atmosphere very humid, even slight injuries and moderately severe operations may and do, often unexpectedly, end unfavorably from this cause, but for the appearance of which the cases would, in all probability, have terminated in recovery. When there are manifest evidences of malarial poisoning, such as the facies miasmatica, anæmia, portal plethora, impeded and disturbed digestion, feebleness of the circulation with or without splenic or hepatic enlargement, etc., the danger of death proceeding immediately from the precipitation of these ante-mortem coagula is proportionately increased; and when, as is frequently the case, during the malarious season in India and other tropical or tropoidal regions, the patient is actually suffering from recurrences of periodic fever, or may have recently been so affected, the risk of a fatal issue from this among other causes is so over-ruling that, except on a careful calculation of the chances to save or prolong life, surgical interference had better be postponed, because experience shows that it is unjustifiable.

The group of cases referred to as occurring most frequently in hot and malarious countries is distinctly demarked, according to my experience, from the still larger class in which ante-mortem coagula in the right cavities of the heart and pul-

monary artery often expedite, or constitute the immediate cause of death, in cases of surgical or puerperal septicæmia and pyæmia and other exhausting diseases. Not only is this deposition of the fibrin of the blood in the right cardiac chambers often the immediate cause of death after surgical operations and injury in tropical and malarious climates, and altogether independent of any recognizable septicæmia or pyæmia either during life or on post-mortem examination, but I have repeatedly observed that in purely medical cases of malarial poisoning, where the patients, though not in what would be called robust health, have been able to go about their ordinary avocations, death has supervened from the obstruction caused by the more or less rapid accumulation of decolorized coagulum in the right auricle and ventricle, or in the pulmonary artery after what, at the commencement, seemed to be a trivial complaint. That such coagula may and do occur under similar bodily conditions, more frequently after operations and injuries, need therefore create no surprise.

What may be the exact nature of the changes in the blood and its conducting channels which favor and promote the precipitation of its fibrin with such fatal effect in the situation and manner described, it is, in the existing state of our knowledge, impossible to say. The fact, however, remains that in persons who have been subjected to malarious influence, and more particularly in those who have suffered from any of the types of periodic fever and sustained some damage, though not always apparent, to the vaso-motor centres, spleen, liver, and blood, the possibility of death supervening from an ante-mortem clot, so filling up the right cavities of the heart and the pulmonary artery as to fatally obstruct, in a preponderating majority of instances, the cause of the circulation through the lungs in surgical cases in India, is a contingency which, since Sir Joseph Fayrer first directed attention to the subject in 1866, can scarcely any longer be excluded from consideration either before or after operation.

Brighton.

OBSERVATIONS, CLINICAL AND SANTARY, CONCERNING THE BACILLUS OF TUBERCLE.¹

By G. A. HERON, M.D.,

Senior Assistant-Physician to the City of London Hospital for Diseases of the Chest.

IN June last I began to give attention to the clinical aspect of Koch's great discovery of the bacillus of tubercle. Sixty-two patients, amongst others, have since that time come under my observation in whose sputa I have detected this organism. I selected these cases almost exclusively from hospital practice, and I submitted them to special examination, because they seemed to me to be types of that kind of disease in which the bacillus should be present in the sputum. Were I asked to describe these patients, I should say that they were people of both sexes, and of various ages. The youngest of them, a boy, was ten years of age, and the oldest was a man of sixty-five. The majority of them were between twenty and thirty years of age. These persons were not distinguished by the prevalence amongst them of any particular color of the hair or eyes, nor of any special temperament. They were examples of the ordinary English working-man and woman. Their moral conditions were probably as various as they

well could be. Many were evidently hard-working, sober people, leading a life of constant toil. Others could not, with any approach to truth, be described as either sober or hard-working. This last class, I am bound to say, was not largely represented. It is obvious that no sound conclusion can be come to from a consideration of any possible connection between the occupations in which these people were engaged and the disease from which they suffered. Their number is too limited for any such purpose, and besides that, there were amongst them tradesmen of various kinds in a small way of business, costermongers, a city missionary, watermen engaged on the Thames, sailors, tailors, tailoresses, shoemakers, a policeman, soldiers, railway servants, cabmen, domestic servants of all grades, from men and women who said they were cooks, down to the poor creature who was evidently the drudge of a low-class lodging-house, but who called herself a "general servant." The physical examination of these patients showed them to be, with very few exceptions, more or less emaciated. Even those who formed these exceptions, told of how they had observed that they had lost flesh, and that they felt unfit for work which had formerly been no great trouble to them. All of the sixty-two showed evidence of disease of the lungs; flattening and impaired movement, more or less marked, of the chest walls; dulness at the apex or apices, or elsewhere over the lungs, and compromising these organs to a greater or less extent; râles, varying in kind from the mere click to the metallic ring, as of bubbles bursting in an air-filled cavity. In short, these patients showed, in different degrees, the usual symptoms which we associate with phthisis. Bronchitic signs and the rub of an inflamed pleura, were common occurrences. I wish again to say, that all of these cases were selected because they seemed to me to be unmistakable examples of phthisis. In three of these patients I searched the sputa weekly for the bacillus, but failed to find it until the third week in two instances, and the seventh week in the other case. In one of the two patients in whom the bacilli were not detected until the third week, the organisms, few at first, increased in numbers with wonderful rapidity. My experience of these sixty-two cases inclines me strongly to the belief, that the presence of these organisms in the sputum of any individual is, of itself, sufficient to stamp that person as suffering from a type of disease whose identity is fixed by the presence of the bacillus of tubercle, no matter what other peculiarities may seem to mark the disease.

I venture to think that the prognosis of cases of consumption will, for the future, hinge upon the observation of certain points in connection with the presence and appearance of the bacillus. I believe that amongst the most important of these are the numbers and the forms in which the organism is found in the sputum. I think that it will soon be established to the satisfaction of all who give attention to the subject that, given a persistence for some weeks of fewness of the bacilli of tubercle in the sputum, and that case will probably run a long course. On the other hand, I think that, given persistence of a large number of bacilli of tubercle, in the sputum early in the history of a case, and that case will run a short course, and end in death. Of these cases the most rapidly fatal, in my experience, have been those in which the bacilli were seen grouped in numerous masses throughout the sputum; grouping in masses may be seen in cases in which the bacilli are not very numerous, as well as in cases in which they are present in large numbers. The feature to which I now refer is, that the masses of

¹ A paper read before the Society of Medical Officers of Health, on Dec. 15th, 1882.

bacilli are so numerous as to give a characteristic appearance to many of the microscopic fields. I should describe three or four bacilli in a field as indicating the presence of few of these organisms; when their numbers rise to, and persist at, about thirty or more in a field I should say that the bacilli were numerous.

And now as to a part of this subject to which the medical officer of health cannot but attach great importance. Dr. Koch, as he says himself, undertook the work which resulted in his great discovery of the bacillus of tubercle in the interests of the public health. He fills the post of Officer of Public Health in Berlin. In the record of his researches upon tubercle, he shows how deadly were the effects of sputum containing the bacillus of tubercle when animals were inoculated with it. He allowed the sputum to dry, as it may sometimes be seen drying upon a hospital floor, not always in an out-of-the-way corner. Dr. Koch found tuberculous sputum, dried in this way, to be as surely fatal in its results when an animal was inoculated with it, as had been the case when he inoculated with the bacillus which he had obtained by cultivation of the organism from tuberculous tissue; and those who are familiar with his work will know the full significance of that statement. Now, if Koch's experiments with tubercular sputum are correct, there open out to us probabilities, which have facts for their foundation, concerning the way in which phthisis is spread amongst men. Taking his views as true, we must admit, it seems to me, that the expectoration of a consumptive person probably always contains, in a greater or less amount, a poison of the most virulent kind. Apply this to occurrences which must have been frequent in the experience of every medical man. I cannot better illustrate what I mean than by relating to you an experience of my own. Not long ago I saw a patient, for the first time, who was far advanced in consumption. While I was examining her chest she was seized with a violent fit of coughing. When it had passed off, she asked the nurse to give her a handkerchief. After spitting into a vessel what had been coughed up, she wiped her lips with the handkerchief, and the nurse laid it upon the mantel-shelf. In the course of my visit there was a second but slighter attack of coughing, and after it the patient took another handkerchief from below her pillow and passed it over her lips. Now, here were sources from which, with Koch's work before us, we cannot say that it was impossible for infection to spread. I think that if we believe that Koch has shown us the truth about tubercular sputum, we are bound to regard it as, at least, very possible that, without proper precautions, these two handkerchiefs might have conveyed tubercular disease to other people, for I found, on examination, that this patient's sputum contained bacilli in large numbers. These handkerchiefs might have been thrown into a soiled linen basket containing other articles, and sooner or later they must all have been washed. Again, consumptives often live for years after their disease has declared itself, and how many of these sufferers habitually keep a handkerchief under their pillows? If these things are so, how comes it to pass that tubercular disease does not go very near to exterminating the human race? That is just one of the questions to which we must now search for an answer. That tubercular disease does not readily pass from man to man in the ways now hinted at, is a view which accords with all our present knowledge of the subject. But there is a long distance between the belief that tubercular disease may be propagated by those means, and the belief that such modes of propagation are common. What the truth about this question exactly is we do not yet know. But

there are other possible sources of infection, for Koch has demonstrated the presence of the bacillus of tubercle in horses, cattle, sheep, dogs, cats, rats, mice, hens, and other animals with which men come into frequent contact. It is true that we do not know that tubercular disease has ever passed from the lower animals to man; but it is also true that we do not know that it has not so passed. In estimating the worth of Koch's work, we must not forget the fact, that the presence of the tubercle bacillus in certain cases of disease has already been verified by a large number of observers in Europe and in America, and we must, of course, give such a significant fact as this its full weight.

The question, How does phthisis spread amongst mankind? is probably one of the most difficult which medicine has to ask. I venture to think, that in the future we must search for the answer to that question in the light which Koch has shed upon it by his brilliant work.

Deductions.—1. The presence of the bacillus of tubercle in sputum is of itself sufficient to fix the identity of certain cases of disease. 2. The course which such cases will run is indicated by the number and grouping of the bacilli in the sputum. 3. If we accept as true Koch's recent work on tubercle, we are bound to take precautions against the possible infection of healthy persons by means of sputum containing the bacillus of tubercle.

A SUCCESSFUL CASE OF GASTROSTOMY.¹

By F. KING GREEN, F.R.C.S. Eng.

Surgeon to the Bath Mineral Water Hospital, and Senior Assistant-Surgeon to the Royal United Hospital.

THE operation for gastrostomy for cancer of the œsophagus is receiving a new interest from the profession. Simple, bloodless, and easy of performance, yet there was none more fatal, until Howse, recognizing the fact that the peritoneum, if placed under favorable circumstances, possesses healing properties second to no other tissue in the body, devised the plan of dividing the operation into two portions, separated by an interval of a few days. The success which has attended this method has rendered his name inseparable from the operation, and I have much pleasure in adding another successful case to those already published.

The patient, a lady aged fifty-six, was sent to me in August last by Dr. Fox of this city. For many years she has suffered periodically from slight dysphagia; these attacks were sometimes months apart. Twelve months before consulting me she first noticed a persistent difficulty in swallowing solids, which slowly increased until, when I saw her, she could only swallow thin liquids, and these with prolonged and painful efforts. Occasionally food regurgitated. A soft œsophageal tube passed for diagnostic purposes met with firm obstruction opposite the cricoid, beyond which no forcible attempt was made to pass it. The tube, on withdrawal, was covered with bright-red blood. Externally there was slight fulness in the lower part of the neck, with induration of thyroid and loss of the natural lateral mobility of the trachea, which, with the thyroid, seemed fixed posteriorly. Tenderness on pressure was revealed, and two or three enlarged and hardened glands existed in this region. A slight inspiratory stridor was perceptible on exertion, and occasionally a remarkable intermission of every fourth beat of the pulse, last-

¹ Read before the Bath and Bristol Branch of the British Medical Association, Dec. 9th, 1882.

ing for an hour at a time. Emaciation was well advanced, and debility kept pace with the emaciation. Eucemata of beef and porcine pancreas juice were ordered. A preliminary examination of the abdomen revealed the liver drawn down on the right side to a level with the umbilicus, and quite fixed; in fact, the right hypochondrium was entirely occupied by a solid substance as far as the median line, between which and the left cartilages, however, the abdomen was soft and resonant. The stomach note was normally placed. I operated on September 11th. I found, as anticipated, that the liver was absent to the left of the median line, and the stomach was in immediate relation with the diaphragm, through which I felt with my finger the immense power of the heart. The stomach presented at the wound, the part presenting being the centre of the anterior wall. This I secured by eight catgut sutures, which were made to include half an inch of the apposed peritoneal surfaces. The operation was antiseptic, and methylene was administered. The line of incision was a finger's breadth from the cartilages, and during the operation I found that the peritoneum and fascia transversalis contracted away from the outer margin of the wound, and became well drawn behind the costal margin; this was not the case on the other side. The effect was to give the wound a puckered appearance when completed. In fact the contraction was so powerful that the outer lip of the wound, in spite of the support received from the contiguous costal margin, became inverted, and on a posterior plane to the inner lip. I think if I had to do this operation again I should make the incision nearer the median line. For five days the progress was most satisfactory. Retching occurred once only. The pulse never exceeded 86; the temperature only once reached 99°. On the sixth day I opened the stomach and inserted a small rubber tube. The next day two pints of fluid food were given in divided portions, after which there was no stint of it. No leakage has ever taken place by the side of the tube (which is secured with plaster), for the simple reason that the tendency of the sinus is to contract against the eccentric pressure of the rubber tube, and so no moisture escapes. Twelve days after the operation the patient went out in her carriage. But, with convalescence from the operation, another set of symptoms began to develop. The inspiratory stridor, which was slight and occasional before the operation, became at last persistent and severe; the voice lost, and violent paroxysms of cough, accompanied with a dread of suffocation, left no doubt that the original disease was pressing on the recurrent laryngeal nerves. These symptoms advanced with such rapidity, that on the twenty-third day from the first operation I performed tracheotomy. She again made a rapid recovery, and in three weeks was again out of doors. At present, fifteen weeks from the first operation, her condition may be described as one of comparative comfort. She takes a drive when the weather permits, and her laryngeal symptoms have vanished. On referring to the medical literature of gastrostomy and gastrotomy I find sixty cases recorded, nearly all of them in *THE LANCET*, although I believe this does not represent the full number. Of gastrostomy there are eleven cases for the removal of a foreign body from the stomach; of these ten recovered rapidly and one died. The remarkable success which has attended this operation presents a striking contrast to the fatality of gastrotomy when performed for malignant disease; nor have we to look far for the cause of this difference. The eleven operations I have cited were performed on patients who were in possession of good bodily health and vigor. They had not been

subjected to a chronic process of starvation, combined with the debilitating influence of a cancerous cachexia; and in strong corroboration of this one has but to glance at the record of seven cases of gastrotomy performed for traumatic stricture of the gullet, produced, in each case, by the swallowing of a corrosive agent. All of these seven patients were under twenty-two years of age, and although in every case more or less exhaustion from chronic starvation was present, yet there was not superadded to this cancerous cachexia, and, moreover, they had youth on their side. Of these seven cases two died; one on the twelfth, the other on the twenty-eighth day; the report says from inanition, and probably this is correct. The operation in all probability had not been performed sufficiently early. One was by Howse's method; the other by the old (single) operation. Of the five which recovered three were by the old and two by Howse's method; so, if we may judge from so small a number of cases, it would seem that for traumatic stricture the single operation has been as successful as the double. But it is on turning to gastrotomy for malignant disease that we find Howse's operation more successful than the old one. I find that of twenty-two cases of the old operation twenty died within a week, and most of them about the third day; three died within a fortnight, and one lived forty days. Of twenty cases operated on by Howse's method, one is vaguely stated to have died ultimately, nine died within fourteen days, three lived until two months afterwards, one lived five months, one was stated to be going on well on the ninth day, one was discharged from the hospital relieved on the twelfth day, one was going on well on the thirtieth day. Three were living between four and five months after the operation, and to these may be added my own patient. I may state that in reading the reports of these cases, I frequently met with an expression of regret that the operation had not been performed earlier, and so a better chance given to the patient.

CASES OF PUERPERAL SEPTICÆMIA.

By FRED. C. CORY, M.D. St. And., etc.

THE following cases with the remarks appended may interest the readers of *THE LANCET*.

Mrs. R—, aged twenty-three years, a healthy and fairly strong young woman, was confined after a few hours of active labour of a well-nourished male infant. She progressed favorably until the third day, when I found her feverish, pulse 120, temperature 103.5°; furred tongue, great pain in the head, intolerance of light, pain in and distension of abdomen, lochia scanty and fetid, bowels and bladder acting, with very little milk in her breasts. At this stage I observed the infant to have purulent ophthalmia of both eyes. The house was not well drained; the bath room adjoined the lying-in one; the waste pipe of the bath I found to be untrapped and in direct communication with a sewer from which an immense amount of sewer gas was escaping. This was forthwith plugged, and I gave directions to have it trapped effectually. Fortunately I had with me a Higginson and a full-sized gum-elastic male catheter. Removing the patient to the edge of the bed with the nates well over the side, a waterproof sheet under her to protect the bed, and a good sized foot bath at hand, and a large jug of warm water, temperature about 96°, with the addition of a small quantity of salt, I connected the catheter by a piece of elastic tubing with the bone pipe of the Higginson, then introducing the former quite up

to the fundus of the uterus washed out the cavity of that viscus completely, to the great relief of my patient, she exclaiming, "My head is getting better." The stench was most offensive and abominable. This process was repeated daily for a few days combined with occasional warm turpentine flannels to relieve the abdominal distension. Bark with effervescing citrate of ammonia and a light nourishing diet soon put my patient on the convalescent list. The escape of sewer gas from the bath room was no doubt the cause of the uterine trouble, and probably added its quota as a factor to produce the purulent ophthalmia in the infant. No ergot was given in the labour. I mention this on account of a case I once saw where ergotine was subcutaneously injected in the arm for post-partum hæmorrhage. Erysipelas supervened, first around the needle puncture and then all over the limb, the patient suffering much from septic poisoning, and being in great peril for some time, although ultimately making a good recovery.

Mrs. D—, married at sixteen, had always enjoyed good health and never required the doctor except for her confinements, of which she had had already four healthy children, but always with "after trouble," as she expressed it. The coming accouchement she greatly dreaded. I carefully inspected all the drains and traps in the house, and found them working well. In due course she had an ordinary labour, occupying only a few hours. A strong healthy boy was born. On the evening of the second day she was seized with shivering, headache, abdominal pain and tenderness, lochia scanty and offensive, bowels obstinate, urine full of deposits, skin moist, pulse 125, temperature 103·2°, much restlessness, was very depressed in spirits and hysterical, no milk in the breasts. Great and immediate relief was derived from the washing out of the uterus and vagina, so much so that she had some hours of refreshing sleep, and relieving all the other distressing symptoms. The other treatment was by tonics, light and nourishing diet, which soon completed a cure. I could discover no cause for her "after trouble," as she expressed it. Eighteen months having elapsed, I was again requested by Mrs. D— to attend her. I advised her to obtain every article required for her accouchement quite new, even to bed linen, waterproof sheets, etc., having long suspected the enemy might lie concealed in the articles of clothing made use of at her confinement. A short time afterwards she was delivered of a healthy girl, and made a rapid recovery, entirely free from any septic trouble whatever, the surroundings being the same as in all the other confinements.

In thinking over this case I can come to no other conclusion than that the linen and bedclothes contained the fomes of disease. The above two cases are only types of a great many others having similar characteristics which I have met with in a large obstetric practice of some years' duration. Since I have adopted the plan of syringing out the vagina, and in some cases the uterus too, with warm water (a little salt added) on the second or third day, I have had no difficulty in preventing disease and procuring a rapid and complete recovery, saving the woman much suffering and much dosing with physic.

I have known the following cause post-partum septicæmia:—1. Bad drainage and escape of sewer-gas in the house—such as deficient closets, sinks, and waste water-pipes in cisterns untrapped. 2. Open gully-holes near the house and bedroom. 3. Surface drainage from other houses passing in ditches or watercourses. 4. Closets placed over stagnant ponds near to the house, which are common enough all over the country, especially at

farm-houses. (The farm stock always drink this pond water, and seem to prefer it.) 5. Dirty pigstyes near the dwellings of the poor. 6. Scarlet fever and erysipelas infections can be traced to have caused post-partum septicæmia. I have several times had to attend women in their confinements who up to that time had been constantly watching and nursing their children down with scarlet fever. Yet nearly all these women recovered without the slightest sign of after septic trouble.

During the epidemics of scarlet fever this fact is well known to every practitioner of medicine. I once had a case of severe traumatic erysipelas of head and face, with great constitutional disturbance and delirium, in a patient who was confined at the height of the disease. I dreaded the post-partum consequences, for she was a very valuable life. However, she had a good delivery, and made a rapid recovery, without any symptoms of uterine trouble. I do not infer from the above fact that the obstetrician should be careless in exposing his patients to unnecessary infection. He cannot be too careful in cleanliness, and in changing his clothing as often as needs be.

Buckhurst-hill, Essex.

ON A CASE OF PUERPERAL SEPTICÆMIA.

By ARTHUR PRICE, M.R.C.S.E., Etc.

On Sept. 23rd last I was called to attend Mrs. D—, a primipara, aged thirty-eight years, a very tall, strong, healthy woman. I found that she had had some hæmorrhage for twenty-four hours, due to a partial placenta prævia, which was forthwith detached. The labour proceeded satisfactorily, and very soon a female child was born. The placenta followed without aid shortly afterwards; it was carefully examined, and found to be complete. Scarcely any post-partum hæmorrhage occurred. The whole time occupied by the labour from the first call was under two hours. The three following days the patient, though anæmic, did fairly well; but on the 27th (the fifth day) she complained of pain over the abdomen, especially referred to the right iliac region accompanied by slight nausea, for which a saline and opium mixture was prescribed.—28th: Pain was easier: patient anæmic; dusky in countenance; had been vomiting. Temperature 103°; pulse 112; respiration 28. The nurse who was engaged by the patient had been burning pastiles, which, however, did not hide the effluvium from faecal matter. Asked if the bowels had been relieved, I was informed that such had not been the case, but that the nurse burnt the pastiles to hide the smell from the water-closet. Upon inquiry, to my horror and surprise, I found that the following sanitary arrangements existed in apartments for which the patient paid £600 a year; and of which the nurse did not consider it necessary to inform me:—Separated from the general apartment by a thin match-boarding, but in the room, was a water-closet used by her attendants as well as herself, the window of which, although communicating with the outer air, could not be opened; there was also in the room a sink into which an overflow pipe was constantly discharging water. To complete the disasters, the nurse had actually stored up in pails the whole of the linen that had been used by the patient since the day of the confinement, and from which, when the door was opened, a most disgusting odor arose. I ordered all the linen to be carbolized and removed immediately, drains flushed with carbolized water and not used, and the room sprinkled

with the same. The window of the water-closet to be taken out and the door kept closed. The patient refused to allow herself to be removed. Medicine ordered: effervescent mixture and opium, vaginal injections of carbolic lotion (1 to 100).—29th: Vomiting continued, pallor increased. Temperature 102° A.M., 104° P.M.; pulse 120; respiration 30. Continued the mixture. Pill of one grain of opium to be given every four hours, and half an ounce of brandy every four hours alternated with the pills.—30th: Sickness continued. Temperature 103·2° A.M., 104·8° P.M. No pain. Lochia and other secretions fair in quantity. Child still sucking and well. Ordered two grains of quinine with one grain of opium every four hours. Ten ounces of champagne in twenty-four hours at equal intervals. The nurse, who was most incompetent, was now dismissed and her place taken by two trained nurses.

Oct. 1st.—Sickness continued. Slight diarrhoea. Pain in right iliac region. Temperature 104° A.M. Dr. Potter, of Westminster Hospital, in consultation, ordered immediate removal from room, which was at once done. Continued pills. Medicine to be discontinued. Vaginal injections were used three times a day. Temperature 105° P.M., pulse 95.—2nd: Improvement after removal marked for a few hours, but towards evening temperature again arose. Lowest temperature 100·8°, highest 104·4°. Lochia profuse and offensive. Tenderness over abdomen. No tympanites. Milk, beef-tea, and chicken broth were given in small quantities every hour if awake, with half an ounce of brandy every four hours. Three motions very pale and clay colored.—3rd: Was very much easier. Slept well. Temperature, highest 103°, lowest 100·2°.—4th: Bowels relieved twice. Slight return of pain. Temperature fell slowly to 96·6°, but rose again after brandy. In the evening a slight rigor occurred, but soon passed off. Temperature 101·2°.—5th: Bowels relieved three times, motions still clay colored. Copious perspiration, with faintness; slight cough. Temperature: highest 100·4°, lowest 98·2°, pulse 120, respiration 42. Brandy essence and jelly were given frequently in small quantities. No pain.—6th: Great deal of pain in side. Tympanites over umbilical and right iliac regions. Temperature A.M. 99·2°, which during the afternoon steadily rose to 103·2°. A slight rigor again occurred at midnight. Pulse 122, respiration 36.—7th: In great pain; very restless. Again met Dr. Potter in consultation. A rigor had occurred just previous to his arrival. Temperature 104°, which fell in two hours to 96°. Fomentations for pain, hot water bottles, etc., were ordered. Temperature again rose in two hours to 102·6°, and then fell to 98° at 7 P.M. Death occurred at 7.45 P.M. A post-mortem was refused.

Remarks.—In this case we have present all the elements necessary for the production of puerperal septicæmia. A woman coming rather late in life to the birth of her first child with a certain amount of mental anxiety is confined in a room which might be more correctly described as a large water-closet without ventilation. She is then badly nursed, and the effluvia of foul cloths soaked in lochia allowed to still further defile the atmosphere. The removal to a somewhat purer air caused the balance to turn in her favor for a moment, but the system was too charged with poison to render the case anything but hopeless. It is only another and very marked instance of the importance of the doctor inquiring for himself into the sanitary condition of the lying-in chamber, and his being aided at the time of his attendance by a skillfully trained nurse instead of an ignorant and incompetent one.

Parkhurst, Isle of Wight.

A RARE CASE IN MEDICAL PRACTICE.

By H. E. SARGENT, M.D. Edin., etc.

Mrs. B—, aged forty-five, weighing 17 st., on May 7th, 1882, fell on a zinc pail, its edge striking the abdomen two inches to the right of, and on a level with, the umbilicus. A day or two after the fall a tumour, semi-elastic, with distinct outline, could be traced at the seat of injury. It was only slightly tender, and appeared to have deep-seated attachment. About July 20th the skin over the tumour began to discolor. Poultices were applied, and at the end of another week it commenced to slough. Gradually a black mass was disclosed, revealing the true nature of the tumour, which was evidently a blood-clot. This gradually became enucleated, and in due time was turned out, leaving a chasm in the abdominal wall, four inches wide by three deep. Cotton-wool steeped in carbolic oil was used to plug the cavity from the bottom, which rapidly closed. On July 10th Dr. Fenwick, of Harley-street, saw the case with me in consultation. After an exhaustive examination he accurately diagnosed the nature of the tumour as verified by its subsequent history. The case is interesting from its rarity, and the complete recovery under a strictly expectant plan of treatment, aiding the *vis medicatrix nature*. The fall must have caused muscular rupture at the seat of injury, with subsequent hæmorrhage into the cavity thus formed.

Shadwell, E.

CASE OF HYSTERIA; RAPID BREATHING SIMULATING CARDIAC OR DIABETIC DYSPNŒA.

By EDWARD MACKEY, M.D., etc.

DYSPNŒA, or rapid panting respiration, is recognized as a possibly hysterical symptom, but in certain good text-books not much stress is laid upon it. Thus Dr. Russell Reynolds says only "palpitation of heart, syncopal feelings, and dyspnœa are common enough, the latter, however, without notable change in the ratio of respiration to pulse"; and Niemeyer: "The patients complain sometimes of very great oppression, and breathe quickly and deeply; but by excluding all disease of the respiratory passages, of the circulation of the blood, and of nutrition, which might otherwise explain the increased 'besoin de respirer' one recognizes that there is only a hyperæsthesia, or at least an altered sensation." The following case illustrates, however, a decided alteration "in the ratio of respiration to pulse," and at the same time a source of difficulty when cardiac or hæmic disease is present; more applicable to it is a sentence of Dr. Bristowe's: "In some cases there is actual dyspnœa, which becomes so extreme as to demand operative procedure.....without apparent cause, and with a pulse but little elevated above the normal, the respirations will suddenly rise from 40 to 50, or even 70 to 80 in the minute, and continue thus for some minutes, or on and off for some hours, and yet without other evidence of dyspnœa or distress."³ I had never quite appreciated this description until I met with the following case.

On Nov. 10th, 1881, at 10 P.M. I was sent for hurriedly to find a girl, aged seventeen, sitting up in bed, breathing 88 to 98 times per minute, with

¹ System of Medicine, vol. ii.

² Handbuch, 2ter Band.

³ Theory and Practice of Medicine, p. 1082.

occasional convulsive gasps, and complaining of severe pain and oppression in the cardiac region. The face was blanched; the pulse feeble, 64; temperature 99° F. To her family she seemed dying. Six months before this date I had attended her for aggravated chlorotic anemia, all the symptoms of which had improved under iron, etc., except a loud systolic basic bruit, which had persisted unchanged, and was now so loud as to obscure all other chest sounds (it was this and the cardiac pain that gave apparently a serious complexion to the case). She had seemed a sensible girl, always occupied in house-work, etc., but recently had had disappointments, and for some days before the attack extra exertion both as to work and pleasure. The rapid breathing had commenced an hour or two before my visit. Reserving judgment as to the real nature of the attack, hypodermic morphia with atropia (in ordinary dose) seemed indicated, and certainly quieted all the symptoms; the girl slept, with relapses at intervals, and a purgative was required and given later, and then a few doses of bromide with digitalis. Next day she remained in bed, apparently improving, but on the following morning (Nov. 12th) relapsed violently; the respiration went up from 88 to 128 per minute, and in the afternoon the symptoms were so alarming that a consultation seemed desirable. Dr. Withers Moore then saw her with Mr. Verrall (kindly taking charge in my temporary absence), and whilst recognizing possible hysteria, they desired an examination of the urine with reference to diabetic dyspnoea. The fact of retention for many hours was then verified, and catheterism was attempted but resisted; the secretion, however, was free from either albumen or sugar; sp. gr. 1027. At the consultation a-quarter of a grain of codeia was ordered every two hours as a suitable sedative in any case. During the evening and night, respiration varied from 100 to 120 per minute; the pulse from 59 to 72. Nourishment was taken through a glass tube, but with much difficulty, as it made the breathing more rapid and spasmodic. Two drachms of brandy every two hours.—13th, morning: Pulse 68; respiration 68; temperature 98°. Had severe headache (brandy and codeia?): better now after tea. Has pain in the left shoulder, running down the arm, and numbness in the fingers of the left hand. 3 p.m.: Crying; agitated by visitors, etc. At 4 I received a hurried message that I "should not be in time for her last breath." Found her gasping with most urgent orthopnoea, apparently dying, the family in tears round the bed, and a clergyman giving the last ministrations of religion. Apparently she took no notice, but a slight quiver could be detected in her eyelids, and the pulse was regular, though slow and feeble. All present, except the mother, were sent away, the window was opened, morphia injected with atropia, and a blister painted over the epigastrium. In a few minutes I sent out word, in her hearing, that she was better, and this led to an explosion. She screamed, burst into violent passion, struck me, her mother, the bed, the wall, shouting, "Go away; I don't want you." Afterwards she said she saw "an old man with a bag," and meant her blows for him. The sedatives might have developed this delusion, but the dose was an ordinary one. She was ordered valerian and bromide by mouth or rectum, and at 10 p.m. sat up for bed-making. Pulse 60; respiration 48. A calomel pill was given.—14th: Slept well; water passed. Pulse and respiration about 60. 4 p.m.: Sent for, to find her in a wild and markedly hysterical condition, screaming, fighting, tearing clothes, curtains, etc.; four men were holding her. She was moderately chloroformed, became quiet and sensible in five minutes, and submitted to a turpentine enema.—

15th: Slept well from midnight. Pulse 60; respiration 80, occasionally normal. Is fairly quiet, but shows temper on the slightest provocation. At 10 p.m. she had a return of delusion and anger, which chloroform quickly subdued.—17th: Chloral with bromide was of service during the night, and valerian in the day.—25th: Has mostly lain in bed since; exhausted; but now is better, and getting up daily.—30th: A relapse.

Dec. 10th: Menses appeared, after a delay of one to two months.—18th: Relapse as to rapid breathing and excitement.

Jan. 7th, 1882: Going on well—i.e., sits up most of the day and goes out in a Bath chair, but seems "silly at times," emotional, over-affectionate, crying easily, "You don't care for me"; says she cannot walk, no confidence in moving, staggers across the room; apparently want of control over her limbs. Her chief attention is now given to her appearance, hair-dressing, etc., or trivial things, as dolls. This condition improved under sharp speaking, and directions in her presence that she should be left alone and not nursed too much. Zinc valerianate and wine of beef and iron.

Feb. 3rd: Found that she had hidden chloral, and to-day took an overdose that produced profound sleep; this was made a lesson to her, and from this date she gradually improved and resumed house occupations.

June 6th: Continues fairly well, but very pale and not strong; is growing; menses have intermitted once, but recurred recently; has no special pain over the heart, nor palpitation, nor dyspnoea, except on exertion, mostly when going upstairs or uphill. Pulse 80, regular, small, jerky, not visible; no epistaxis; no oedema. There is still a bruit, basic systolic, of maximum intensity about the third left costal cartilage, heard, though less, at the right; not propagated upwards; inaudible at apex or along the spine; it is rougher, less blowing than an ordinary hæmic bruit, though it is probably of the same nature; it is made louder by exertion; the second sound is accentuated at the base.

This case suggested inquiry into the distinctive characters of diabetic dyspnoea, and they would seem clearly different and distinguishable from such conditions as I have described. The severe diabetic form is rare, and in the course of many years' hospital and other experience I have never seen it. Kussmaul, in 1874, first drew attention to it as dependent on blood alteration, notably the presence of acetone. Dr. Cyr, writing in 1877, says, "the dyspnoea generally comes on suddenly and with violence; the inspirations are deep; both inspiration and expiration are prolonged; the air passes well into the lungs, but apparently does not oxygenate the blood; the attacks may recur several times, but finally the patient becomes unconscious; the duration until death varies from ten hours to three days." Dr. B. W. Foster, whilst lecturing in the wards of the General Hospital, Birmingham, was called hurriedly to a diabetic boy who had been going on favorably as an out-patient for many months, and had only been admitted the day before; he found him in a state of urgent dyspnoea, with a respiration of 32 per minute, "with deep, ample, chest-filling inspirations, taking in large volumes of air but without any satisfying of his craving;" chest everywhere resonant; pulse small, weak, 136; the symptoms commenced with sickness and pain at the epigastrium. The boy died the next day. The same physician has recorded another case—adult, with respiration 50 to 60 in the minute, long, deep, and filling, but not satisfying the air hunger, and another, similarly described, 30 per minute. Pro-

fessor Sanders in the *Edinburgh Medical Journal*, July, 1879, tracing the attacks rather to fat embolia than to acetonaemia, thus describes the condition in a diabetic man, aged twenty-four:—"He had intense dyspnoea, but with inspiration and expiration of extraordinary fullness and depth, like a man who had won a mile race; the ribs, etc., moved upwards and outwards to the fullest extent, and descended with exaggerated force; there were no râles; air entered freely, but he presented a picture of air-hunger, so insatiable that no violence of respiratory effort could appease it." Pulse, 100; temperature, 100°. The heart condition offered no explanation; stimulants gave no relief; after thirty-six hours he lapsed into coma and died.

In the same journal for September last is a case by Professor Fraser. A man of thirty-five, breathing 34 per minute and in an exactly similar manner. The face and hands were dusky, the pulse 154, weak. An additional diagnostic was afforded in this instance by drawing from the finger a drop of blood which proved of characteristic cream and pink color and full of oil globules.

These, and several other cases on record, all agree in the depth and fullness of the respiration, which in quickness seldom exceeded 40 per minute, and in character was altogether different from the shallow, very rapid breathing I have described. Violent epigastric pains may occur in both conditions. A rapid pulse is almost invariable in diabetic cases, and was present in all those quoted; Senator (in Ziemssen) and Lepin have drawn special attention to this. In my case the pulse did not exceed 72, and was commonly 60, a useful diagnostic point.

Brighton.

NOTES ON SURGERY

By WILLIAM S. SAVORY,

Surgeon to St. Bartholomew's Hospital.

On Syme's Amputation.

EVERYONE knows that Mr. Syme attached very great importance to certain details of the admirable operation of amputation at the ankle-joint that goes by his name. He insisted especially upon the position of the incision across the sole. "The foot being placed at a right angle to the leg, a line drawn from the centre of one malleolus to that of the other, directly across the sole of the foot, will show the proper extent of the posterior flap. The knife should be entered close up to the fibular malleolus, and carried to a point on the same level of the opposite side, which will be a little below the tibial malleolus." Thus he laid it down, and he dissected the flap off the os calcis from below upward. These directions were for a long while rigidly observed, but of late years surgeons have been less particular in the direction of the incisions. That across the sole is often made obliquely backward, at the expense of the flap. The incision across the front of the joint is also varied, sometimes being quite transverse, at others curved towards the toes. With regard to the heel, of course the more obliquely backward the incision of the sole is made the less difficulty will there be in the reflection of the flap, if done from below upward; but it seems to me of importance to preserve at least the whole of the heel, so that it is best to make the incision a vertical one. The thick integument of this region forms so capital a pad on the extremity of the stump that care should be taken to secure the whole of this, and to bring it well forward in the first instance, for during repair and afterward there is a tendency in this to be

drawn backward. Of course it will not be forgotten that after this operation the person stands and walks directly upon the extremity of the stump. With regard to the particular points where the extremities of the vertical incision should be, some surgeons keep them both on a level with the external malleolus, but I prefer to have them rather more forward—that is to say, on a line with the extremity of the internal malleolus, but not extending higher than the level of the external one, for the base of the flap is thereby so much broader. This is, I think, an advantage, and, so far as I can see, there is no objection to it. But of all changes in the operation I should attach most importance to the way in which the dissection is done. I greatly prefer, after making both incisions, to open the joint from the front, and then to work from above downward. This mode of dissecting out the os calcis is far easier than the original plan of dissecting from below upward, and there is less danger of inadvertently cutting into the substance of the flap. I have adopted this plan now for several years in many cases, and I cannot doubt that it is a much better one of performing the operation. By dissecting out the os calcis from above downward, and so escaping the only difficulty in the operation—that of turning off the heel—there is no temptation, as in the other way, by carrying the first incision obliquely backward, to sacrifice some portion of the flap.

On Ligature of Arteries.

Of late years a practice, which appears to me to be fraught with mischief, has come into fashion in the operation for ligature of important arteries in their continuity. I mean this: that after the neighborhood of the vessel has been reached by a few preliminary incisions, it has become the custom to lay aside the knife and to seek for and expose the artery by tearing through the investing tissues with the end of a director or some similar instrument. The motive for this practice, which, I think, has been derived from the Continent, is obvious enough, and similar to that which formerly suggested the use of a silver blade. It is the fear of injuring the artery itself, or of some branch near to its origin, by the knife, when dissecting closely upon it, and so of having to deal at a critical stage of the operation with troublesome hæmorrhage. But if the knife be used with fair knowledge and ordinary skill, the artery itself, or even a branch of it, ought not to be in danger; and assuredly the risk of yet more serious injury in another way from forcibly tearing through the textures with a blunt instrument is imminent. Indeed, it is almost impossible to avoid bruising the artery or vein, or to make a clean and satisfactory isolation of the artery by this plan. It gets exposed, indeed, and a ligature can be passed around it; but the surface of the vessel, when thus separated from its sheath, does not appear smooth as it ought to do, and already before the operation is finished there is often evidence of some extravasation of blood upon the surface. The less complete the isolation of the artery at the particular spot where the ligature is to be applied, so much the greater is the risk of injuring the vein by the needle. Herein, I think, lies the chief cause of the dangerous accident of transfixing the vein. If all the work of exposure and isolation of the artery is to be done with a director or some such instrument, if no cutting is to be allowed and only tearing practiced, what is to become of the rule, so universally insisted on, of opening the sheath with the least possible amount of disturbance, and of separating it from the artery only to an extent sufficient to allow the needle to pass? How is the sheath to be opened and treated, according to the

recognized principles of surgery, with a director? While it has happened to me, in more than a single instance, to see the artery injured both on the dead and living by the abuse of a director, I have never seen the artery itself cut by the knife, even when it has been used too freely by awkward hands. I believe a surgeon who is fairly up to his work will tie an artery more safely by exposing it with the knife than with such an instrument as a director, and there is probably no operation in surgery in which the result so depends on the manner of performing it. It is not enough to tie the vessel and nothing but the vessel. It is of supreme importance to tie the vessel with the least possible amount of disturbance or injury. And, while writing on this subject, I may add that, with this object in view, perhaps it is more convenient to carry the needle round the artery, without the ligature, and to pass the thread through it afterward.

FIBRINOUS COAGULA IN THE HEART AND PULMONARY ARTERY.

By SIR JOSEPH FAYRER, M.D., F.R.S.

(Continued from p. 320.)

In a recent communication I referred to thrombosis of the pulmonary artery and clots in the heart as a cause of death in certain diseases, and especially after injuries and surgical operations, even where there has been no indication of pyæmia or septicæmia. Though unable to explain the pathogenesis of this dyscrasia, I remarked that whilst it seemed to be most liable to occur in malarial climates where the subject of it had become more or less cachectic, yet it is not confined to malarially affected individuals, but may, and probably does, take place under other circumstances in all climates, and that it is perhaps a more frequent direct cause of death than is generally supposed. Of its importance as a cause of disease of a secondary character disseminated throughout the body in the form of local death, of parenchyma in the viscera, which, if life be prolonged sufficiently, become disseminated abscesses from suppuration taking place round the dead patches; or, again, of the influence of thrombosis of this character when it occurs in the arterial system, producing gangrene or other dangerous results, much might be said, and I have described it in detail elsewhere; but for the present I refer only to that form which affects the right side of the heart and pulmonary artery, whether in the form of clots moulded into the auricle and ventricle, extending into the ramifications of the pulmonary artery like the branches of a tree, or in the pulmonary artery itself; or it may be impacted in the form of a small nodule or flake in the ostium of the pulmonary artery, equally dangerous in its effects by preventing access of blood to the lungs.

The symptoms of this dangerous morbid state are described in the following brief abstract of cases, so it is needless to detail them further than to say that the impeded pulmonic circulation is indicated by hurried, gasping, painful respiration, and that the struggle for breath is often most distressing to see, as it is agonizing to the sufferer, who remains painfully conscious of his condition till the last. Happily in some cases, after a protracted struggle of apnoea, recovery occurs. I suppose by the disintegration and removal of the clot, which disappearing, is only too likely to cause secondary mischief as the result of the emboli thus carried into the pulmonic circulation. Where pulmonary or cardiac thrombosis takes place as

one of several conditions of exhaustive disease, or where it occurs in surgical fever, pyæmia, septicæmia, or in malarial conditions, whether of fever or of splenic cachexia, the symptoms are naturally all associated as part of the disease, and special prominence is not assigned to this as a cause of death. But when it comes on suddenly in a case which in all other respects appeared to be doing well, its pathological and clinical interest are enhanced.

An English sailor, aged twenty-nine, who had been living in Calcutta for some time, applied one morning at the hospital, and had a catheter passed for a slight stricture from which he had suffered for some years. The resident surgeon passed No. 8 with ease, and relieved him of retention of urine. He returned to the hospital at 3 p.m., saying he felt ill. He had a rigor after returning home in the morning, became restless, feverish, and delirious. On the 20th he had pain in the right hypochondriac region; his breathing was hurried, and his countenance anxious. He had had loose evacuations during the night. The breathing became more gasping, though air entered freely into the lungs. The distress rapidly increased, breathing became more hurried, and gasping, and he complained of a sense of choking. At 10.30 p.m. he passed urine freely. Stimulants of ammonia with quinine were given, and turpentine stupes applied; but no improvement took place, and the house-surgeon reported that he died in "a fit of gasping" at 11.30 p.m. There was no pyrexia, and he was perfectly rational to the last. His struggles for breath were most distressing to witness.

The post-mortem examination revealed lungs hypostatically congested. The liver was slightly enlarged but otherwise normal. The spleen was normal. The kidneys showed signs of commencing degeneration. The bladder was slightly thickened; the urethra slightly thickened. There was neither wound nor false passage. The tissues about the neck of the bladder were natural, so was the prostate. The pericardium contained a small quantity of straw-colored serum. The heart was normal, but its cavities contained firm adhering decolorized fibrinous clots. Those on the left side extended from the auricle into the ventricle, and thence into the aorta for about three inches. In the right cavities the clots extended on into the finer ramifications of the pulmonary artery; they were firm, decolorized, and adherent, and not only obstructed the ventricular and arterial openings, but extended far into the subdivisions of the pulmonary artery, ramifying like the branches of a tree. I made the following remarks on this case at the time:—

I have repeatedly noticed this condition as a cause of death in surgical cases, but I have never seen one more striking or more uncomplicated than this. I have before expressed my suspicions that malaria has much to do with inducing the condition of blood in which this fibrinous coagulation occurs, as a result of some disturbance of the innervation by a surgical operation. In this case the simple act of passing a catheter through a slightly strictured urethra was the exciting cause. The patient cannot be said to have been, strictly speaking, in a healthy condition, although he appeared in perfect health, and no lesion was discovered that could account for death. Sufficient, however, existed to suggest how, with the addition of the shock of the operation and the consequent urethral fever, the blood-change and consequent fatal apnoea were brought about. Something was said about his having recently suffered from intermittent fever, but no precise information on the subject was recorded. Be that as it may, he had none of the appearances of a person

suffering from malarious cachexia. But no one in Bengal can be said to be exempt, especially at that season of the year (June); and I am disposed to believe that this malarious influence is in persons of irritable constitution, and notably in those suffering from stricture, a predisposing cause of that dangerous condition in which fibrinous coagulation is likely to occur. It has long been known that death may occur rapidly from this cause in puerperal patients, and that in diphtheria, croup, cholera, and other exhaustive diseases it is not unfrequent; and in such cases, where the blood must be in an altered condition, and the muscular fibre of the heart weak, although the precise nature of the blood-change, may be obscure, it is not difficult to understand why a fatal result should occur. But in cases such as the preceding, and in many others where fatal apnoea has supervened suddenly from thrombosis of the pulmonary circulation after surgical operations, when the patient appeared to be doing well, it is more difficult to comprehend.

In the *Edinburgh Medical Journal* for April, 1870, p. 888, the following remarks were made by Mr. Annandale, now Professor of Clinical Surgery in the University, in reference to the death of a patient who had undergone amputation at the hip-joint:—"The disease in this case was a cancerous tumour affecting the lower third of the femur, and the patient lived until the fifth week, when he was suddenly seized with difficulty of breathing, and died in forty hours. The post-mortem examination showed a partially decolorized clot in the pulmonary artery. The surfaces of the flaps were firmly united; there was no abscess in the acetabulum; there were no traces of pyæmia." I then remarked, as I now repeat, that if the cause of death be sought for in all cases that terminate fatally after surgical operations, especially where there is cachexia, or where there has been much loss of blood, or where a large portion of the body has been removed, it will probably be found that this is occasionally the cause of death, and even after operations of much less severity than removal of a limb.

In August, 1871, I saw a young and robust Englishman, aged twenty-eight, of active, temperate habits, resident for some years in Calcutta, who was reported to be suffering from a swelling in the groin. He was feverish, with pulse 104, having had severe rigors previously. He had great thirst; bowels acted, voiding greenish matter. It was suspected that he might have hernia. The fever passed off early next morning. I found no signs of hernia. At 2 p.m. next day alarming symptoms came on; at 4 p.m. his breathing was very hurried, and his body was covered with cold sweat, with a rapid and feeble pulse. I found him sinking; dyspnoea intense; breathing gasping and hurried; face and lips dusky and livid; pulse imperceptible. He was quite conscious, and died within half an hour. The post-mortem examination showed that the inguinal canals were perfectly normal. The glands in the groin were somewhat enlarged. The intestines were normal, and no choleraic fluid was found in them. The lungs were hypostatically congested and oedematous, and the bronchial mucous membrane was also congested. The heart was normal and firmly contracted; it contained firm decolorized clots extending into both the aorta and pulmonary artery; all else was normal. This appeared to me an example of pernicious malarial action, and of the rapidly fatal effects sometimes produced in the hot, damp, malarious season. Death was due to the pulmonary engorgement, accelerated by the fibrinous coagula in the right side of the heart and pulmonary arteries. The overwhelming action of the malarial poisoning accounted for the

rapidly fatal result. The patient was a healthy, temperate man, his organs were sound, and he had not been ill for months before this attack. The second paroxysm proved rapidly fatal, despite all attempts to relieve him. Quinine and stimulants were freely given by mouth and injection; warmth and revulsives were also freely applied. This case occurred at the most trying time of the year, when the temperature was high, probably 90°, and the air saturated with moisture. He had been exposed to the sun during the greater part of the day on which he was attacked.

The following abstract of a case has just been sent to me by Surgeon S. A. Crick, of the Army Medical Department:—

"*Fibrinous Coagula in the Heart resulting from Malarial Poisoning.*—This case now appears to me to have been of this kind. When in Hong-Kong last summer, an officer (a surgeon-major) arrived there about June; he was a fine, strong, healthy-looking man, and had just come from England. Within two weeks of his arrival he was suffering from malarial poisoning, the brunt of the disease being thrown upon stomach and intestines, with a slight amount of associated intermittent fever. A state of malarial cachexia rapidly supervened, and when I left Hong-Kong, on August 17th last, he was looking extremely ill. A few days ago I received a letter from the principal medical officer at Hong-Kong, informing me that the gentleman had been invalided and left Hong-Kong on September 1st. Four days after leaving he is said to have had a sudden attack of syncope, from which all efforts of the surgeon on board failed to revive him, and he therefore died and was buried at sea. I am convinced this must have been a case similar to those observed by yourself. I believe in this case the cause of death was certified as: (1) Malarial poisoning; (2) dilatation of heart. I saw him daily at Hong-Kong, and certainly detected nothing cardiac. I think I can recall one or two cases of sudden death occurring in the course of continued fever which might probably be referred to a similar cause. I trust your remarks will stimulate medical men having to do with malarious cases to careful discrimination between ante and post-mortem cardiac and pulmonary clots."

A native student, aged twenty years, was admitted into hospital at Calcutta, on 15th April, 1870, with a sloughing portion of the integument of the leg, caused by a blow. He had been suffering from malarial fever and enlargement of the spleen for five months, a statement which was confirmed by his cachectic appearance. He was depressed and feeble, with a small and quick pulse, but no diarrhoea or fever. Stimulants with quinine and a generous diet were ordered. He remained in this condition for two days, during which time a portion of integument below the knee, of about two inches in extent each way, sloughed. On the 18th his respiration became hurried. There was slight increase of temperature, 99.4°, but it fell below the normal standard afterwards. Ammoniacal stimulants and quinine were continued, but there was no improvement. The respiration became more gasping and hurried; no cardiac murmurs were heard, the breathing became more gasping, and he died at midnight of the 20th. Post-mortem examination: Liver normal; spleen much enlarged. The lungs were hypostatically congested, a portion of the lower lobe of right lung was consolidated, but there was no other disease. The heart was healthy, but it contained a firm, fibrinous, decolorized coagulum, extending from the right auricle, where it was reddish in color, into the right ventricle, where it was straw colored; thence into the pulmonary artery, where it was firm and moulded like the branches of a tree, in the sub-

division of the artery. The left ventricle, auricle, and aorta contained similar coagula. There was no other disease except the patch of gangrene of the integument below the knee.

A gentleman aged forty-five to forty-six, who had returned from a tropical and malarious region, came under my observation last year. He was cachectic and weak, having suffered from dysentery and fever. He suffered considerably from evidences of malarial poisoning, and frequently from intense neuralgia. There was nothing to indicate liver abscess during life; indeed, the history of the case spoke of liver contraction. He died a few days after his arrival. I found him on March 5th suffering great abdominal pain. Pulse quick and feeble; skin clammy; temperature subnormal; breathing hurried and shallow. This rapidly became much worse, and continued until death, at 10.30 P.M. on the 6th. The lungs after death were found pale and emphysematous, but hypostatically congested at the base, otherwise normal. The pericardium contained a considerable amount of serum. The heart was normal, but the right auricle and ventricle were nearly filled with firm decolorized conglomulum, which extended into the pulmonary artery and its minute ramifications. The left cavities of the heart were empty; the heart itself and its valves were normal. There was no sign of dysentery; the intestines, kidneys, and spleen were normal. These appear to me sufficient to illustrate the pathological condition to which I have referred. In a future communication it may be well to illustrate the effects of thrombosis arising from such causes, as it occurs in the left cavities of the heart or their arteries.

Wimpole-street, W.

A Mirror

OF

HOSPITAL PRACTICE,

BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Procnium.

ST. THOMAS'S HOSPITAL.

A CASE OF ILIO-FEMORAL ANEURISM, WITH GANGRENE OF THE FOOT, DEVELOPED IN A PATIENT SUFFERING FROM CARDIAC DISEASE AND ALBUMINURIA, AND IN WHICH LIGATURE OF THE EXTERNAL ILIAC ARTERY AND AMPUTATION OF THE THIGH WERE PERFORMED.

(Under the care of Dr. BRISTOWE and Mr. SYDNEY JONES.)

H. F.—, aged twenty, a female, married, was admitted under the care of Dr. Bristowe on May 5th, 1882, when the following history was obtained:—Her mother suffers severely from rheumatism, but with that exception the family is a healthy one. The patient had an attack of rheumatic fever when fifteen years old, and has been subject to rheumatism since. Her heart has been affected for many years. The present illness dates from soon after her confinement, ten weeks ago. It began with swelling of the right leg, then her foot became dead, and this loss of feeling extended up to the knee; the foot then became dark, and feeling returned in the upper part of the leg. Three weeks before admission the foot was

“blackish-purple” in color, and very painful, the pain, which was of a shooting character, extending up the leg. Latterly, the pain has been less, and the foot less purple. Has been perspiring a good deal lately, and for two nights has had a sharp pain in the left side of her chest.

On admission, the condition was thus described:—The patient is exceedingly pallid, much freckled, conjunctivæ anæmic, looks ill, and complains of pain in the right foot. The anterior part of the right foot is gangrenous. There is a distinct line of demarcation running across the foot, a little posteriorly to the roots of the toes. In front of this line the skin is turning black, and is quite black in places; there are a few vesicles filled with serous fluid in the dorsum; it is not sensitive. Posteriorly to this line the skin is hard and brawny; sensation is present. The leg is quite warm; the knee is contracted, and cannot be extended fully. In the right groin in the situation, and in continuation with the common femoral artery, there is a pulsating tumour about the size of a small walnut; there is a systolic thrill felt over it, and on auscultation there is a loud systolic murmur, which can be traced down the artery nearly as far as the knee. The artery can be felt pulsating for two or three inches below the tumour. Chest expands fairly well; some episternal pulsation, and a little pulsation in the sides of the neck. Heart: apex beats in the nipple-line between the fourth and fifth ribs; dullness extends to half an inch to the left of the sternum, and upwards to the third rib. At the apex a loud systolic blowing murmur conducted into the axilla, and all over the cardiac area. No murmur at base. Pulse 101. Lungs resonant, breathing vesicular; abdomen retracted, liver dullness normal; tongue dryish, furred, white; bowels open; appetite bad; sleeps poorly; mind clear. Urine, sp. gr. 1022, acid, contains pus and albumen. Temperature 101.4°.

May 9th: The specific gravity of urine only 1005; no casts in albumen. Patient feels drowsy, apparently in less pain.

May 10th: Mr. Sydney Jones saw the case in consultation with Dr. Bristowe, and gave as his opinion that the tumour in the groin is a fusiform dilatation of the femoral artery; it is very painful and tender. The anterior part of the foot is black and cold, and the line of demarcation between the gangrenous and living parts is well marked; there is little pain in the foot. The patient says that she noticed the aneurism a week after her confinement, but she varies a good deal in her statements as to the time.

May 24th: The aneurismal swelling changes considerably, being nearly four times as large as it was on the 10th; it is somewhat irregular in shape, hard, and tender, and the pulsation is less marked in it, and there is no pulse to be felt in the arteries of the leg. The foot remains in about the same condition, whilst the temperature of the right thigh is two degrees higher than that of the left. She complains of tenderness in the knee, and is light-headed.—25th: General condition remains the same; there is some pulsation in the anterior tibial. Pulse 115.—26th: Delirious for the last twenty-four hours. Had a very bad night. Complains of general tenderness. No change locally. Bowels confined.

June 1st: Patient still light-headed, has picked the epidermis off her foot and ankle, and whines very much. The swelling in the right groin is increasing.

June 2nd: Transferred to a surgical ward under Mr. Sydney Jones. The line of demarcation in her right foot has deepened, the aneurism is the size of a closed fist, and occupies the whole of Scarpa's triangle, passing upwards under Ponpart's

ligament. She has become much more querulous, and is in a semi-idiotic condition, with a great deal of pain in the aneurism. It is urgently necessary for something to be done. There is gangrene of the foot, presenting a tolerably distinct line of demarcation; there is a large inguinal aneurism on the same side rapidly increasing in size, extending above Poupart's ligament, and involving quite the upper third of the thigh. The merits of the case were considered in all directions, and it was decided that the best course to pursue was to put a ligature upon the external iliac, and then to amputate the thigh in the lower third. This Mr. Sydney Jones proceeded to do. Ether having been administered, the external iliac artery was reached by an incision of curved linear form, extending from a little behind the anterior superior spine of the ilium to a point corresponding to the middle of Poupart's ligament; the structures were carefully divided in a direction drawn to the inner side, and the exposed artery ligatured with a thick catgut ligature. A small drainage-tube was placed in the wound, which was closed by alternate silk and catgut sutures. The operator then amputated the thigh at the junction of the middle and lower third, a long anterior skin and muscle flap, and a short posterior. The latter made by transfixion. The flaps were united by alternate silk and catgut sutures. Drainage-tubes were used. The operations were carried out with strict antiseptic precautions, the abdominal incision having been dressed before the amputation was commenced. The patient suffered a good deal from shock, especially when the bone was divided.—3rd: She slept for half an hour after the administration of one-sixth of a grain of morphia subcutaneously, and dozed a good deal afterwards. She had a quiet night. There has been no sickness. Pulse 110, small.—4th: The patient took beef-tea well until the evening; she then complained of nausea. She was quiet, and progressing favorably. The stump was dressed in the evening, and the silk sutures removed.—5th: She seemed more sensible, and was not so querulous.—On the 6th and 7th she was more drowsy, and inclined to delirium; she was not taking nourishment well. Pulse small and weak.—9th: The wounds were dressed, both looking well; the abdominal incision had nearly healed. The patient said she felt better. She was taking plenty of nourishment.—10th: The urine was rather dark when passed early in the morning, and quite pale when passed later in the day. Pulse 130; respiration 40.—12th: The patient was not quite so well. She took her food less readily, and complained of pain across the epigastrium, for which a linseed poultice was applied. Pulse 108; respiration 36; urine, sp. gr. 1015; albumen 1.13.—13th: The patient was very restless in the morning, but was quieter towards evening. Pulse in the morning, 168.—14th: She had been very restless all night, and was breathing very rapidly, 50 per minute. She complained of a feeling of sickness, and of pain in the chest. Pulse extremely quick (?210).—15th: Looking pale and pinched, hands are cold. Takes her food fairly well, and is not so restless, slept a good deal during the night. Complains of a good deal of pain in the abdomen, which is considerably distended. Antiseptic dressings changed for chlorinated soda lotion, no pus comes from the wounds, which look inactive.—16th: Slept fairly well last night after an injection of morphia, looking rather more pinched this morning. Hands very cold, and pulse so small that it cannot be counted. Respiration very rapid and shallow, from 36 to 40 per minute. Takes milk fairly well, but refuses wine, which she says increases the pain in the throat, of which she is now complaining. Bowels acting naturally.—

17th: Patient died quietly whilst asleep at 9.30 A.M.

The temperature, which on admission was 101.6°, rose the same evening to 102°. Although higher in the evening than in the morning, it did not again exceed 101.6°, until the evening of the 9th, when she had her highest recorded temperature, 104.4°. After this date the record shows a hectic character, being three to four degrees higher in the evening than in the morning, falling slightly lower from night to night until the evening of the 30th, when it was again 101.6°. Next day, however, it rose from 98.8 A.M. to 103.6° P.M., without apparent cause, falling on the 31st to 99°, and only rising to 101° P.M. On the morning of the operation, June 2nd, it was 98.8°, and in the evening 98°. After the operation the course was more erratic.

Morning and Evening Temperatures.

June		A.M.		P.M.		June		A.M.		P.M.	
		100°	100°	100°	100°			98.6°	101°	100.6°	101°
"	3rd	97.6°	98.8°	99.8°	99.8°	"	11th	99.8°	100.6°	99.6°	99.6°
"	4th	98.4°	100.2°	100.2°	100.2°	"	12th	99.4°	98.4°	98.8°	98.8°
"	5th	98.8°	100.2°	100.2°	100.2°	"	13th	99.4°	98.8°	98.8°	98.8°
"	6th	98.8°	100.2°	100.2°	100.2°	"	14th	99.4°	98.8°	98.8°	98.8°
"	7th	98.8°	100.2°	100.2°	100.2°	"	15th	99.4°	98.8°	98.8°	98.8°
"	8th	98.8°	100.2°	100.2°	100.2°	"	16th	99.4°	98.8°	98.8°	98.8°
"	9th	98.8°	100.2°	100.2°	100.2°	"	17th	99.4°	98.8°	98.8°	98.8°
"	10th	98.8°	100.2°	100.2°	100.2°						

106° at noon.

The post-mortem examination, made by Dr. Haddon fifty-three hours after death, showed, in addition to the local condition, considerable visceral disease. Body much emaciated, commencing putrefaction. Left pleura adherent all over by old adhesions; right contains ten ounces of blood-stained fluid. The left lung very oedematous; right fairly normal. Pericardial sac closed by old adhesions, which are oedematous. Heart very flabby and soft from decomposition. Left ventricle hypertrophied; the free end of the mitral valve was soft and thickened, there were distinct vegetations on the auricular aspect of the valve, exact condition obscured by post-mortem change. No peritonitis. Liver soft and decomposed; no infarcts. Spleen large, contains numerous infarcts, hard, decolorized, and undergoing contraction. Kidneys: capsules not adherent; in the cortex were numerous fairly old infarcts, some typically wedge-shaped. In the right iliac fossa the ligature was found loose, and a drop or two of pus were seen near this spot. The right common iliac was filled with dark, soft, very slightly adherent clot, nowhere decolorized, and showing no signs of organization. The clot also extended into the internal iliac. The vessel was evidently ligatured at a spot an inch and a quarter from the aneurism, for here the course of the artery was interrupted, and not to be found; just above the artery was filled in (as before mentioned) by soft dark clot, but below the lumen of the vessel was much contracted, and contained partially decolorized and organized coagulum. The aneurism itself was diffuse, and without defined walls. It bulges from the inner side of the femoral at its commencement, and to a less extent from the end of the external iliac. The aneurism was about the size of a small orange. Externally there was a layer of white, firm, laminated clot; towards the centre the clot was only partially decolorized; whilst quite inside, and filling in the cavity, was some blood, apparently recent conglum, very slightly adherent to the middle layer. The corresponding femoral artery was apparently healthy, and showed no signs of degeneration. During the removal of the vessel with the aneurism an abscess was opened, from which two or three teaspoonfuls of blood-stained pus escaped; the site of the abscess was the iliac fossa, just above Poupart's ligament; it was external to the artery, and, on further examin-

ation, was found to burrow downwards, still lying external to the aneurismal sac, and in no way communicating with it.

LARGE AXILLARY ANEURISM; LIGATURE OF THE SUBCLAVIAN ARTERY; RECOVERY.

(Under the care of Sir Wm. MAC CORMAC.)

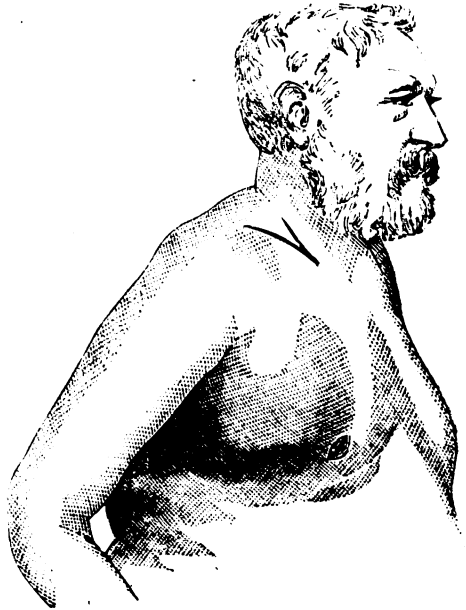
For the following notes we are indebted to Dr. W. A. Duncan, house-surgeon.

The patient, a man aged forty-nine years, was admitted on Aug. 21st, 1882. He had been healthy, and had followed the occupation of a carpenter. He was of very stout habit of body and florid complexion. Formerly, for six years he had been a soldier, and served during the Crimean campaign. At Scutari, in 1856, he suffered from an attack of inflammation of the lungs, for which he was bled and cupped. In 1857 he had a chancre and bubo, and some weeks later his body was covered with a rash. He remained well until 1876, when he strained his right arm at his work, and lost the use of it for a time. The power was gradually regained, but a small lump about the size of a walnut was soon discovered in the right axilla. Of this he took little notice, as it occasioned him but trifling uneasiness. A month before admission he again strained the arm, and the tumour now began to increase much more rapidly, especially during the week previous to admission; the skin over it became ecchymosed in places, and the man suffered some pain and numbness down the arm, which became considerably swollen.

When he first came under observation at the hospital a large pulsating swelling occupied the antero-lateral aspect of the chest. It could be traced up beneath the pectoral muscles as far as the second portion of the axillary artery. The brachial artery was apparently not involved. The tumour filled the armpit, pushing the arm outwards and the shoulder upwards. Behind it reached to the posterior fold of the axilla. It reached forward as far as a vertical line drawn from above the centre of the clavicle to the nipple; its lower limit corresponded to a horizontal line a little below the nipple. The tumour was soft and rounded, pulsation strongly distensible. A bruit could be heard over the posterior half. The tumour was freely movable over the deep structures in an antero-posterior direction and the skin over it was nowhere adherent. The pulsation was stopped, and the sac partially emptied, on pressure upon the subclavian artery. The radial pulse was weaker and the arm cooler on the affected side. Urine normal. Heart sounds feeble, no murmur audible.

As treatment by pressure was clearly inapplicable, and speedy interference desirable, the ligature of the subclavian artery was determined upon. The operation was performed on August 24th. An incision was first made two and a half inches long parallel to, and corresponding with the central portion of, the clavicle and half an inch above it. From the inner extremity of this wound a further incision was made obliquely upwards along the outer border of the sterno-mastoid muscle. By this means great additional space was gained. A large external jugular vein, much distended, lay in the way, and as it impeded the further steps of the operation, it was divided between a double ligature. The omo-hyoid muscle was then exposed after a little dissection, and afterwards the last cord of the brachial plexus, close below which the artery could be plainly felt and seen. The sheath was carefully opened, and a thread of thick catgut passed round the vessel, taking care to disturb it as little as possible. The high position of the shoulder, and the fatness of the man, made the

wound a very deep one, but the operation was quickly completed without much difficulty. No vessel required ligature except the external jugular vein. There was practically no bleeding. The wound was washed out with carbolic solution (1 in 20), and a large drainage-tube passed to the deepest part, the edges were brought together with sutures, and an antiseptic dressing was applied. The right arm was swathed with cotton-wool, and kept in place by a flannel bandage.



After the operation the patient was sick several times, and complained much of thirst. Some pain and numbness were felt in the limb, but the temperature did not fall. The right pupil became smaller than the left.

On August 27th, three days after the operation, the wound was dressed for the first time, the dressing contained only some serous discharge. The wound appeared to be well united. The drainage-tube and all the sutures were removed.

On August 31st, seven days after operation, the wound was redressed; there was no discharge, and the cicatrization appeared almost complete; the antiseptic dressing was left off. The patient now felt quite comfortable and was going on well in every respect. The aneurismal sac was steadily contracting and there had been no return of pulsation in it.

The temperature reached 100° F. the day after the operation, but for the most part it varied between 98.4° and 99.4°; the pulse was usually about 80. The patient's only complaint was at first of the heat and inconvenience of the dressings about the neck. The wound united by first intention, except where the drainage-tube lay, without visible reaction, and as soon as the tube was removed, this channel closed directly; the catgut noose around the vessel must have been completely absorbed.

On October 4th, forty days after operation, the notes report an uninterrupted improvement; the large aneurismal sac had diminished a half in bulk and was quite hard. It was believed faint pulsation could be felt in the brachial; but neither in this artery nor those of the forearm could any pulse wave be afterwards felt.

The man since he left the hospital has presented himself from time to time and his condition leaves nothing to be desired. The woodcut, copied from a photograph kindly taken by one of the St. Thomas's students, Mr. West, represents the dimensions of the swelling and the position of the incision made in order to reach the subclavian artery.

BARROW HOSPITAL.

CASE OF COMPOUND FRACTURE OF SKULL WITHOUT HEAD SYMPTOMS.

(Under the care of Mr. WILLIAMS.)

For the following notes we are indebted to Mr. R. Heelis, house-surgeon.

Robert A—, aged fifteen, was admitted on Oct. 20th, 1882. Three hours before admission he was struck on the right forehead by a tipping truck, in rapid motion, and thrown some distance. He was insensible for about five minutes, and then got up and went on with his work. He applied to the hospital at midday as the wound seemed serious.

On admission there was a small oblique wound one inch above the upper and outer angle of the right orbit extending to the bone, which was bare for about half an inch beneath the lower edge of the wound. This bare bone was bounded above by a sharp, free edge of crescentic shape, which could be felt through the skin, its extremities being above and beyond the ends of the external wound; the bone above this was depressed. The patient walked steadily and was quite sensible; the skin was warm and pupils equal and dilated. He was put to bed, and the wound syringed out with carbolic lotion, one in ten, and dressed with dry salicylic silk. The dressing was changed on the 22nd, 29th, and 31st. On the 29th the wound was scabbed over, and on the 31st only a small granulating sore was left, and he went out on that day. During this time he had no headache or delirium and slept well. His temperature on the first and second days was 99.2° and 99°, afterwards normal. The pulse was 84 on the same days and regular; afterwards it was less frequent.

When seen by Mr. Williams a few days ago the edge of bone could still be felt. He suffers from headache occasionally when at work.

CASHEL UNION HOSPITAL.

CASES OF THORACENTESIS.

(Under the care of Dr. LAFFAN.)

CASE 1.—M. D—, aged twenty-six years, a female servant, was admitted in April, 1880, with acute pleuritis on the right side, and bronchitis of the left. The right side of the thorax was three inches larger than the left. Pulse 120; respiration 60. On April 28th dyspnoea became urgent. Thoracentesis was performed, and fifty-six ounces of serum were withdrawn. The pulse at once fell to 80, and the respiration to 30. The notes state that on May 1st the pulse was 116, respiration 36, and the temperature 105.8°, and that the right lung, where previously no sounds were to be heard, was now like the left, the seat of universal râles. The patient ultimately became quite well.

CASE 2.—W. D—, aged five years, was seized with pleuritis of the left side on June 10th, 1882. He came under observation on August 12th, at which time the entire left side was dull, and the apex of the heart-beat between the fourth and fifth right ribs. The patient's general condition

was at the lowest ebb. Paracentesis was performed on that day, and about twelve ounces of healthy pus were removed. A piece of lint was inserted into the wound, and removed from day to day to allow free exit for the discharge, and small doses of coca were given internally. A few days afterwards, on August 24th, the pleura was injected with a solution of tincture of iodine. The next day, and for some days afterwards, he was seized with cough and symptoms of extreme debility, which seemed connected with the infection. He, however, gradually improved; the bronchitis continued. A small purulent discharge persisted from the pleura, and coca, syrup of iron, and supporting treatment were administered until Oct. 12th, when he expectorated per mouth for three successive days a large quantity of pus, similar to that which came from the side, after which all cough left him. The discharge from the pleura ceased, and he made more rapid strides towards health and strength.

On Dec. 7th there was a mere moisture from the wound. His health was perfect, and the chest signs were normal. The wound was to be closed. The girth of the chest on the right side was 16 in., and on the left 15½ in. This patient was reduced to the last stage of asthenia, and his recovery was something surprising, even having regard to the greater chance of patients of his age. The sudden and great expectoration appears to be due to perforation of the lung; no stethoscopic signs were detected, and the fact that this at least did no harm is in keeping with the records of similar occurrences.

CASE 3.—D. N—, a female aged twenty-three years, came under observation on July 10th last. Her illness dated from February 14th preceding. On admission the left side of the chest was completely dull. It was opened on the 11th between the sixth and seventh ribs; with the aid of the aspirator thirty ounces of serum were drawn off. She was able to move about in four days. On December 7th her state was as follows. The left side of the chest was normal on percussion in front, and slightly deficient in tone behind. The circumference was 16 in. on the right side, and 15½ in. on the left. There was no signs of the presence of any fluid. The appetite, sleep, menses, and all other functions were normal.

CASE 4.—J. S—, aged twenty-five years, came under observation in 1880, for effusion in the left pleura. The dullness was universal, and the urgency of the symptoms called, as in the previous cases, for operation. The left pleura was opened in the usual place, and about sixty ounces of serum were withdrawn by a small needle of the aspirator. Some fluid was again effused, but this was absorbed, and the patient recovered. Some of the patient's brothers had died of phthisis, but he continued well.

CASE 5.—T. D—, aged twenty-eight years, was first seen on the 1st of June, 1882. The entire left pleura was filled with fluid; the apex of the heart beat between fifth and sixth right ribs. There was a history of his having suffered for five years from the disease. He had been under the care of three physicians successively, who took the case for phthisis. The chest was opened with a large needle of the aspirator between the eighth and ninth ribs, and one inch to the left of axillary line. Three gallons of a serous-looking fluid were withdrawn. The patient made an uninterrupted recovery, and now pursues the active duties of a cattle-dealer, to which he has transferred his services from his former and less onerous post of land steward. It is intended to publish the case in *extenso* on account of many points of interest.

SEAMEN'S HOSPITAL, GREENWICH.

CASE OF PERNICIOUS ANEMIA.

(Under the care of Dr. CARRINGTON.)

For the following notes we are indebted to Mr. E. Penny, M.B. Lond., house-physician.

Heinrich L—, aged twenty-one, a Norwegian sailor, was admitted on March 2nd, 1882. As he spoke no English, a clear history could not be obtained; but it appeared that he had been at Wilmington, Mexico, in the winter, and had had ague there.

On admission he was very anæmic, and became rapidly worse. Towards the end of April he presented the following symptoms:—Extreme pallor and smoothness of the whole cutaneous surface; mucous membrane of the mouth and eyelids almost colorless; rapid and excitable cardiac action, often causing much distress by the violence of the beating; no distinct cardiac murmur, but a slight systolic roughness at base; respiration on the slightest exertion deep and hurried; a few moist sounds generally through the lungs; subject to syncopic attacks, during which the pallor became more intense, and the breathing very distressed. He complained frequently of pain in the epigastrium, while extreme tenderness with slight swelling of the lower part of the right thigh came on. There was also very slight œdema about the ankles; hæmorrhage into the retina took place, while the blood showed extreme diminution of red corpuscles without increase of white ones, the former being of very abnormal shapes and sizes. Examination of the patient caused much distress, and often alarming attacks of syncope towards the close of life, so that it was impossible to investigate the case very closely. Although he seemed generally tender and resented disturbance in any way, no distinct tenderness over the bones was made out.

On April 29th Dr. Stephen Mackenzie examined the patient, the following being the result of his observations. Numerous superficial retinal hæmorrhages, some flame-shaped, some fan-shaped, and others round, and a few white patches; discs swollen; edges indistinct. Microscopic examination of the blood showed the red corpuscles much reduced in number, variable in shape, some tailed, some elongated, and others very small; they showed no tendency to form rouleaux, though congregating in clusters; the smaller corpuscles were not deeper in color than the larger normal ones; no granular corpuscles.

During the patient's residence in hospital his temperature varied generally between normal and 100° F., being often lower in the evening than in the morning, and rising at times as high as 101°. Diarrhoea occasionally came on. He took nourishment well the whole time. From March 22nd to April 19th he took, every four hours during the day, one-thirty-second of a grain of arsenious acid, combined with ten grains of sulphate of quinine.

On April 19th the arsenic was raised to one-twenty-fourth of a grain in a dose, but as very troublesome vomiting followed, the medicine was discontinued on April 22nd. Some days before death the patient complained of pain in the left chest, which was followed by slight effusion in the pleural cavity; his breathlessness became more marked, so that he could not rest in the recumbent posture; vomiting returned about the same time.

The patient died on May 4th after a syncopic attack, in which the breathing became extremely distressed and rapid. With the exception of a single attack of epistaxis, no loss of blood took place during his stay in hospital.

Necropsy.—The body was not at all wasted; there was much fat in the abdominal walls and omentum. The heart was flabby and relaxed, containing clots, uniformly of a dark-amber color. On section, the inner third of the cardiac wall was very pale, while the outer two-thirds showed thickly scattered ecchymoses. The pericardium contained three-quarters of a pint of clear fluid; there were some ecchymoses beneath the visceral layer of membrane. A considerable amount of clear effusion was found in both pleural cavities, and a patch of recent lymph at the left base. The liver was pale; spleen soft, but not enlarged; kidneys pale, showing points of ecchymosis here and there. The cancellous structure of the sternum and vertebræ seemed normal. The swelling of the thigh was due to œdema, apparently caused by venous thrombosis.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

OBSTRUCTION OF THE ABDOMINAL AORTA BY CLOT; GANGRENE OF LEGS; DEATH; POST-MORTEM EXAMINATION; REMARKS.

For the following notes we are indebted to Mr. A. M. Sheild, house-surgeon.

Mary F—, aged thirty-six, married, was admitted on Nov. 1st, 1882. She was a spare, pale, anxious-looking little woman, of a patient, quiet, disposition. Pulse 136, weak and irregular, temperature 100°, tongue red and glazed, bowels confined, urine acid, lithatic, no sugar, a little albumen. Action of heart irregular but no bruit to be heard. Skin covered with acid, sour-smelling sweat. Abdomen discolored from the use of mustard plasters. The right foot and lower two-thirds of the leg were gangrenous. The skin had lost its elasticity, was dusky red and mottled with purple. Over the heel and on the sole of the foot were sanious black bullæ, the toes and anterior part of the dorsum of the foot were dry, shrunken, and the color of tallow, contrasting with the black hue of the matrices of the nails. There was absolute loss of motion and sensation in the affected parts, which felt cold and dead. The parts near the upper limit of the gangrenous process were very painful, but there was no emphysematous crackling, or evidence of rapid advance of necrotic action. The left foot was cold and numb, the toes were a little dusky, and sensation was greatly impaired. She could move the leg, however, freely. No trace of a pulse could be felt in either femoral artery. The abdominal aorta pulsated violently to a little below the umbilicus; here all pulsation ceased. A slight bruit could be heard with the stethoscope, about two inches above the umbilicus, over the aorta, but there was no evident dilatation of the vessel. No bruit could be heard over the thoracic aorta. There was some abdominal tenderness, especially in the right iliac fossa and left hypochondriac region.

The following history was obtained:—The patient had rheumatic fever at the age of seventeen; ever since then has been "a martyr to the rheumatics." Has had four children and two miscarriages. The last child was born in May; she had an easy labour, and was soon well and about again. There was no history of syphilis. For the last fourteen days she has had to keep her bed with pains in the body and down the legs. On the morning of Oct. 29th she found her right foot very painful and numb; the left foot also suffered, but not to the same degree. Declares that at that time she could move both her limbs easily. From this date to the time of admission she has been getting steadily worse.—Nov. 2nd: She slept badly. Pulse 130; temperature 101°; other condi-

tions much the same. Takes her nourishment well. Bowels freely open.—4th: The gangrene is extending slowly on the right side; it has now reached the knee. The left foot is now evidently gangrenous. Pulse 130; temperature 101°.—6th: Had a bad night; this morning is apathetic, and very drowsy. Pulse 140; temperature 104°. She died quietly at about 11 A.M.

Treatment.—This merely consisted in applying warmth to the affected limbs, supporting the strength by nutritious diet, and giving small doses of opium at night to alleviate the pain.

Necropsy, about twenty hours after death.—The heart and lungs were fairly normal. There was a slight fibrous thickening of the mitral valve, but no granulations or ante-mortem clot. On following down the aorta these curious appearances presented themselves: The arch of the aorta was to the touch and naked eye normal. On the posterior part of the thoracic aorta, just above the diaphragm, was a small, tongue-shaped, firm, pinkish, fibrinous clot. This was quite adherent to the wall of the vessel, which in this situation presented a wheal-like elevation, fibroid to the touch, and having the endothelial coat over it roughened and altered. A little lower down was another small patch of disease; this was calcareous, and seemed of older date than the one first mentioned. The coeliac axis and its main branches were blocked by firm, adherent, fibrinous, somewhat stratified clot. This projected a little into the aorta, which here again presented a thickened opaque condition of its lining membrane, feeling in one spot gritty and calcareous. Just above its bifurcation the aortic tube was completely blocked by a firm clot, having its conical end of a gelatinous consistence and pink color, and projecting some little way upwards. The clot quite filled both common iliac arteries; the internal iliac and external iliac vessels were also completely obstructed. The whole clot was stratified, and very adherent to the intima of the implicated vessels. Near the junction of the right common and internal iliac vessels it was most decolorized and firm, greyish-white, and adherent, as though this was the oldest part of it. The vessels of the brain seemed healthy. There was nothing worthy of note in stomach or intestines. The right kidney was small, and there was a slight puckered cicatrix on its surface, to which the capsule was adherent. The spleen was enlarged, its capsule thickened, and it presented some pale wedge-shaped patches near the surface, as though the result of old embolic processes. The liver was enlarged slightly; there was one small wedge-shaped patch of evidently old origin on its surface.

Remarks.—Complete obstruction of the abdominal aorta by clot is sufficiently interesting to justify such a case being fully recorded. A number of such cases may be found related in Sir James Simpson's works, dependent, however, upon the puerperal state. Cases are also recorded in Vol. xxiii of the Transactions of the Pathological Society; one of them bears in its results a close resemblance to the one now related, the aortic tube being blocked close up to the origin of the renal vessels. The chief point of interest in the present case is the nature of the arterial degeneration, which evidently caused the blood to clot. Is was unlike ordinary atheroma in the absence of distinct implication of the aortic arch, the age of the patient, and the evident mischief to the endothelial layer of the inner coat. The primary clot was, doubtless, the small one upon the wall of the thoracic aorta; here the endothelium being altered and abnormal, caused the blood, which must have had a preternatural tendency to fibrinous excess, to coagulate upon it. The coeliac axis seems next

to have got plugged, and from the conical projecting end of the coagulum that filled it, another clot got washed away by the impact of the powerful stream of blood in the aorta into the right common iliac vessel. Here it lodged at the bifurcation of the common iliac artery into its external and internal divisions, completely obstructing it, and also causing thrombosis to take place, and so secondarily block both the left common iliac artery and the aorta itself. The oldest portion of clot below was certainly in the right iliac vessel, and the clinical history of severe abdominal pain, followed by sudden gangrene—first of the right, then of the left lower limb—would support the view above advanced. The origin of the clot and the primary seat of its arrival in the iliac vessels are very interesting and open to several explanations. It is also worthy of remark that but slight indications of mischief showed themselves in the great abdominal viscera, though the great artery, the coeliac axis, was quite firmly plugged.

LEEDS INFIRMARY.

ACUTE PERICARDITIS WITH EFFUSION; PARACENTESIS PERICARDII; RECOVERY; REMARKS.

(Under the care of Dr. CLIFFORD ALLBUTT.)

FOR the following notes we are indebted to Mr. J. F. W. Silk, M.B., house-physician.

J. D—, aged twenty years, draper's assistant, was admitted on Dec. 23rd, 1881, and discharged well on May 18th, 1882. The following notes are abstracted verbatim from the clinical report of Dr. Barra, then house-physician: No family history of rheumatism. He had rheumatic fever six or seven years ago, when he was laid up for five months. He was last at work on Dec. 19th. On the 20th he took to his bed on account of pains in the joints, especially the hip and knee. The onset was quite sudden on the morning of the 19th, but there was no rigor. He came to the hospital on Dec. 23rd, looking very ill and in obvious pain, saying he was suffering from acute rheumatism. When seen in bed he still complained of pain, but in an indefinite manner. He had scarcely the aspect of acute rheumatism; there was a want of helplessness, and the limbs were freely moved about. There had been no diarrhoea; no spots; joints all free from any physical change; tongue brown and dry in centre; heart sounds clear. Temperature 99° (after a warm bath). Ordered twenty grains of salicylate of soda every two hours.—25th: Morning temperature 103°; evening temperature 104°. Still taking salicylate every two hours, but troubled with vomiting.—28th: Temperature still running at a mean of 103°. Salicylate ordered to be stopped.

Jan. 1st, 1882: Slight diarrhoea yesterday. Complaints of tenderness on pressure in both iliac fossae. Copious eruption of sudamina. During last thirty hours has been taking twenty grains of salicylate of soda; there has been slight delirium in consequence. Temperature never fell, and salicylate is now stopped.—6th: Temperature 102°. Great dyspnoea this morning. Very distinct pleuritic rub at right base. General aspect bad and obscure. Mind clear. Taking opium (one grain every four hours) for relief of pain.—9th: Temperature 101.4°. Last night's temperature 105°. He was sponged with tepid water, and all the bed covering was removed. The temperature fell to 102° after thirty minutes' exposure. This morning there was great dyspnoea, and a general pleuritic rub over the whole of the right side of the chest. The general condition is not so good.—12th: better. Respiration 48; pulse 84. The pleuritic rub

has disappeared, so far as the anterior part of the right chest is concerned.—14th: Delirious throughout the night. This morning temperature 101°; pale; pupils dilated; mind clear. There is more dullness at the right base of an indefinite character, with very obscure auscultatory signs, except distinct pleuritic creaking. The abdomen is a little tender. Spleen not felt. Bowels acting; no diarrhoea. Respiration 40; pulse 80. Tongue moist. He is now taking three or four pints of milk in twenty-four hours, with eight ounces of whisky.—17th: Temperature at 7.30 last night 104.5°; after sponging for twenty minutes it fell to 101.4°. Has passed a restless night. Had three grains of opium, but slept only two hours. Now lying on the left side. No change in the physical condition of the right chest.—23rd: There has been steady improvement during the last four or five days. This morning he is pale, and breathing rapidly; pupils not dilated. Not in any great pain, but a little discomfort in breathing. Heart: Cardiac dullness much increased. It begins at the third rib, and extends down to the sixth, and is much increased to the right of sternum (absolute dullness); apex not localized; distinct friction fremitus felt over the upper part of dullness. On auscultation friction sound distinctly heard over the upper half of the dullness, the systolic portion of which is double. Pulse 130; temperature 99°.—evening temperature 100.6°.—29th: Cardiac dullness about the same as on the 23rd. Friction sound unaltered at base. General condition about the same. Pulse 142; temperature 99°; evening temperature 101°.

Feb. 2nd: Pericardial effusion rather increased than otherwise. The præcordial region has a full distended look, there being a want of interspace markings. The absolute dullness begins now almost at the second rib and extends down to the seventh laterally; the dullness measures at the level of the fourth rib eight inches. Sounds obscure and distinct. No friction sound heard. Patient is pale and anxious. To-day, for the first time, a change in the abdomen is noticed. The epigastrium is full and tender, and dull on gentle percussion. Edge of liver is easily felt at about the level of umbilicus. Temperature 100°; pulse 128; evening temperature 101.6°.—4th: Patient better. Pulse, although rapid, is much steadier. Breathing 36, much freer. There is some slight improvement in physical signs. The cardiac dullness is not so great. Epigastric swelling and tenderness gone. Temperature 102°; pulse 152.—5th: Intense pain in back of chest during the night, with great dyspnoea. Sweating profusely. This morning he is better. Temperature 101°; pulse 142; respiration 52. The præcordial dullness is a little increased.—7th: General and local condition about the same. It is evident that he cannot hold out much longer if present condition continues. At 4.30 P.M. aspiration of the pericardium was performed by Mr. Ward, the house-surgeon, according to the plan followed by Dr. Clifford Allbutt and Mr. Wheelhouse in a similar case under the former's care about ten years ago. The fine aspirator needle was entered obliquely in the fourth left space, two inches and a half from the middle line, and pushed upwards and backwards towards the middle of the right scapula until a cavity was clearly entered at a depth of about an inch and a half. Only about an ounce of bloody turbid serum was drawn off (more could not be obtained). It was intended to withdraw as much fluid as possible. The patient struggled a good deal at first, but the operation did not really give rise to any special distress. Temperature 102°; evening temperature 101.8°; respiration 56.—8th: passed a good night. Says he feels much better. Breath-

(22)

ing still short (40). No marked change in cardiac physical signs.—9th: Temperature 99°; pulse 120; respiration 32.—10th: Temperature 100°; pulse 96; respiration 32.—11th: Much better. Temperature 100°; pulse 88; respiration 32. Area of cardiac dullness much less. Absolute dullness commences now at lower border of third costal cartilage, and extends downwards to sixth rib. It measures transversely at fourth cartilage (its widest part) six inches. Distinct cardiac impulse can now be seen and felt in fourth and fifth spaces. Sounds thumping and dull, but free from friction or bruit. General condition much improved. (The marked fall in pulse-rate may be due to digitalis, eighty drops of tincture per diem, which he has been taking since 5th inst. It is therefore discontinued.) He is now taking solid food, with eight ounces of whisky, and milk *ad libitum*. Evening temperature 102°.—12th: The cardiac dullness has fallen to nearly its natural size. The main increase is now to the right. Temperature 101.2°; pulse 120; respiration 32. He complains of pain in his back. There has been no difficulty in swallowing throughout. Lungs clear.—15th: Cardiac dullness continues well defined. Commences above at lower border of third cartilage and extends to sixth rib. Transversely it is limited by middle line and a point four inches to the left of this. Heart-sounds are of a thudding character. No friction or bruit. Base second sound is split. General condition improving. Temperature 99°; pulse 120; respiration 32. Pulse of no marked character.—22nd: Much better, but still pale and looking ill. No dyspnoea of importance. Cardiac dullness is still a little large and too easily defined. Temperature 99°; pulse 100; respiration 24.

March 8th: Allowed to get up for an hour. With the exception of a rather severe attack of vomiting, he continued to improve rapidly, and left the hospital on May 18th, 1882.

Remarks.—The drugs employed in the case were various, and given, with the exception of salicylate of soda, rather with the idea of combating the tendency to death than with any specific notion, and consequently have not been noted. It may be well to note that blistering was discarded. Among the many points of interest in the case, the following may be specially noted:—1 The rather doubtful rheumatic nature of the case at the commencement, and the failure of salicylate of soda to relieve. 2. The total absence of all joint affections, assuming it to have been a case of rheumatic fever. 3. A point so difficult to display in the notes, but so obvious to all who saw the case from day to day; the rapidly downward course of the case immediately prior to the aspiration, and the unaided part the operation played in saving life. 4. The comparatively rapid absorption of the effusion after the withdrawal of so small a portion of it.

NORTH STAFFORDSHIRE INFIRMARY.

A CASE OF ADDISON'S DISEASE; PIGMENTATION OF THE SKIN FROM THREE TO FOUR WEEKS' DURATION; SUDDEN DEATH FROM SYNCOPE; NECROPSY.

(Under the care of Mr. West.)

For the following notes we are indebted to Mr. G. S. Hatton.

E. P—, aged fourteen years, a young girl of no occupation, residing at Hanley, was admitted May 13th, 1882, complaining of general weakness, with pain in the epigastrium and vomiting after food. Her family history was good. The parents were both of English birth, and their skin was not unduly pigmented. So far as could be ascertained there was no hereditary predisposition to phthisis.

The patient had always lived in Staffordshire. Her mother stated that the patient had been strong and healthy as a child, and had never suffered from any illness requiring medical treatment until two years ago, at which time she became an out-patient at the infirmary for "fainting fits," and, although improvement followed, she has never quite recovered. Within the last few months she has attended in the surgical department for abscesses in the arm. Three weeks before admission she commenced to suffer from sickness after food, with anorexia, pain in the epigastrium, and general weakness, and, to quote her mother's words, "since then she has been getting a bad color." Her complexion was not at all dark until after the sickness and other symptoms commenced. "She was never a stout girl, but had lost flesh slightly." Catamenia not appeared; "a slight cough at times."

On admission the patient was thin, but not emaciated. Hair brown in color, and rather dark. All symptoms before mentioned were still in existence; she always felt cold, but did not shiver; temperature in axilla 98°. The sickness was not very troublesome while in the hospital, but the debility was extreme, so much so that she could not walk without help, and felt faint on the slightest exertion. The pulse was feeble and rapid, but quite regular; the tongue clean and moist; the bowels natural. There was no oedema of face or extremities. The conjunctivæ were perfectly white. The general pigmentation of the skin was a symptom which immediately attracted one's attention, and it varied from a light-brown to a deep bronze-color. On the arms were some three or four superficial abscesses, varying in size from a half-crown to a five-shilling-piece, and from one of these issued a scanty discharge, having the appearance of ichorous pus. The skin on the surfaces of these abscesses was deeply bronzed, but in several places where old abscesses had healed the cicatrices were almost devoid of pigment. The greatest amount of pigmentation was observed in the neck, axilla, and lumbar regions, while the skin was also very dark near the nipples and the umbilicus, also along the margin of the lips, at the angles of the mouth, and at the internal and external angles of the orbit. On the arms the color was deeper in tint over the extensors than the flexors, and while the skin over the dorsum of the hands and fingers was very dark, that on the palmar surfaces was almost of its normal appearance. The legs generally were less stained than any other parts of the body, but at the hip, knee, and ankle on either side there was some deep pigmentation, distributed as follows: In the first and last situations named, it consisted of a broad band extending transversely in front of the joint, and at each knee there were two similar bands, commencing on either side of the popliteal space and gradually becoming lost towards the patella. The popliteal space itself was but little altered in appearance. On the neck and in the axilla were some few patches of even a deeper tint than the surrounding skin, and with fairly abrupt and well-defined margins; but in most parts of the body the transition from one degree of pigmentation to another was gradual and ill-defined. In the mucous membrane of the mouth a line of pigmentation extended backward from each angle for about an inch, besides which some small brownish patches were visible with an irregular but distinct outline. A physical examination of the chest revealed the existence of slightly impaired resonance over apex of right lung; but no abnormal sounds were heard on auscultation. The respiration was shallow, and the expansion of the chest-walls deficient. The heart was not enlarged, and there was no murmur. There was tenderness in each flank and in epigastrium, but otherwise the abdo-

men seemed natural. The urine was clear and of acid reaction; specific gravity 1028; no albumen. During the week that the patient was under treatment the sickness improved, but the bronzing of the skin and all other symptoms increased. On the seventh day she died suddenly, apparently from an attack of syncope. The treatment adopted was a light but nutritious diet, and a mixture was ordered containing arsenic and iron.

At the necropsy, made twenty-four hours after death, the body was somewhat thin, but not emaciated; the rigor mortis was still present. The pigmentation was more intense than on admission. An examination of the vagina and uterus showed the mucous membrane of both of these organs to be highly pigmented, and the same condition was noticed in the peritoneum, more especially in the neighborhood of the generative organs. The right lung presented a caseous deposit at the apex, and a few patches of miliary tubercle throughout the organ. The heart, liver, and kidneys were all normal in appearance, but the spleen was congested and large. The supra-renal bodies were both enlarged, and adherent to the surrounding structures. In each gland was a cavity containing about a drachm of fluid, resembling chyle, while the gland substance itself was thickened, hard, and nodular. The weight of the two bodies was nearly an ounce, the right being slightly larger than the left. Under the microscope the fluid consisted chiefly of fat cells, pus, and granular matter. A transverse section of the gland showed what appeared to be a caseous deposit around the wall of the cavity, and a deposit of tubercle in the gland substance.

GUY'S HOSPITAL.

SARCOMA OF TEMPORAL BONE, COMPRESSING CEREBELLUM, AND CAUSING FACIAL PARALYSIS; DEATH.

(Under the care of Mr. BRYANT.)

For the following notes we are indebted to Mr. Brenton.

Augusta B—, aged ten years and a half, was admitted on July 20th, 1881, into Lydia ward. It was stated that when born she seemed healthy, but had not been so since she was vaccinated. She had had measles and whooping-cough, and disease of the knee-joint, for which her leg was amputated through the thigh. About six months before admission she complained of pain in the left clavicle, and extending up the neck. About the same time a swelling formed behind the ear, on the temporal bone. After the appearance of the swelling, she suffered from pain at the upper part of the nose, and passed several blood-clots.

On admission the child was delicate-looking; she had pediculi capitis, but neither syphilitic teeth, sores on the head, enlarged cervical glands, nor discharge from the ear. There was a hard, firm swelling, perfectly immovable behind the lobe of the left ear, and extending over the mastoid portion of the temporal bone, and the adjacent portion of the occipital. It was about 1½ by 2½ inches, and was not connected with the lobe of the ear. There was no pain in the swelling, but it was tender on pressure. The patient had throbbing pain in the occipital region. She had had no sickness, no dizziness, no pain on flexing or rotating the head, and was able to eat perfectly well. On July 24th she was seized with acute shooting pain in the occipital region, and pain down the right side of the head. She passed a bad night, constantly crying out, "Oh, my head." Her nose bled, and she vomited and afterwards became collapsed. Next day under an anæsthetic an incision was

made cutting through the sterno-mastoid. Some pus was discovered and escaped, and three pieces of diseased bone from the mastoid process were removed.

On Aug. 8th symptoms of paralysis of the seventh nerve appeared. On the 19th the right clavicle was much swollen. Patient was unable to hear with her left ear.

On Sept. 6th the wound looked well. The patient complained of great pain over the mastoid process. Facial paralysis marked. Tongue thickly furrowed, and when protruded curved to the right. Her leg from time to time was painful. On the 24th the child was much wasted; left side of face quite flat; conjunctiva reddened and thickened where exposed. The paralysis was complete. The child had difficulty in opening her mouth, and could only protrude her tongue a short way; it went rather to the right side. Both sides were wrinkled and soft, so that there was no distinct evidence of paralysis of the ninth nerve. The pupil was normal; heard with the left ear; swallowed well. On the same day, under an anæsthetic, Mr. Golding-Bird commenced an exploratory operation. An incision was made diagonally into the swelling. Some pieces of necrosed bone were taken out, and some pus was met with and evacuated. The swelling was diagnosed as a periosteal sarcoma. On the 29th she could protrude her tongue further; could close her eye nearly completely; was quieter and less ill generally. Both sides of the tongue were equal, and the tongue went out straight.

On October 19th there was considerable pain at the back of the head and neck. Unable to protrude tongue as far as formerly. Pulse weak and rapid. On the 26th a small abscess in occiput broke. Three days later there was difficulty in swallowing. Pupils were much dilated. Breath was short and gasping. Temperature was regularly taken from September 10th to October 22nd; it was normal except on September 23rd, when the morning temperature was 102°, and the evening was 101.2°—September 24th: Morning temperature 100.6°. From this time she got worse, and died at 3 p.m.

Post-mortem.—A sarcomatous growth was found filling the whole of the left post. fossa of the skull, and passing as a thin layer across the bacillar process. The left half of the cerebellum was much compressed and flattened across, as was also the medulla oblongata and nerves proceeding from it. The facial nerves were specially involved. The cerebral ventricles were much dilated owing to the exit of the fluid being hindered by pressure on the tumour. The kidneys and liver were the seat of lardaceous disease, and the lungs were a good deal congested.

WOLVERHAMPTON AND SOUTH STAFFORDSHIRE HOSPITAL.

FRACTURED CERVICAL SPINE; RECOVERY.

(Under the care of Mr. VINCENT JACKSON.)

For the following notes we are indebted to Mr. W. H. T. Winter:—

William P—, aged forty-five, fell with his neck across a rail, on June 21st, 1882. On admission to the hospital there was absence of sensibility in the arms, trunk, and legs. The arms were capable of feeble and irregular movements, but the legs were quite paralyzed. Respiration was purely diaphragmatic. The abdominal reflexes were exaggerated, and there was priapism. Patellar reflex and ankle clonus absent. There was tenderness about the fourth or fifth cervical ver-

tebræ; but no irregularity of the spines could be discovered. For some weeks there was retention of urine (the catheter being used twice daily) and obstinate constipation. On July 1st the patient had a slight attack of cystitis; and his evening temperature went up to 104°. As small quantities of urine collected in the bladder it was forcibly voided. This attack passed off in a few days. About this time sensation began to return in the legs, and motion became more powerful in the arms. Tactile sense returned slowly up the body, although the patient could not distinguish hot from cold objects. On July 14th the patient became conscious of the desire to micturate, and he could move his feet a little. From this he steadily improved. At the end of July a hard lump (callus) was found growing above the vertebra prominens. On Aug. 25th the patient was allowed to get up on the couch; and by September he was able to walk stiffly and with a little help.

On Sept. 20th he was discharged. He was able to walk very fairly, but the neck was kept rigid. Motion and sensation had completely returned. Except on the occasion referred to, the temperature was normal throughout the illness. The patient is now (December) working as a farm laborer in Shropshire.

WOUND OF THE BLADDER; RECOVERY.

(Under the care of Mr. VINCENT JACKSON.)

William A—, aged twenty-four, a carman, was loading a truck when he slipped and fell upon a trolley, such as railway porters use. The handle of the trolley tore his trousers and entered the rectum. The patient was admitted into the hospital (soon after the accident) on Nov. 18th, 1882. He complained of great supra-pubic pain and pain in the rectum. A rectal examination showed that the sphincter ani was paralyzed and dilated, and that the bowel contained blood. On passing a catheter six ounces of bloody urine were drawn off. The catheter had to be passed frequently, and pain was allayed by the free use of opium. The next day Mr. Jackson passed a silver catheter into the bladder, and introduced his finger into the rectum. He then discovered that there was a rent between the bowel and the bladder, about an inch above the prostate. A catheter was tied in, but every eight hours the patient had a desire to defecate, and passed urinous blood by the bowel. By the 20th the pain had passed off, but there was still great supra-pubic tenderness and soreness about the injured parts. The bowels were opened naturally, but the motions contained urine. There was blood in the urine drawn off from the bladder, although it daily became less in quantity. On the 23rd the urine only contained a trace of blood, and the bladder began to recover its tone, as the forcible jet of water through the catheter showed. On the 26th the patient passed water naturally, and nearly emptied the bladder. The wound seemed to heal up quickly, and the bladder muscles recovered their power rapidly, for by Dec. 1st the bladder emptied itself completely, and a very insignificant amount of urine passed per rectum. After the 4th all the urine came naturally. By the second week of December the patient expressed himself as feeling perfectly well. On the fifth evening after the injury the temperature rose to 101°, but with that exception it ranged between 99° and 100° during the first week, and 98° and 99° during the second week.

CANCERUM NASI; RECOVERY.

(Under the care of Mr. J. O'BRIEN KOUGH.)

Patrick D—, aged five, had measles in May. He became weakly, and a discharge took place

from the nose. In the first week of October the left side of the face began to swell and became inflamed. On the 8th a little hole formed on the side of the nose, on the 9th the hole was as big as a bean, and on the 10th, when the patient was brought to the hospital, there was a wound which had destroyed the left side of the nose, and was threatening to extend to the inner canthus of the eye. The left ala and the soft tissues over the left nasal bone had ulcerated away. The cavity of the nose was exposed and the destructive process was extending to the septum and the left turbinated bones and the floor. There was a black slough along the margin of the wound, and around this was a red, angry, and indurated zone. The left eye was injected and tears flowed from it. The parotid was a little tender, but the submaxillary glands were unaffected. The child's condition was deplorable. He was emaciated and exhausted, and suffered much from pain. The pulse was weak and frequent; the temperature, 103.6°. Diarrhoea was present, and the stools were dark and fetid. In a few days the left nasal bone necrosed and was removed; the cartilaginous septum and the turbinated bones were destroyed, though the vomer remained unhurt. The alveolar processes also became eaten away, and showed two of the second teeth in their beds. For twelve days the child's condition was precarious. There was a good deal of fever, but daily there was a slight improvement. The active extension of the destructive process seemed to cease on the child's admission to the hospital. At first the wound was dressed every few hours and iodoform dusted upon it. Quinine and port wine were administered to the patient with plenty of milk, and three grains of Dover's powder were given every four hours. In the third week marked improvement set in. The child was always hungry; he gained flesh; he had no pain. The wound became pink and the edges soft, and a pellicle began to form.

Dec. 14th: The child has excellent spirits, and has grown fat; but there is an unsightly hole in the side of the nose and the eye is displaced slightly downwards.

LIVERPOOL EYE AND EAR INFIRMARY.

A PIECE OF STEEL IN THE CRYSTALLINE LENS; ATTEMPTED REMOVAL; DEATH DURING THE ADMINISTRATION OF DICHLORIDE OF ETHIDENE.

WM. —, aged twenty-six, a weakly-looking man, was admitted on the morning of Nov. 21st last, suffering from a wound of the right eye, inflicted with a chipping of steel, half an hour previously. On examination the foreign body could be seen in the lens. Mr. Edgar Browne decided that an attempt should be made to extract the body. The house-surgeon, Mr. Charles Shears, on auscultation of the patient could detect no cardiac murmur, but the sounds at the base were not distinct, and it was not thought sufficient to contra-indicate the administration of an anæsthetic. Dichloride of ethidene was then given on a small flannel inhaler, and the patient came under its influence slowly but quietly. In ten minutes the man was fully under the influence of the anæsthetic, and Mr. Browne made the corneal section. Almost immediately the pulse (which had been carefully noted all through) became very feeble, and the patient very pale. The head was lowered, the tongue drawn well forwards, and artificial respiration was commenced without delay. Air passed freely in and out of the chest. Nitrite of amyl was then applied to the nostrils, and the patient was inverted. He, however, showed no signs of returning consciousness. Artificial respiration

was carried on for nearly half an hour, but without any beneficial result. Between three and four drachms of the ethidene were used.

By order of the coroner, a post-mortem examination was made thirty-six hours after death by Dr. Alexander Davidson, physician to, and lecturer on pathology at, the Liverpool Royal Infirmary. On removing the heart, it was found to be in a flabby condition, and the walls were very thin; all the valves were healthy. On the lining membrane of the aorta, one inch above the valves, and extending for some distance, small fatty patches were seen, as also on the thoracic aorta, and in one place there was the appearance as of a healed atheromatous ulcer. The heart muscle was examined microscopically, and found to have undergone extensive granular degeneration, the nuclei especially being surrounded with granules. The right lung was deeply congested.

At the inquest, evidence was given to the effect that the man died from cardiac syncope, produced by the administration of an anæsthetic to a patient whose heart was in a condition of commencing fatty degeneration, which condition could not have been discovered during life, and which certainly was not suspected in so young a man. The jury gave their verdict accordingly, adding that they thought "everything was done that could possibly be done, or that was customarily done." Since the early part of 1879 dichloride of ethidene has been largely used at the infirmary, it having been administered between four hundred and five hundred times, and, up to this present unfortunate occurrence, without any mishap. The absence of struggling, with which patients come under its influence, its pleasant smell, and the very little sickness following its administration, caused ethidene to be regarded as a specially suitable anæsthetic for operations on the eye.

EVELINA HOSPITAL.

CASE OF ACUTE CHOREA TREATED BY MASSAGE; RECOVERY; REMARKS.

(Under the care of Dr. GOODHART.)

For the following notes we are indebted to Mr. W. H. C. Newnham, B. A. Cantab., resident medical officer:—

E. S.—, aged twelve years, was admitted on Sept. 19th, 1882. Her father died at the age of forty, of some ulceration of the throat; her mother was alive and healthy. Seven other children all alive; none of them had had chorea, nor was there any history of rheumatism in the family. The patient had measles nine years ago and whooping-cough five years ago, but had not had scarlatina. It was stated that for three years the child had suffered more or less from rheumatic pains in her joints, but had never had any acute attack; these pains had existed since her convalescence from typhoid. Seven weeks before admission (after coming from Scotland to London) it was first noticed that her arms were constantly twitching; she was seen by two medical men, but in spite of treatment she got steadily worse, so that she threw herself violently about, was subject to violent screaming fits, and could not feed herself.

On admission there were very violent universal choreic movements; it was at once necessary to pad the sides of the cot with pillows. There were many marks of bruises on her arms and legs. The arms were tossed about considerably, but as there was marked motor paresis accompanying the chorea, the movements were rendered less violent than when the arms were supported. The legs were not so violently contorted; they were very cold, and she required a hot bottle to the feet.

The muscles of the face were violently twitched; there was a most sardonic grin on attempting to smile; this was almost constant when she was watched; no dysphagia; speech was almost entirely absent; patient did not answer any questions. In the first twenty-four hours she passed urine twice into the bed, and had to be watched to prevent repetitions. Urine acid, sp. gr. 1025, no albumen; considerable amount of phosphates. Lung sounds normal. Heart: Dulness not increased; apex-beat normal. At the apex was a softish, systolic murmur, also heard in the axilla, becoming much rougher at the left base. The child cried nearly the whole day, and screamed out loudly, and was much worse if her mother or any of her friends were at the bedside. In taking some milk she bit her medicine-glass, breaking it in pieces.

Orders were given that none of her friends were to be admitted to see her, and she was put under the care of one special nurse during the day. Did not sleep, except in snatches, for the first three nights. There was great wasting of the muscles of the extremities, and altogether the girl appeared very helpless.

On Sept. 22nd, three days after admission, "massage" was ordered, with the "special massage diet." For the first twenty-four hours massage seemed to have but little effect, and she did not sleep after it. It was performed morning and evening, for twenty minutes each time.—24th: She slept for one hour after massage. No screaming fits and no involuntary passage of urine.—26th: Slept well at night, going off soon after the massage was finished. Required to be fed with a spoon, and was a considerable time over her meals.

On October 7th the patient had been steadily improving; took her food well; seemed more sensible; could feed herself; had not spoken at all yet. A week later she was very much better, could sit up and feed herself. Had spoken to the nurse and addressed her by name.—21st: She was able to talk and all choreic movements were absent. Thenceforth she got up and went about the ward and could do everything for herself.—26th: She was quite well enough to be discharged, but in the evening her temperature rose to 104°, she complained of sore-throat, and in the morning she was covered with the scarlatinal rash. She was removed to the Fever ward, had slight albuminuria, and at the end of six weeks was discharged quite well. There was still a slight systolic whiff at the apex.

Remarks.—It was noted that on October 23rd she was quite well—that is to say, thirty-four days after admission. May this be said to be due to the "massage," to the rest in bed, or to the isolation from her friends and relations, or to all three combined? She never had any medicine at all for the chorea.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Cases of so-called Erythema Gangrænosum.—The Pathology of Diphtheritic Paralysis.

The ordinary meeting of this Society was held on Jan. 9th, Professor J. Marshall, F.R.S., President, in the chair. The subject of Dr. Fox's paper on erythema gangrænosum was illustrated by some models from Guy's Hospital Museum; and in addition to the microscopic specimens of the spinal

cord in diphtheritic paralysis, showed by Dr. Kidd, some similar specimens were exhibited by Mr. Horsley.

A paper was read on two cases of so-called Erythema Gangrænosum, by Dr. T. Colcott Fox. The term erythema gangrænosum has been applied to cases in which the inflammatory patches presented very different degrees of severity, and were not all gangrenous. Case 1 was a lady, aged forty-seven, in whom gangrenous patches continued to evolve off and on from June, 1877, until the present time. The patches were limited to the regions of the chest and arms, and occurred over and over again about the site of former patches, sometimes for a time forming only on one arm, then on the other, and then about the chest, but a sort of symmetry was often kept up. The formation of patches was very frequent at first, but as the general health improved and the habit of intemperance was avoided, the patches were seen less frequently. She showed none of the ordinary signs of hysteria, but at one time had an attack of paraplegia lasting two or three months. Case 2 was a girl, aged seventeen, of an extremely hysterical and neurotic temperament, in whom severe inflammatory vesicating areas (not gangrenous) continued to form for many months. They occurred with fair symmetry over the body and extremities, but there was here also a marked tendency for the patches to recur about the sites of former lesions. In neither of these cases was there any cachectic condition sufficient to account for the severity of the lesions, and the surfaces healed fairly well. The question at issue is whether there exists an idiopathic affection consisting in the continued evolution of inflammatory areas of different degrees of intensity and often gangrenous, such as have been described under the term erythema gangrænosum, or whether these cases should not invariably be pronounced to be artificial. In support of the first proposition there are only five cases on record of a similar nature in which malingering has not been actually proved, but these cases are all surrounded by the greatest suspicion, for they occurred in females, generally young, and decidedly hysterical or eccentric. The sites of attack and mode of evolution of the patches was most peculiar; there was an entire absence of any enfeebling condition sufficient to account for the occurrence of gangrene, and at the same time a healthy reparative process went on; and the patches were such as might be produced by a caustic agency. Dr. Fagge's case of gangrenous patches occurring in a man in the last stage of tubercular phthisis, Charcot's acute bedsores, and varicella and vaccinia gangrænosum were examined in support of the possibility. In opposition to the first proposition and support of the second there are a number of cases on all-fours with the others as regards site and mode of evolution of the eruption, the sex and character of the patient, etc., in which malingering has been proved from the simple erythema produced by mustard, and the excoriations brought about by rubbing, to the gangrenous patches caused by the application of nitric or sulphuric acids.—Dr. Thin referred to a discussion which lately took place at the Vienna Society of Medicine, upon a case shown by Dr. Neumann, of spontaneous gangrene of the skin in a young female. He described the change as commencing with discoloration of the epidermis, passing rapidly to the formation of a bulla and then to gangrene, the consequent sores healing very slowly. Neumann, Kaposi, and other dermatologists admitted the reality of the affection, which was disputed by the surgeons present, amongst whom Professor Billroth urged strong reasons against the probability of such a gangrene occurring in a healthy young subject, and main-

tained his opinion that the condition was artificially produced, although chemical analysis failed to detect in the sloughs any traces of acid, etc., likely to have been used for the purpose.—Mr. Savory instanced two cases under his care at present, showing that in certain subjects there is great proclivity to gangrene. One was a man about forty years old, in whom, after a compound fracture of the leg, gangrene occurred not only at the seat of the injury but also over a large surface of the thigh; and the other an older man, admitted into hospital with two areas of sloughing of the skin, each the size of the palm, following a slight contusion. In these and other cases of extensive sloughing after injury, he had generally found there was a history of alcoholic intemperance, and, therefore, it was probable that their tissues were debased and prone to gangrene. Dr. Fox's cases fell into a different category, being in women without such history and without manifest injury. Mr. Savory pointed out that the detection of the artificial use of caustics was facilitated by noting the shape of the patches, which showed greater irregularity in outline, especially of the lower margins (from the gravitation of the fluid) than is the case in patches of true skin disease.—Dr. Buzzard mentioned a case of a young girl with hysterical paraplegia, in whom a hæmorrhagic bulla formed on the foot, which he attributed to defective nutrition. In another case, also of paraplegia in a female, whom he suspected of malingering, a bed sore was discovered on the trochanter, which he had no doubt was artificially produced, for the patient being closely watched, the sore rapidly healed, the paraplegia remaining.—The President inquired whether in his cases Dr. Fox had had the opportunity of examining the condition of the blood or of the urine, as indicative of any constitutional condition underlying the gangrene. He pointed out that the lesion differed from erythema in having no tendency to spread, and in one of the two cases the state of gangrene was not reached.—Dr. Fox, in reply, said that the case mentioned by Dr. Thin was doubtless one of this class. He had raised the question whether there was any constitutional peculiarity that could determine the lesion in these subjects. The simple bullous eruptions occurring in hysterical women belonged, he thought, to a different class. He had not been able to examine the urine, etc., in these two patients; and, although in one of them no gangrene occurred, it was obviously the same kind of case. He thought the term "erythema gangrenosum" should be discarded.

The next paper read was entitled, a Contribution to the Pathology of Diphtheritic Paralysis, by Dr. Percy Kidd, in which facts are brought forward in support of the view that diphtheritic paralysis is founded on a distinct anatomical lesion of the spinal cord. The lesion affects the anterior horns, and consists in alterations in the shape of the motor nerve-cells, and in changes in their cell-protoplasm. The affected cells are, as a rule, more or less globular in shape, and devoid of processes. The changes in the cell-protoplasm are divisible into two groups. In the first, which is more common, the cell substance has become pale and indistinct, and the nucleus is either absent or only faintly visible. In the second the cells are more granular than usual, and often show a well-marked nucleus. In both cases the cell degeneration has an atrophic tendency. In some cases sections from special parts show a numerical atrophy of motor nerve-cells. These changes are not found throughout the spinal cord, but are limited to certain regions. The localization of the nerve lesion corresponds with the distribution of the muscular paralysis during life. There is no distinct affection

of the neuroglia. The changes are purely parenchymatous. A similar degeneration of the motor nerve-cells has now been found in fifteen cases—viz., by Vulpian in two cases, Déjerine in five cases, Dr. Abercrombie in seven cases, and, lastly, by the author in one case, which is the subject of the present paper. The disease may be described as a "polio-myelitis anterior." It is considered highly probable, if not actually proved, that the above lesion is a constant one, and is the immediate cause of the paralysis. Dr. Buzzard said there could be no doubt that in the case described there was the condition of anterior polio-myelitis, but the author had come to too general a conclusion, since in most cases of diphtheritic paralysis there is disorder of sensation to quite as marked a degree as disorder of motion. The lesions described would not account for this, whilst in some cases the electrical reactions showed but little evidence of such marked lesions. He asked whether the nerve trunks had been examined.—Mr. Parker asked in what way these changes differed from those met with in infantile paralysis, the outcome as to recovery in the two affections being so different. If the spinal change were as complete as in infantile paralysis how could recovery from diphtheritic paralysis be explained.—Dr. Semon also considered that to regard diphtheritic paralysis as an anterior polio-myelitis was a narrow view. He instanced a case of bilateral recurrent laryngeal paralysis following an attack of pharyngeal diphtheria—a case shown to him by Dr. Carpenter—as evidence of medullary lesion. He suggested that in such a case the afferent fibres of the vagus had been influenced by the pharyngeal inflammation, and that the centres of the laryngeal nerves had been implicated in a reflex manner. The aphonia had developed some time after the diphtheritic attack, and had persisted for twelve months; and in such a case he should think lesions would be found in the floor of the fourth ventricle. Similar explanations might be given of the occasional involvement of the cardiac nerves following diphtheria; and he thought that the endeavor should be not simply to confirm the statements of previous observers, but to ascertain whether other changes existed than had been hitherto described.—Dr. Douglas Powell said there could be no doubt at all that in Dr. Kidd's case death occurred from involvement of the respiratory muscles in the paralysis due to the spinal cord lesion; and other cases, as those mentioned by Drs. Buzzard and Semon, pointed to central lesions. There are also cases of death from paralysis in diphtheria in which the lesion seems to be peripheral rather than central. He had been struck with the extreme anæmia of the subjects of this disease, who died with symptoms of cardiac paralysis; in one case the red corpuscles were only 14 to 17 per cent. in number, and very marked fatty degeneration of the heart had been found in some cases.—Mr. Horsley understood that Dr. Kidd did not limit the lesions of diphtheritic paralysis to changes in the cells of the anterior cornua; but there was no alteration of sensation in the case he recorded. The specimens he exhibited were forwarded by Dr. Mott, of Liverpool, and showed vascular engorgement of the spinal cord and medulla, atrophy of the inner group of the ganglia cells in the anterior cornua of the lumbar enlargement, with a distinct increase in the substantia gelatinosa in the posterior cornua; the latter change probably causing disorder of sensation. He was unable to give clinical details; but the changes were confirmatory of those described by Dr. Kidd.—Dr. Kidd, in reply, pointed out that there were now fifteen cases of diphtheritic paralysis on record in which these anterior cornual

lesions were present. There was no disorder of sensation in his case. He had been unable to obtain any of the nerve trunks for examination; but Déjerine describes granular fatty changes in the anterior and posterior spinal nerves, and in the nerves going to the affected parts; and similar parenchymatous neuritis in the anterior, but not in the posterior, spinal nerve-roots. The spinal changes were very like those of infantile paralysis; and it is not unlikely that in cases of recovery the lesion is but transient. He admitted the force of the remarks of Drs. Semon and Powell, but had in the present case limited himself to the spinal cord.

Cases of Polypoid Tumour of the Bladder removed by Operation.—Operation for Exploring the Bladder by Perineal Section of the Urethra, and for removing Vesical Tumour, Impacted Calculus, etc.

The ordinary meeting of this Society was held on Jan. 23rd, John Marshall, Esq., F.R.S., President, in the chair. The evening was occupied with the reading by Sir Henry Thompson of two papers, bearing on the operation for exploration of the bladder and removal of tumours from that viscus, and the prolonged discussion that ensued. A large collection of preparations was exhibited from the museums of the Royal College of Surgeons, St. George's Hospital, and University College Hospital, also specimens by Sir H. Thompson, including microscopical preparations by Mr. Boyd and Dr. H. Gibbes. At the close of the meeting Mr. Pearce Gould demonstrated Dr. Bigelow's latest modification of his instrument for litholapaxy.

Sir Henry Thompson read a paper on four cases of Polypoid Tumour of the Bladder removed by Operation. The paper consists of the history of symptoms, the removal by operation, and the results, in four cases of vesical tumour, each of large size, one of them extremely so, and filling the bladder. In three the patients recovered, in the fourth, with the large tumour, the issue was fatal. A carefully made microscopical examination is described, and the report is appended in each case.

Sir Henry Thompson also read a paper on an Operation for Exploring the Bladder by Perineal Section of the Urethra, and for removing Vesical Tumour, Impacted Calculus, etc.; with cases. The author desired to ask the attention of the Society to a new method of investigating obscure diseases of the bladder, which promises to be valuable in certain conditions occasionally met with. Everyone sometimes meets with a case in which the symptoms of vesical disease are severe and obstinate, and although very careful examination has been made, he is unable to arrive at a rational diagnosis. The occurrence is doubtless not a common one; in the great majority of cases carefully made observations demonstrate the nature and seat of the disease. But for the exceptional cases, always important—cases generally marked by frequent or persisting hæmaturia of some standing, manifestly not renal, and without local signs of cancerous tumour—he proposes to take decided action, and to submit, further, that such action should not be unduly postponed. The essential step in the method proposed is to examine the entire internal surface of the bladder with the finger, by which means we can recognize the presence of any tumour, large or small, the existence of encysted calculus, etc. The method of doing this was illustrated, and shown to be a proceeding simple and easy of performance, and at the same time one which involves little if any danger to life. It consists in making a small opening from the raphe of the perineum to the membran-

ous urethra, which is opened on a grooved staff just enough to admit the left index-finger to enter the canal and to be pushed on to the neck of the bladder. Provided the anesthesia of the patient is so complete that the abdominal muscles are perfectly relaxed, every portion of the internal surface of the bladder may be brought consecutively by suprapubic pressure into close contact with the tip of the finger, and any deviation from the natural condition, however slight, may be noted. The operation is an external urethrotomy only, and involves neither the prostate nor the bladder. The application of the proceeding not only to diagnosis but subsequently to treatment, was then discussed. It was shown to offer facility for the removal of tumour, impacted calculus, etc. Seven or eight cases in which the operation had been performed were cited, and several examples of tumour were exhibited which had been removed by the author. These latter were examples of a disease which is inevitably fatal unless removed by operation; the signs and symptoms of their presence were discussed. Great care is necessary in examining the state of the patients before having recourse to operation. The two conditions, the absence of which are so important to be assured of before interfering, are: renal disease and cancer. Hæmaturia from either of these sources of course absolutely contraindicates an operation.—The President, after alluding to the specimens and instruments exhibited, and in proposing a vote of thanks to the author, remarked that the subject opened up points on the diagnosis and nature of vesical tumours, and praised the paper for its clear and practical character.—Mr. Lund (Manchester) bore testimony to the practical value of the paper, treating of a class of cases difficult of diagnosis and treatment, which it could now be decided to deal with by external urethrotomy or median lithotomy in place of the more risky procedure of a lateral lithotomy or cystotomy. By this method Sir H. Thompson had shown that it was as easy to explore the male bladder as the female; and he would imagine that the main difficulty in the digital exploration would be in cases of fat subjects with deep perineums. He had seen cases in which the bladder had been opened for tumours by the lateral incision. Two of them were cases of malignant disease, but the third was one he had seen recently with Mr. Whitehead, of Manchester, who, in a letter which Mr. Lund read, says that he first explored the bladder through an incision of the membranous urethra seven years ago, not deeming it a novel proceeding, and that within the past year he had performed the same operation six times; in four of the cases finding and removing growths from the bladder. In all of the cases the chief symptom was alarming and uncontrollable hæmaturia. The case seen with Mr. Lund was that of a medical man seventy years of age, who had suffered from persistent hæmorrhage for seven years, with frequent expulsion of villous shreds. The growth was scraped away with Volkmann's spoon, and the patient has resumed his practice without any further symptoms. In the second case there was much relief from pain and hæmorrhage, but death occurred three months after the operation from causes independent of the bladder. The third case was convalescent two months after the operation. The last case was much relieved, but had only been recently operated upon. Mr. Whitehead concludes that the operation is free from risk, that it affords in most cases ample facility for complete digital examination of the bladder; but that in very stout subjects partial exploration could only be effected, and that it was of great benefit even in cases of malignant disease, for it afforded good drainage and physiological rest to the bladder. Mr. Lund

added that in cases where much hæmorrhage followed removal of a tumour, perchloride of iron could be injected, the vesical mucous membrane being very tolerant of strong astringents.

Mr. Reginald Harrison (Liverpool) related a case recently under his care at the Liverpool Infirmary. The man had long suffered from persistent hæmaturia, and on examination the prostate was thought to be enlarged and indurated. He cut down upon the prostate and found a hard fungating mass with a hard base, which he succeeded in enucleating. There was not much after-bleeding, and the hæmaturia has not since returned (now four or five months). Partial incontinence of urine followed, but was met by a "urinary truss"—i. e., an ordinary truss adjusted to the root of the penis. Mr. Paul, who examined the growth microscopically, reported that it was a specimen of scirrhous carcinoma.—Mr. Durham congratulated Sir H. Thompson upon his successful removal of tumours of the male bladder, but as regards the method described in the second paper he failed to see its novelty. He had performed it at least a hundred times in treating bladder disease, and could confirm Sir Henry's statement as to the ease with which the bladder could be explored by it. The operation was well known to Guy's men as Cock's operation, which was intended to afford relief to an inflamed bladder in cases of intractable stricture. In some cases he had found tumours, cancerous in nature, which he had partially removed. But Cock's operation was performed without the staff as a guide; the commencement of the prostatic urethra being determined by the left index finger in the rectum; and the urethra incised through the middle line of the perineum in front of this point. It was the same operation as Sir H. Thompson's with the exception of the use of the staff. In a case supposed to be one of impermeable stricture that he so dealt with, Mr. Durham found the obstruction to be due to an elongated calculus impacted in the prostatic urethra, which he extracted through the wound. Such a case showed that the operation could be done as well without the staff as with it. It was also of the greatest value as a measure of relief in inflammatory or malignant disease of the bladder, affording drainage and a ready means of washing out the viscous. Hardly any risk was entailed by the operation itself, an operation which was as valuable in its way as tracheotomy.—Dr. H. Wotton mentioned a case which occurred in his father's practice many years ago, where a calculus was impacted in the prostatic urethra. In that case great relief was obtained by raising the pelvis above the level of the head, thus keeping the urine from pressing on the neck of the bladder.—Mr. Henry Morris had performed this median operation several times, and pointed out that in the class of cases for which Cock's operation was done, the urethra was so dilated at the point of incision that no harm was done if the median line were deviated from; but no one, he imagined, would prefer to cut down upon the urethra without a guide if one could be passed. During the past two years he had five times practiced this method for exploratory purposes. The first was a case of encysted prostatic calculus, with much hæmorrhage; diagnosis was obscure, and recovery ensued. Two were cases of obstinate cystitis, both with great relief to the symptoms, although one succumbed to renal disease secondary to the cystitis nine weeks after the operation. A fourth case was that of an old man who had suffered from incontinence and constant pain for some time, and was admitted into the hospital in an exhausted state. Mr. Morris forthwith made the incision, and explored the bladder with the finger, removing a large slough. A short

tube was inserted, and, although the patient lived only two days, he was relieved of his pain and slept for several hours, which he had not done for many weeks previously. After death a central sloughing area was found, attributed to contact with the catheter; and at one spot this sloughing had penetrated the serous coat, extravasation being prevented by adhesions. The last case was still in hospital. It was one of enlarged prostate with much hæmorrhage, which required frequent catheterism, and Mr. Morris thought it right to explore through a median incision. Although the patient is thin and tall, he could not reach the neck of the bladder with the finger in the wound, the prostate being so enlarged and lengthened. This illustrated one difficulty which might arise in the digital exploration. The patient is now using a catheter through the wound, but all hæmorrhage has ceased, so it was probable that the source of the blood was from the congested prostate.—Mr. Vincent Jackson (Wolverhampton), pointed out that Sir H. Thompson had not claimed novelty for this method of entering the bladder, but for its application to the diagnosis and removal of tumours, finding no other plan of avail than that which allowed him to explore every portion of the bladder with the finger. He (the speaker) had often tapped the bladder through the perineum in cases of stricture, and well remembered Mr. Quain doing so at University College Hospital twenty years ago. This method of opening the bladder permitted not only of drainage, but of ready irrigation.—Mr. T. Smith assured Sir H. Thompson that it was not a "new" method, for it was one with which he had been familiar from his earliest surgical days. He also thought it was the usual practice to examine the bladder with the finger after lithotomy. It had long been customary at St. Bartholomew's Hospital to examine the bladder with the finger introduced through the incision described, and he appealed to the author, as such operations were often done to remove sources of irritation, to strike out the phrase "a new method."

Mr. Spencer Wells pointed out that the removal of tumours from the female bladder often affords permanent relief. One of his first cases at the Samaritan Hospital was that of a woman, who was bleeding to death from a small mucous polypus, which he extracted, with the result of complete restoration to health. He had since twice removed similar polypi with the same good result; so that he thought some of these cases supposed to be malignant were really innocent growths.—Mr. Berkeley Hill thought it interesting that all the growths removed by Sir H. Thompson were fibromata, which were said hitherto to be rare forms of tumour of the bladder. For his own part he would prefer using the wire écraseur to the forceps in removing large senile growths, for fear lest important structures might also be torn away. Billroth has in such cases removed the tumour by a compound operation, opening the bladder from above. There is no difficulty in exploring the bladder provided it be empty.—Mr. Morris explained that in his case the bladder was completely empty; its neck could not be reached owing to the great length of the prostate.—Dr. Aveling suggested that the female bladder might be opened for the removal of large growths through the vesico-vaginal septum, the urethra not allowing of much scope.—Mr. Eve said that histologists were gradually coming to admit that all these growths of the bladder were fibrocellular in nature, ordinarily described as papillomata. There are, however, forms of papillomata, "villous tumours," which pass into epitheliomata, with scattered growths elsewhere in the mucous membrane, and liable to recurrence on

removal.—Mr. Stanley Boyd said that two of the tumours he examined for Sir H. Thompson were quite smooth on the surface, and only presented minute villous projections. They were mainly composed of fibrous tissue, like that which forms the central part of a villous tumour. All tumours on mucous surfaces tend to become papillomatous.

Mr. Durham explained that his point was that the urethra could be opened in the perineum satisfactorily and well in cases where a staff could not be used.—Mr. Shattock thought more regard should be paid to the pathology of these tumours, and suggested that in malignant cases portions of the bladder should be excised on the same principle as excision of the pylorus was practiced for cancer of that region. The bladder had been successfully sutured after rupture. He exhibited an instrument, constructed in the form of a lithotrite but with blades which worked laterally, as useful for detecting tumours, and removing them if small. He also pointed out that papillomata were generally seated at the trigone—i.e., near the three orifices of the bladder, and they might be compared to warty growths occurring at other outlets; moreover, the mucous membrane at the trigone was less movable than elsewhere.—Sir Henry Thompson, in reply, said that although he had endeavored to make his paper clear he was forced to declare that he had been misunderstood. The operation, which at Guy's Hospital was associated with the name of Cock, had been known for two centuries; it was practiced particularly by the French surgeons, by whom it was known as "la boutonnière." It was not a cystotomy nor a median lithotomy. The conditions for which Mr. Durham operated were in cases of stricture, etc., and for these cases the operation was a well-recognized one. Its present novelty consisted in its extension to cases for which it had never yet been thought of, cases in which there was no means of detecting organic disease save by digital exploration. Out of fifteen cases in which he had performed the operation for diagnostic purposes he had discovered tumours in five cases; and he asked if either at Guy's Hospital or St. Bartholomew's, five cases of tumour so detected and removed during life had been dealt with. There were no specimens of such cases in their museums. They were cases usually overlooked, treated in the medical wards by styptic injections, and he believed that his suggestions would result in finding many such cases. Mr. Smith's remark, that it was always the custom to explore the bladder with the finger after lithotomy, was so far true because the finger is already in the bladder; but how often is a digital examination made for a second stone. As a rule, the sound is introduced for this purpose because the whole interior of the bladder cannot be explored, as it can be by the median urethral incision. He was glad to hear Mr. Whitehead's experience, and believed that these tumours were more common than was suspected. In one of his cases, seen with Sir W. Jenner, where there had been persistent hæmaturia almost to death, he had removed a scale of phosphatic matter, and the hæmorrhage had not recurred. He doubted Mr. Harrison's case being one of scirrhus; it seemed rather one of those fibroid growths of the prostate which can be enucleated.

—A short time ago the librarian of the Faculty of Physicians and Surgeons of Glasgow made an interesting "find" in a dusty corner of the library, having come across a set of manuscript notes of John Hunter's lectures on Surgery, taken by a pupil.

PATHOLOGICAL SOCIETY OF LONDON.

Cirrhosis of Liver.—Cancer of Oesophagus.—Lympho-Sarcoma.—Larynx from a Case of Tubercle.—Ulcerative Endocarditis.—Heart Disease.—Fibrinous Concretion on Pleura.—Lardaceous Disease of Liver.—Vesical Polypus.—Rickets in a Baboon.

THE annual meeting of the above Society was held on January 2nd, Dr. S. Wilks, President, in the chair. For the first hour the ordinary business of the Society was transacted, and during this time the ballot box was open and in the charge of Dr. Edmunds and Mr. Eva, scrutineers. The last half hour was devoted to the special business of the annual meeting.

Dr. Angel Money showed a specimen of Cirrhosis of Liver from a child, aged eight, who suffered from ascites for ten days before death. She had stayed at a beer-shop for two months when three years old, and on her return home it was found that she had acquired a taste for alcohol. There was no history of syphilis. The liver weighed 19 oz. The amount of fibrous overgrowth was very excessive. There was no fibroid overgrowth elsewhere. The history justified the belief that the cause of the disease was alcohol.—Dr. Wilks said there had been two or three similar specimens shown recently from quite young children in whom there was a history of drink, although in many others there was no such history.

Dr. Norman Moore exhibited four specimens:—1. Carcinoma of Oesophagus, a carcinoma affecting the whole middle part of the Oesophagus. The new growth infiltrated the whole wall, and had caused a stricture just admitting a large probe. The oesophagus was adherent to the lung, and at the adhesion its wall was perforated, so that any food which passed the stricture might enter the lung. The lung at this point was not gangrenous, but was simply pneumonic. The distribution of the secondary masses of new growth was interesting. The stomach was not affected, but the small intestine had several firm, whitish constricting masses, of precisely the same relations to the tube as that in the oesophagus. There were numerous secondary growths in both lungs, and one in the outer wall of the left ventricle. The liver, spleen, mesenteric glands, and both kidneys contained numerous masses of the same. The growth was a scirrhous carcinoma, and the secondary masses were all of firm texture. The patient was a man aged fifty-six. He had symptoms of dysphagia in May, and died in December. Out of twelve cases of carcinoma of the oesophagus examined at St. Bartholomew's since 1867 all were males. In six the lower end was the seat of the growth, and in five the middle of the oesophagus. In four cases secondary growths were found in the lungs. Exhaustion was the commonest cause of death. Ulceration into a vessel occurred in two cases, gangrene of the lung in one, and fatal pleurisy in three. The ages of the patients were from thirty-six to fifty-eight.—2. Lympho-sarcoma invading the Duodenum. The growth originating in the lumbar glands had penetrated the duodenal wall and produced at one place narrowing and elsewhere dilatation of the duodenum. The specimen was from a woman, aged forty-one who died in St. Bartholomew's Hospital, under the care of Dr. Gee. During life an irregular ovoid tumour was felt in the epigastric region. The greater part of the tumour was dull on percussion. A lesser region was resonant. The dull part proved to be where there was the greatest infiltration with narrowing of the intestine; the resonance was not due to in-

testine in front of the tumour, but to the dilated duodenum. The patient's illness was of about eight months' duration. The first symptom she noticed was a pulsation in the abdomen. After a time attacks of vomiting came on, which usually began a quarter of an hour after taking food. The lumbar and mesenteric glands and the duodenum were the only parts infiltrated.—3. Endocarditis with Miliary Abscesses of the Heart in a case of Hip-joint Disease. The hip-joint showed denudation of the cartilage on the acetabulum and head of the femur, and was full of pus when opened, as also was the right sterno-clavicular joint. The heart showed growths on and destruction of the aortic valves, and an ulcer on the upper part of the ventricular wall. The walls of both ventricles showed numerous minute specks looking like tubercles, and there were similar specks on the pericardium near the apex, and also in the liver and mucous membrane of the small intestine. On the surface of the brain there were similar specks surrounded by injected patches. The spleen and kidneys contained softened infarcts, and so did the right lung. There was a slight degree of pericarditis, a considerable right pleurisy, and some peritonitis. The little specks were found on microscopic examination not to be tubercles. They had no reticulum and no giant cells, and yielded no bacilli. They were merely collections of leucocytes, and were, in fact, very early abscesses. The patient was a boy, aged sixteen. He had a fall on November 11th, 1882, and a few days after acute inflammation of the joint, though not well marked externally, seems to have begun. Endocarditis followed. Two days before his death he became suddenly hemiplegic, and showed some symptoms of tubercular meningitis.—4. Chronic Inflammation of the Glottis, from a woman aged twenty-five, who died with phthisis under the care of Dr. Church in St. Bartholomew's Hospital. During life she had dysphonia, dysphagia, and dyspnoea. She had been recently confined, and the duration of her phthisis was unknown. The dyspnoea suddenly became urgent, and she died before tracheotomy could be performed. The vocal cords, arytenoid cartilages, aryteno-epiglottidean folds, and epiglottis were all greatly thickened, and by their thickening occluded the glottis. At the root of the epiglottis there was a small erosion, and all down the trachea there was a long patch of redness and ulceration. No tubercle was visible in the larynx or in the trachea. There were cavities in both lungs.—Dr. Goodhart said that last year he brought forward evidence of the occurrence of ulcerative endocarditis in groups. He had himself seen two or three cases lately, and he would like to know whether others had met with cases recently.—Dr. Curnow said that there had been three cases at the Seamen's Hospital in the last three months.—Dr. Wilks asked whether the infarctions were secondary to the endocarditis, which itself was secondary.—Dr. Curnow said that in the three cases he had mentioned the ulcerative disease was secondary to old valvular disease.—Mr. Walsam asked Dr. Norman Moore if any examination was made of the laryngeal muscles in the case, as lately there had been very peculiar changes described in the muscles, tubercles between the muscular fibres and some change in the fibres themselves.—Dr. Norman Moore replied that he had not been able to satisfy himself that ulcerative endocarditis had not been epidemic at St. Bartholomew's. He examined the specks in the endo and pericardium and liver for bacilli (Ehrlich's method), and satisfied himself that there was none. There was no tubercular disease of the larynx itself; there was only great thickening.

Dr. Turner showed a Heart with stenosis of the mitral opening, calcareous thickening of the mitral curtains, and a cluster of recent vegetations along their line of contact and upon the adjacent part of the wall of the auricle, and also upon the aortic valves. Both auricles were dilated, and the left much thickened. A sacculated fibrinous coagulum about the size and shape of a hen's egg was found lying loose in the left auricle; its surface was in places smooth, in others roughened, and it appeared to have been formed some time before death. Its contents had escaped through a large rupture at one end. It appeared to have been at one time continuous with a clot still adherent to the left auricular appendix. A very similar specimen had been already shown by Dr. W. Ogle. The heart was obtained from the body of a woman, aged thirty-four, who died soon after her admission to the London Hospital. She had had an attack of acute rheumatism two or three years before. During life a double bruit was heard over the apex and a doubtful diastolic bruit down the left side of the sternum. A smaller loose fibrinous coagulum, the size of an almond, was found in the right auricle. The lodgment of the large loose coagulum, above the mitral orifice, must have embarrassed the action of the overtaxed auricle. The discharge of the contents of such a large clot must also have had a profound effect. The case was also interesting in that recent vegetations were found upon the tricuspid valve concurrently with those on the left side of the heart.—Dr. Turner also showed a portion of the base of one lung, near the edge of which was attached by a narrow pedicle a branched body half an inch in diameter, like a piece of coral, white with a smooth surface, firm and elastic. It was concentrically laminated, without appearance of organization, and resembled the melon-seed bodies of synovial membranes and the rounded concretions sometimes found in serous membranes. The specimen was obtained from a man aged seventy who died from cystitis and pyelo-nephritis; he also had bronchitis and emphysema. There were loose fibrous pleuritic adhesions of old date, but not near this body.—Dr. Turner further showed the Liver of a man aged thirty-four who died from pneumonia; he had had syphilis ten years previously. The liver weighed eleven pounds three ounces, was uniformly enlarged, firm, and smooth; it stained with iodine in a manner typical of lardaceous disease, and there was a lobulated appearance of the liver suggesting cirrhosis in addition. Microscopically examined it was found that this appearance was produced by areas of liver tissue surrounded by a zone of tissue highly infiltrated with lardaceous material, in which only an incomplete network of liver cells was recognizable. The lardaceous degeneration appeared to be seated in the capillary network, and by the swelling up of that network to lead to the compression and atrophy of the liver cells. This was seen both in the tissue intermediate between the apparently healthy liver tissue and the infiltrated areas, and also in certain small lardaceous deposits scattered through the islands of liver tissue. The kidneys were lardaceous. Heart hypertrophied. Grey hepatisation of the upper lobe of one lung with purulent pleurisy, and old fibroid thickenings at the apex of each lung.—Dr. Barlow asked whether these appearances were not due to changed gummata. He had seen a liver which was stained very deeply with iodine in places, while the liver substance around was healthy, and he considered these were retrograde gummata; the patient was syphilitic.—Dr. Norman Moore had seen two such livers; parts of them were normal, while in parts the amyloid reaction was obtained; there was no history of

syphilis in these cases.—Dr. Turner said that he was not of opinion that these deposits were gummata; for in all of these infiltrated areas there were signs of liver cells, and the change was fairly uniform throughout the whole organ.—Dr. Goodhart thought it a very difficult question to decide. Specimens in Guy's museum which had been believed to be retrograde gummata had been very carefully examined by Dr. Fagge a year or two ago, who concluded that they were really examples of lardaceous disease.—Dr. Curnow asked Mr. Barlow if in his case the gummata were as numerous as the infiltrated patches in the liver shown by Dr. Turner.—Dr. Barlow said the liver was very much enlarged, and he did not suspect the existence of gummata until he applied the iodine test. There was no sharp line of demarcation between gummata, syphilitic infiltration, and cicatricial contraction.

Mr. Shattock showed a specimen of Polypus in the Bladder of a female child, aged one year and a half. The tumour was in structure exactly like a nasal polypus, and it was evidently capable of removal; part of it occupied the urethra; both ureters were dilated; kidneys healthy.

Mr. Sutton showed the Skeleton of a Baboon (West African), aged a year and a half, with Rickets. The liver was lardaceous; the other viscera healthy. The bones were very vascular, and their curves much exaggerated. The epiphyses all showed the characteristic changes of rickets, the line of ossification being very irregular and enclosing islets of cartilage. The calvaria was thickened, but a condition not unlike cranio-tabes existed below the superior curved line of the occipital bone; the occipito-mastoid suture was still unclosed. The right radius articulated on the inner aspect of the right ulna, and rested on the coronoid process of the ulna, and both of these bones articulated with the trochlea of the humerus. This, he thought, was due to detachment of the lower epiphysis of the humerus at a very early life. Monkeys cut their milk teeth very early, and so these escaped the disease. In this baboon the dental follicles of the permanent teeth were enormously thickened, and he thought this might account for the delayed dentition in rickets. In the rickety epiphyses the lime salts are deposited irregularly, so as to circumscribe small islands of cartilage, and he suggested the name of diffuse epiphysis for this condition.—Mr. Eve thought that in animals we had the purest form of rickets; the bones were very different from those in children; they were very porotic; skulls and long bones as well, particularly in lions, and with this but a slight degree of curvature. There is only a slight irregularity of the epiphysial line, far less than in children. He thought that in man the islets of cartilage occurred in the end of the diaphysis rather than in the epiphysis.—Mr. Clement Lucas asked as to the time of development of this baboon, and as to the diet and habits of this animal. He had observed rickets in a greyhound, which strayed from home, and only returned after some weeks with severe and advanced rickets, and recovered under proper diet.—Dr. Goodhart remarked on the lardaceous liver, and asked whether monkeys were above suspicion in the matter of syphilis.—Dr. Barlow said that the rickety liver in children did not stain with iodine as this was said to do.—Mr. Sutton said monkeys at the Zoological Society's Gardens lived about ten years. He found cartilage islets in both diaphysis and epiphysis, and particularly when there were two or three centres of ossification, as in the humerus. This baboon was fed on nuts, fruit, soaked bread, and the gifts of the visitors. He hoped soon to show the skeleton of a rickety lizard.—Dr. Wilks said there was a skeleton, said to be that of a syphilitic monkey,

at the Anthropological Society.—Mr. Sutton had never seen any evidence of syphilis in a monkey.

The following card specimens were shown:—Ruptured Stomach from a child aged four years, by Mr. John R. Lunn; Renal Calculus and Abscess (Traumatic?), Rupture into Left Pleural Cavity, by Mr. John R. Lunn; Deposit of Lime Salts in Mucous Membrane of Hepatic Ducts in an Ox, by Dr. B. G. Morison.

Bromide Rash.—Epithelioma of Bladder.—Syphilitic Disease of the Cerebral Arteries.—Syphilitic Inflammation of the Capsule of the Liver.—Keloid after Scraping for Lupus.

The ordinary meeting of this Society was held on Jan. 16th, J. W. Hulke, Esq., F.R.S., President, in the chair. There was a long list of specimens, but, as a prolonged and animated discussion took place upon a case of presumed Syphilitic Disease of the Liver, shown by Dr. Sharkey, a large number were held over to the next meeting.

Mr. Hulke, the newly elected President, addressed the Fellows as follows:—"Gentlemen—On taking for the first time the Presidential chair to which your votes have lately elected me, allow me to return you my very warm thanks, and to tell you how much I am touched by this mark of your confidence and appreciation. I feel it to be a distinction so far beyond the desert of any work I may have accomplished in connection with our Society, that I cannot put aside the idea that I must in some measure owe it to the friendships it was my happiness to make during the many years I was in office as councillor, secretary, and treasurer. On the threshold of my occupancy I must ask your indulgence for an omission—I refer to the inaugural address, as given, I am informed, by my two immediate predecessors in office. It is only a very few days since I first learned this to me new practice, and the interval has been too short for me to prepare anything in the guise of an address worthy of your attention. I shall, however, cherish the hope of endeavoring to atone for the present omission at the close of my tenure of office."

The report of the Morbid Growths Committee upon Mr. Kesteven's specimen of Hamatoma of the Spinal Canal was read by Mr. Godlee. The report described the characters of the tumour which had invaded the spinal column, and which was found to be of a sarcomatous nature. An interesting feature was the discovery of masses of micrococci in the growth, suggestive of some septic infective process towards the close of life. The report was signed by Messrs. Beck and Godlee.

Dr. Horrocks showed a case of Bromide Rash in an epileptic girl, thirteen years of age, who for the past three months had been taking the bromide of potassium in fifteen-grain doses three times a day. The rash appeared on the leg four weeks after the commencement of treatment. There was no history of congenital syphilis.

Mr. Berridge exhibited a specimen of Epithelioma of the Bladder. The patient had suffered from attacks of hæmaturia for upwards of two years before his death, which occurred rather unexpectedly, the man being at work as a porter within a week of the event. A ragged ulcerated surface two inches in diameter was found in the bladder, and there was inflammation of the right kidney. Dr. Mansell Moullin had made a microscopical examination, and pronounced the disease to be a villous epithelioma.—The President observed that the case was of clinical rather than pathological interest, and remarked upon the difficulty of diagnosing the extent of disease in such

cases, and the impracticability of operative interference in a case like the present.

Mr. Berridge also showed as card specimens a specimen of Cartilaginous Aortic Valves from a man who died suddenly; and a Foreign Body (a "coin-catcher") extracted from the oesophagus.

Dr. Sharkey showed microscopical specimens of Syphilitic Disease of the Cerebral Arteries, from a man, thirty-six years old, who first came under Mr. Nettleship's care at St. Thomas's Hospital with commencing retinitis, and a syphilitic eruption, three months after contracting syphilis. Three weeks later there was commencing iritis, and it was thought that cyclitis would supervene. He complained of pain in the head, but ceased attendance for some weeks, when he returned to the hospital with the eye well, and with pain in the right side of the head. The ophthalmoscope showed no changes in the eye, and he was transferred to Dr. Payne's care. A few days later he was attacked with convulsions, and became semi-comatose. He was admitted into the hospital, and was found to be hemiplegic on the right side, and to be mentally enfeebled. The left pupil was smaller than the right. There was no loss of sensibility. There was much albuminuria. He became increasingly comatose, the temperature rising to 107° before death, which occurred eight days after admission, being preceded by an attack of general convulsions. At the post-mortem examination the arms and trunk were observed to be covered with a copper-colored rash; the lungs contained small hæmorrhages, and the kidneys were slightly granular. The dura mater was thick and adherent, but there was no meningitis. The left middle cerebral artery was partially blocked by a firm white thrombus, and there was softening of the outer part of the lenticular nucleus on this side, but not of the cortex cerebri. The right middle cerebral artery was completely plugged by recent thrombus, and there was extensive softening of the hemisphere, as well as of the lenticular nucleus. The ventricles were distended with fluid. The affected arteries showed on microscopical examination two distinct kinds of change—viz., a chronic fibroid thickening of the subendothelial connective tissue of the intima, and a recent round cell infiltration of the adventitia. This latter change varied in extent in different parts of the vessel, in places penetrating the muscular coat and separating its fibres. In the right artery the change was limited to the outer coat, but the left in which the thrombus was organizing presented extension of the process in the middle coat, as well as masses which might be regarded as gummata. Arterial disease is usually regarded as a late event in syphilis, but in this case only seven months had elapsed since infection. The symmetrical involvement of the vessels was also of interest in connection with this early occurrence. The external coat of the vessel was here the starting point of the change, and not the inner coat as usual.

Mr. Godlee mentioned the case of a gentleman who, at the age of sixty, contracted syphilis, symptoms of nervous disease appearing within seven months of the primary attack. The order of his symptoms was as follows: pain in the head, then severe iritis, then cutaneous eruption, and while this was present he was attacked with hemiplegia and aphasia followed by mental derangement, for which he is now in an asylum.—Mr. Kesteven inquired as to the results of ophthalmoscopic examination in Dr. Sharkey's case.—Dr. Ormerod had lately published in *Brain* the record of a case where, in addition to endarteritis of the cerebral vessels, as described by Heubner, there

were masses of small round-celled infiltration in the external coat. This change had produced no obvious narrowing of the vessel, nor thrombosis, nor cerebral softening, but may have so interfered with the circulation, by the loss of arterial elasticity, as to starve the brain and produce the symptoms of prolonged somnolence and stupor that were exhibited.—The President instanced the case of a young footman, twenty-two years of age, admitted into the Middlesex Hospital, under his care, with left hemiplegia and diplopia, having contracted syphilis about seven or eight months previously. He was transferred to Dr. Cayley's care, and died shortly afterwards. In that case there was extensive syphilitic disease of the cerebral arteries.—Dr. Sharkey, in reply, said that there were no changes in the fundus of the eye, ophthalmoscopic examinations being regularly made. He had not been able to establish any connection between the change in the adventitia and that in the intima. He expressed his belief that such early involvement of the vessels in syphilis was not very rare.

Dr. Sharkey also exhibited a specimen of Syphilitic Inflammation of the Capsule of the Liver. The patient, a man fifty-five years old, came under Dr. Murchison's care at St. Thomas's Hospital in 1876 with diarrhoea, and mottling of the abdomen. There was a history of gonorrhoea, but none of syphilis. The liver was greatly enlarged, extending to the umbilicus, and a tumour could be felt in connection with it between that spot and the xiphoid cartilage. There was no pain, no ascites; and Dr. Murchison suggested that the case was one of a rare form of cirrhosis limited to the left lobe of the liver. Two years later he was admitted under the care of Dr. Bristowe, having been well in the interval to within three days of his admission, when he had a severe attack of hæmatemesis. The abdomen was now distended; there was slight jaundice, and the liver reached to the umbilicus. There were also a few small retinal hæmorrhages. He died two weeks after admission from a recurrence of the hæmatemesis. At the post-mortem examination ascites was found, the spleen was firm, and the liver was much diseased; it weighed 6 lbs. 7 oz.; its surface was coarsely nodulated, its outline distorted. The capsule was greatly thickened, and there extended from the capsule into the substance of the organ, to the depth of an inch or more, an ingrowth of tough fibrous material, which microscopically presented a fibro-cellular and reticulated structure, the deepest parts being the most richly cellular. Numerous small caseating gummata were contained in this new growth, which penetrated into the hepatic lobules, the liver cells themselves showing hardly any alteration. The cirrhotic tissue was very vascular, and some of the hepatic vessels were amyloid. In some parts the bile-ducts were increased in number. Dr. Sharkey considered the changes to be very different from those of alcoholic cirrhosis, and that the presence of gummata decided its syphilitic origin, although there was a marked history of drink and none of syphilis. The process was diffused over the whole surface of the organ, and had extended in a remarkable way into its substance.—Dr. Mahomed inquired if there were any other signs of syphilis, and thought the use of the term "gummata" in the description of the case was misleading. Small yellow patches occur in ordinary alcoholic cirrhosis, and the drawing shown by Dr. Sharkey was consistent with these being ordinary inflammatory material. He hoped to show a specimen of a liver he had recently met with, in which a portion of the greatly shrunken right lobe was almost completely severed by a strand of fibrous tissue from the rest of the

organ. The left lobe was greatly enlarged, presenting the characters of alcoholic cirrhosis, and there was no evidence of syphilis in the body. Had the left lobe shown the same appearance as the right such a liver would have been called syphilitic; but he maintained that in all such cases there ought to be collateral evidence of syphilis before arriving at this conclusion.—Mr. Butlin thought it was rather a strong assumption to regard the appearance of these small gummata near the surface of the liver as conclusive of syphilis, and was surprised that no other signs of syphilis had been met with. He suggested that the specimen should be referred to the Morbid Growths Committee.

Dr. Green said that from his experience he would regard the naked-eye characters of gummata to be so characteristic that there could be no possibility of a mistake in the diagnosis. It would be interesting to learn if other members of the Society had seen localized fibroid changes in the capsule of the liver except in syphilis. Syphilitic lesions of the liver were quite familiar and unmistakable.—Dr. Norman Moore suggested that in assigning syphilis as a cause of morbid changes the precise evidence in favor of syphilis should be stated, such as chancre, nodes, cutaneous eruptions, etc. In the absence of such evidence the syphilitic nature of the visceral lesion must remain undetermined. Capsular thickenings may be due to local pressure as well as to cicatrization around gummata. It is generally stated that if the connective tissue dipped deeply into the substance of the liver it was probably syphilitic; but that a mere thickening of the capsule was generally due to local causes. But he had lately seen an instance where a capsular thickening, due to local pressure, had penetrated into the liver substance.—Mr. Roger Williams mentioned two cases he had recently seen; in one the right lobe was completely atrophied and cirrhotic; in the other the same lobe was not only cirrhotic, but was covered by a very thick capsule.—Dr. S. West pointed out that there were only two affections giving rise to small caseating nodules—viz., syphilis and tuberculosis; and in some forms of chronic peritonitis the capsule of the liver becomes very much thickened, the thickening extending some distance into the liver.

Dr. Goodhart protested against the necessity of establishing other signs of syphilis in cases where there are gummata, the characters of which are distinctive, and the presence of which was quite conclusive of syphilis. Had it not often happened that the presence of these definite changes in the liver was quite sufficient to show that the patient had syphilis?—Dr. Coupland believed that the peculiar form of interstitial hepatitis associated with capsular inflammation in syphilis was quite distinctive, even in the absence of gummata or of specific lesions in other organs. He asked whether the testes had been examined in this case; for although the absence of fibroid change in these organs would not negative syphilis, the presence of it would be strong confirmatory evidence.

Dr. Buzzard asked if any ophthalmoscopic examination had been made. The presence of old choroiditis or iritis had repeatedly clinched a diagnosis of syphilis.—The President, in calling upon Dr. Sharkey to reply, suggested that the specimen should be referred to the Morbid Growths Committee.—Dr. Sharkey would be very pleased to have the specimen referred. He said there were no characteristic signs of syphilis elsewhere in the body; but he thought it absurd in the present state of knowledge to deny a syphilitic origin to such changes unless there had been evidence of sec-

ondary manifestations. There was not the slightest doubt as to the growths he had described being gummata. In no case of alcoholic cirrhosis that he had examined had he met with masses of connective tissue that could possibly be confounded with gummata. In this specimen they appeared as small masses of irregular outline, caseous in the centre, with a peripheral cell growth, which does not occur in other cases of caseous degeneration of inflammatory products. As Dr. West had said, such masses could only be syphilitic or tubercular, and a tubercular inflammation of the capsule of the liver lasting for three and a half years was unknown. Although the history was negative as regards a chancre, the patient had had gonorrhoea; and syphilis may be contracted with only this primary manifestation. He had no notes as to the condition of the testes or the penis. The ocular changes were limited to small retinal hæmorrhages.

Dr. Clutton showed a living specimen of Keloid after scraping of lupus of the cheek. The case was peculiarly interesting on account of the development of keloid in other parts of the body—viz., at the seat of incision-wounds in the shoulder and hand for the removal of necrosed bone, whereas in a similar wound in the leg, which had incompletely healed, no keloid occurred. The keloid developed in the cheek six months after the lupus had been scraped away. Mr. Clutton instanced the supervention of keloid in some cases of superficial ulceration of various kinds, as pointing to the probable tendency of certain individuals to develop this disease of scars. In some cases scars which have long been present may develop keloid synchronously with the appearance of keloid in a recently found scar.—Mr. Clement Lucas had seen four or five cases of keloid arising after scraping for lupus. In one case the keloid was quite as unsightly as the lupus itself, but it had since entirely disappeared. Mr. Clutton's case was interesting in the multiple development of keloid, and in the fact that at the wound which continued to suppurate the keloid did not develop. He strongly advised that no attempt should be made to remove keloid, as it invariably recurred.

Mr. Butlin suggested that the strumous condition of the patient might account for the keloid formation. Scars in strumous subjects are prone to become swollen and reddened. He had always regarded keloid as an evidence of constitutional weakness, and in the case mentioned by Mr. Lucas the disappearance of the keloid may have coincided with the patient's improvement in health.

Mr. Marrant Baker asked what form of lupus it was, for in a case where he had thoroughly excised a lupus patch there appeared a very unsightly keloid in the cicatrix. That, however, was a peculiar form of lupus hypertrophicus, and he would think it rare for keloid to occur after operation for lupus vulgaris.—Mr. B. Squire said that keloid was not rare after scraping for lupus, whereas linear scarification was never followed by this unsightly affection.—Mr. Sutton instanced a fact often pointed out by the late Mr. Critchett—viz., that the cicatrix following the operation of peritomy for pannus was at first very large and vascular, but in course of time, as the scar contracted, the vessels diminished in size and number, and the pannus, which at first appeared to be increased by the operation, was cured.—Mr. Clutton, in reply, said the case was one of true keloid, and not simply a thickened scar. It was the ordinary form of lupus.

Dr. S. West showed some specimens of the Bacilli of Tubercle prepared by Ehrlich's method.

CLINICAL SOCIETY OF LONDON.

Symptoms resembling Myxœdema.—Enlargement of the Lower Lip.—Transpatellar Excision of the Knee.

THE annual meeting of this Society was held on Friday, January 12th, Mr. J. Lister, F.R.S., in the chair. The last half hour of the time was devoted to the special business of the annual meeting. The cases described were: one of a child presenting many of the appearances of myxœdema, one of remarkable hypertrophy of the lower lip cured by operation, and one of excision of the knee-joint by an incision carried through the patella.

Dr. Coxwell related the case of a child, aged thirteen, with symptoms resembling those of Myxœdema. Until eight years of age she differed in no way from other children, and could read, write, and learnt arithmetic. A great change then came over her; she would often fall asleep even when eating her meals; her memory became defective, and if sent to do anything she would wander about in an aimless fashion. Later her speech became thick and indistinct, she suffered from headache, her head drooped forward on to her chest, her hands and feet became very cold, her legs became weak and her gait unsteady. She was lately a patient in the National Hospital for the Paralyzed and Epileptic, under the care of Dr. Hughlings Jackson. The appearance of her face is very suggestive of myxœdema, her skin being translucent, with a circumscribed patch of redness in the centre of the cheeks, the lower eyelids swollen, the nose broad, the eyes prominent and heavy looking. Her limbs are slender and well formed. The thyroid gland seems diminished, and there are no abnormal fatty tumours in the region of the neck or elsewhere. While under operation her temperature was frequently as low as 95°6". She was often extremely restless at night, and had frequent attacks of screaming. Her power of speech became worse, till at last she could hardly utter a single sound, the lips being seen to move ineffectually while she attempted to do so. She could not kiss her mother or puff out her cheeks, and her food would often remain seven or eight minutes between her teeth and lips. There was a general over-clouding of the intellect. Dr. Coxwell drew attention to the fact that very pronounced mental disease has been reported in myxœdema, and that Dr. Ord has had a patient suffering from that disease with marked affection of the bulb, a point of similarity with the present case of some importance. If the case was one of myxœdema, it was of interest as being the first recorded in a child. If it was one of simple imbecility, it was remarkable on account of the bulbous symptoms and the likeness it bore to myxœdema. The arguments in favor of sporadic cretinism were few, and were out-balanced by the absence of most of the characteristics of that disease.

Mr. J. N. C. Davies-Colley read notes of a case of enormous Enlargement of the Lower Lip, cured by operation. Richard B. D—, a clerk, aged thirty-six, was admitted into Guy's Hospital in August, 1881, with a remarkable swelling of the lower lip. Fourteen years before he had a chancre (?) on the penis, followed by soreness of the tongue and swelling of both lips, especially the lower. There was never any rash on the skin. He was a very great drinker. The lower lip was of enormous size, everted and pendent, so that its border was on a level with the tip of the chin, while the lower teeth were in front completely exposed to view. The mucous membrane was fissured in parts, but otherwise natural. The tissues were a little firmer than usual, but not at all indurated. There was a

little tenderness on pressure. From side to side it measured three inches, from above downwards an inch and a quarter, and in thickness seven-eighths of an inch. The upper lip and tongue showed signs of chronic inflammation. There was no enlargement of the adjacent glands. He left off smoking, and was at first treated with anti-syphilitic remedies. The mucous membrane became more healthy, but the lip remained of the same size. Some reduction was then effected by pressure between thin slips of wood. The lip became smaller and flaccid, but was still everted and pendent. On November 8th a V-shaped piece was removed from the centre of the swollen lip, and a rapid recovery ensued. When last seen he had no longer any eversion of the lip, which had assumed a perfectly healthy and normal aspect. Mr. Davies-Colley brought the case forward as a striking example of the enlargement of the lip which occasionally results from chronic inflammation. There was nothing in the patient's family history to indicate a scrofulous tendency. The evidence of secondary syphilis was doubtful, and there was no record of mercurial salivation. On the whole, Mr. Davies-Colley was disposed to attribute the disease primarily to syphilis and secondarily to the irritation of the inflamed surface by excessive smoking. Mr. Clement Lucas had seen this case, the interest of which, he thought, lay rather in its cause than in its cure. He believed that any chronic ulceration of the lip might produce such hypertrophy. He thought that the so-called strumous lip was far oftener due to congenital syphilis than to struma. He suggested that the internal use of mercury might have had some effect upon producing this hypertrophy. He remarked, too, that smoking was very injurious in those suffering pain from secondary syphilis, as it kept up the ulceration of the lips and tongue. He referred to a young lady who suffered from chronic thickening of the upper lip in which there were two lateral incisors which were carious and stopped, and at the bottom of one of them was a sinus. On extracting these two teeth the œdema quickly subsided. He asked whether the teeth in Mr. Colley's case were all sound.—Dr. Hadden thought that this hypertrophy corresponded to a form of lymphatic obstruction which had been described by certain German authors as occurring in the tongue: the microscopic appearances bore out this view. He did not think the evidence pointed to the syphilitic nature of the affection.—Professor Lister thought the case very interesting from its rarity, and also from the success of the treatment, for the part of the lip left behind returned to its normal size, and in this respect it resembled the contraction of an hypertrophied tonsil after excision of its more prominent portion, with at the same time lessening of the thickening of the Eustachian tube and the neighboring parts, and thus improvement of hearing, so often observed after this simple operation. The same thing happened in lipoma of the nose. In a case where he had removed the greater part of a large unsightly mass of chronic inflammatory thickening, the neighboring diseased part of the skin improved and the nose was now almost normal.—Dr. Meadows mentioned the case of a lady with enlarged mons veneris and labium, which he removed with an écraseur. Although only thirty-three years of age, menstruation entirely ceased in two or three months, probably from sympathetic atrophy of the ovaries.—Mr. Davies-Colley remarked that the tension of the parts of the lip left and the correction of the pendulous position of the lip were important in leading to the recovery of the parts not excised. He did not see any evidence of lymphatic obstruction; there were no enlarged

glands. He had no note on the condition of the teeth except that the necks of the exposed teeth were denuded by retraction of the gums, and were thickly covered with tartar. He thought the hypertrophy was due to secondary syphilis and to the continuous irritation of tobacco smoke.

Mr. Golding-Bird read a paper on a case of Transpatellar Excision of the Knee, which he had previously exhibited to the Society. The operation was in the person of a lad, aged thirteen; fairly healthy himself, but with a family history of phthisis. There was a year's history of articular ostitis of the right knee with pulpy disease. Excision was eventually performed on May 9th, 1882. It differed from an ordinary excision in that the transverse incision was made across the middle of the patella, which was then sawn in two, the two fragments, with the soft parts, being turned up and down. The excision was then completed as usual, the articular surfaces of the tibia and femur being removed. Some pulpy thickening was removed from the underside of the patella, and when the limb had been straightened two carbolized silk sutures were passed through its substance, and its two fragments thus united. Primary union was obtained, and nothing more was seen of the patella sutures. Until September 12th he walked about with a stiff bandage at the knee and with crutches; after that date he was ordered to discard all support. He now has a movable patella and half an inch shortening. He has all the advantages of retaining the patella; but besides that, there is a gain by this method of operating, since the surgeon can freely examine and manipulate the joint, more freely, indeed, than where, with the idea of retaining the knee-cap, the lateral incisions are employed. Two great advantages remain to the patient by keeping the normal attachments of the patella: The quadriceps opposes the ham-strings, so that the necessity is obviated of employing a stiff bandage for years to prevent posterior displacement of the leg; the rectus femoris, considered as arising below, has its full play upon the trunk in preserving equilibrium, whilst it also allows of the perfectly natural forward motion of the limbs in walking; this last is not the case where the ligamentum patellæ has been sacrificed.—Mr. Howard Marsh thought all surgeons must be dissatisfied with many of the results of excision of the knee, and he was very glad of this suggestion of Mr. Golding-Bird's, which seemed to be an obvious improvement.—Mr. Gant thought that it was rare to find the patella not involved in the disease when excision of the knee was necessary. When not diseased he had left the patella, and he had not seen any advantage from so doing. His results after removal of the patella had been very good. In the average of his cases of excision the union took place in three months, and he then put on a movable back splint for a further three months or less. In one case, a woman aged fifty-three, the patient was up within two months and a half.—Mr. C. Heath said Mr. Golding-Bird's case was a very successful one; but he agreed with Mr. Gant that in most of the cases usually submitted to excision the patella was diseased; in fact, when the patella was free an argument against excision was found. He thought that Mr. Golding-Bird's case was in an early stage of disease, and might possibly have been treated by other means. He thought, too, that even where the epiphysal cartilage was not, to all appearance, interfered with, the operation was attended with impaired growth of the limb.—Mr. Lister said that many years ago Volkmann advocated the transpatella excision of the knee. If he thought only of the old-fashioned excision of the knee in cases with open sinuses, and without strict asepsis,

he should quite agree with Mr. Gant. But if the skin were unbroken, he would proceed on totally different principles; he would remove a much smaller part of the femur, have a broader surface for union with the tibia, and cause less shortening. In such a case none of the patella need be taken off, and possibly the lagging behind of the growth of the limb might be prevented by leaving the action of the quadriceps unaffected. He was, however, doubtful whether excision of the knee was really needed, in Mr. Golding-Bird's case. In many similar cases in this practice free antiseptic incision, with scraping away of the diseased synovial membrane and gouging out of diseased bone, had preserved limbs of normal length, and even movable at the knee-joint.—Mr. Golding-Bird, in reply, said that the case was one which might have succeeded under such treatment as Mr. Lister had described. At the time of the operation there was some lateral movement with grating in the joint, and the ligaments and fibro-cartilages were replaced by pulpy tissue. If the case had been in private he should not have operated, but his experience with hospital out-patients was that if left alone they ended unfavorably. He thought that, in young people especially, when the patella was removed there was a tendency to posterior displacement of the tibia, to guard against which it was necessary to wear some form of apparatus for months or even years.

The business of the general meeting was at this period proceeded with, and subsequently the meeting adjourned.

EPIDEMIOLOGICAL SOCIETY.

At the meeting on December 6th, 1882, Dr. Edward Seaton, Medical Officer of Health and Physician to the General Hospital, Nottingham, read a paper on the Influence of Small-pox Hospitals. The author commenced by giving a description, illustrated by photographs, plans, and maps, of the hospital accommodation at Nottingham. It was centrally situated and divided by a wooden fence, only six feet high, from public thoroughfares. It was difficult to carry out the principle of isolation thoroughly for the following reasons:—(1) There was no suitable provision for a resident medical officer; (2) communication over the wooden fence, already mentioned, between those inside and those outside the hospital could not be prevented; and (3) some of the medical men who had conveyed private patients to the hospital, and whom they still continued to attend, were not very careful to adopt all requisite and practicable precautions. A new hospital was, however, to be built in a more retired situation. The Poor-law Authority had a kind of joint proprietorship with the Sanitary Authority in the present hospital. Dr. Seaton then gave some instances of people suffering from small-pox refusing to be conveyed to the hospital, and who thus became centres of infection. He next elucidated, by a series of maps he had prepared, the gradual development of the epidemic, different colors being used to indicate cases which were kept at home and badly isolated, cases kept at home and fairly well isolated, and cases removed to the hospital. The cases which were kept at home were, whether well isolated or not, generally followed by other cases in their immediate neighborhood. The exceptions to this rule were due to vaccination, which had an influence controlling the spread of small-pox more powerful than that of isolation. One disadvantage that attended the removal of the worst cases to hospital was that it undoubtedly tended to encour-

age that indifference or repugnance to vaccination which was so sedulously cultivated by anti-vaccinationists, and which arose to a large extent from ignorance on the part of the people as to what small-pox unmodified by vaccination really was. How is it that small-pox spreads more rapidly at one time of the year than at another? How is it that in one epidemic it would assume a much more malignant form than in another? These are points that the science of epidemiology has yet to solve, but with regard to small-pox it may be said that it is practically preventable by vaccination and revaccination. The disease first made its appearance at the Union Workhouse on Nov. 14th, 1881, the case being removed to the hospital at once. Whilst at the workhouse the patient was in the "skin ward" with fourteen others. Of these fourteen seven contracted the disease. There were a few other cases which occurred at the workhouse about this time, and one person died there. But after the commencement of the epidemic the workhouse with its 618 inmates, was free from the disease, in spite of its close proximity to the hospital, and notwithstanding that there had been very little revaccination carried out. A large Board School was situated near the hospital, and of the 410 boys attending it only two were attacked, and in each of these cases there was ample opportunity for the illness to have been contracted in the ordinary way. Primary vaccination would, however, protect the vast majority of those at school age. Several cases had occurred on the east side of the hospital, and as the prevailing wind during the first five months of the epidemic was from the west a supposition had arisen that the infection was carried in the atmosphere from the hospital as a centre. Considerations negating this view, however, were:—(1) The number of cases at a distance of half to three-quarters of a mile from the hospital was greater than the number occurring in the close vicinity of the hospital huts; (2) there was no simultaneous outburst of cases such as might have been expected had the semina of small-pox been widely scattered in a still active state amongst a population which was proved to be susceptible. On the hypothesis of aerial infection, and having regard to the close proximity of the hospital, it was certainly very difficult to account for the immunity of some "hands" working in a factory only about thirty yards from the hospital. Two of these persons only were attacked, and in one of these cases the source of infection may be said to have been traced. It must be remembered that they were employed at all times of the day and in all conditions of the atmosphere. Personal contact was, however, in this case prevented. Had it been permitted it is highly probable that a larger number would have contracted the disease. In conclusion he exhibited a map which showed the localities in which all the fatal cases occurred during the epidemic of 1871-72. At that time there was no registration or notification of cases of sickness, and therefore this map had not the same significance as those previously exhibited. Still, it was a noteworthy fact that the deaths from small-pox during that epidemic (1871-72) were chiefly aggregated in localities far removed from the hospital, the immediate vicinity of which, especially on the north and east sides, was remarkably free. This quite coincided with the facts given by Dr. Thorne Thorne (Report of the Medical Officer, Local Government Board, 1882, p. 210), and statements made by other medical men in the neighborhood, which went to show that, though the hospital was fuller during the former epidemic than it had ever been during the recent one, there was less small-pox in the neighborhood than in other parts of the town.

A meeting of the Epidemiological Society was held on January 3rd, at University College, Dr. George Buchanan, F.R.S., in the chair.

A paper was read on the Planning and Construction of Hospitals for Infectious Diseases, by Mr. Gordon Smith. The author commenced by stating that, having regard to the serious pecuniary loss, no less than to the vast amount of individual anxiety and misery, caused by outbreaks of epidemic disease in any district, it is surprising that the degree to which it is possible to prevent the ravages of such outbreaks is at present so imperfectly appreciated by the public. Hospitals for infectious disease must provide for the admission and treatment of at least two kinds of infection, the arrangements being such as to allow of this being done with reasonable security that a patient admitted for one disease shall not contract another disease consequent on his stay in the hospital; for small-pox the accommodation ought to be so completely separate as possible. Indeed, where practicable, it is well to have an entirely separate hospital for that disease. The site for a hospital must be of such extent as to allow the several buildings to be at an ample distance from the boundaries, and well separated from each other, so as to permit free circulation of air about, and access of sunlight to, them, and at the same time prevent inter-communication among the nurses and patients occupying the several ward-blocks. Spare land should also be kept to provide for future extensions, permanent or temporary, and also as a recreation ground for convalescent patients. The extent of site should be such as to allow not more than twenty patients to the acre, and the land should be effectually enclosed with a solid fence not less than six feet high. The hospital buildings may be divided into three classes—viz., (1) the administrative; (2) the patients' department; and (3) the various out-offices. The administrative department should stand in advance of the ward-blocks and be moderately near the entrance gates, in order to prevent tradesmen and others coming into contact with the nurses or patients. Patients must be rigorously excluded from this department, and it must be easily accessible from the buildings set apart for the treatment of patients. It should contain the usual domestic offices, store rooms, and apartments for the care-taker and medical officer. In the upper story ought to be situated the nurses' bedrooms, and a bath-room is a useful adjunct. The patients' department must be so arranged as to have distinct open-air communication between every ward-block and the administrative department. Between each pair of wards in each ward-block it is advisable to have the nurse's room, bathing accommodation, and a small but well-ventilated pantry in which the supply of milk, beef-tea, etc., for the day or night's use may be kept. It is inadvisable to exceed twenty beds in a single ward-block in a hospital for infectious disease. Wards of two or more stories in height are objectionable as increasing the difficulty of supervision and administration, and the vitiated and infected air of the lower wards will be likely to find its way into the upper wards. A few small wards for one or two patients each are always useful in an infectious hospital. Plans prepared by Mr. Keith D. Young, architect, were then exhibited, showing an arrangement of private rooms at a hospital for infectious diseases which Dr. Charles West hopes to get built at Nice. Windows with double-hung sashes and floors of oak or red deal, polished with beeswax and turpentine, are generally preferred for wards. No cornices, mouldings, etc., on which dust can lodge are permissible, and it is recommended that all internal angles should

be rounded. Waterclosets and sinks, which should be placed in a projection from the end of each ward, should be separated from the ward by a cross-ventilated lobby, the closets themselves also having means of cross-ventilation independent of the lobby. For warming, stoves and hot-water pipes are recommended; and for the admission of fresh air, openings having an area of about 100 square inches are recommended in the opposite external walls at the floor level, one behind each bed. The wards should be elevated by means of arches slightly above the level of the ground, and the ground underneath, and for a short distance around the ward, should be covered with a layer of concrete. The out-offices comprise washhouse, disinfecting-house, ambulance and dead-house. The washhouse and laundry should be large; the disinfecting chamber should be near the laundry, and have a thoroughly efficient apparatus capable of dealing with mattresses, bedding, etc., as well as ordinary clothing and carpets. The drainage of a hospital for infectious diseases differs in no essential point from that of any other building. The drains should be laid in direct lines, with uniform gradient between the points where a change of direction or of gradient occurs, and at each of these points means of access to the drain should be provided either by a lamp-hole or a man-hole, so that the entire system of drains could be inspected with ease at any moment.

The above paper was followed by an account of the use of Tents for the Treatment of Small-pox, by Mr. G. W. Collins, who has had experience of this mode of treating small-pox during the summer of 1881 at Finchley, and at Wednesbury during the recent epidemic in that district. He claimed the superiority of the hospital marquees over the Redcliffe tent and wooden buildings, on the following grounds: 1, the marquee contains double the amount of cubic space; 2, the ventilation can be regulated at will; 3, a more even temperature can be maintained with less trouble. During the summer of 1881, when in charge of the small-pox hospital at Finchley, he found that with a temperature of about 104° in the sun the tents could be kept perfectly sweet by looping up the sides and opening both ends. In neither epidemic did the tent-life give rise to any pulmonary complications.

In the discussion which followed the reading of the two papers, Dr. Thorne, Surgeon-General Gordon, Dr. C. E. Saunders, Dr. Collie and Messrs. Saxon Snell and Robins took part.

MEDICAL SOCIETY OF LONDON.

A Case of Anæsthesia and Analgesia.—Tension of the Abdomen and its Variation.

A MEETING of this Society was held on Dec. 15th, 1882, Mr. F. Mason, President, in the chair.

Dr. de Havilland Hall read notes of a case of Anæsthesia and Analgesia. The patient, a boy twelve and a half years of age, had suffered "on and off" with headache since a fall upon the chin three years before; and two weeks before admission he is said to have temporarily lost power in the right hand and arm. He occasionally fell down, and five days before admission had a fit in the night. He, however, appeared quite well when seen, and complained only of some pain and tenderness in the right thigh and loss of feeling in the thumb. At times he saw everything "red." Examination proved the thumb to be perfectly anæsthetic and analgesic—a condition which obtained to a certain degree over the whole body.

(23)

On Dec. 5th he complained of headache; on the 6th of pain in the lower part of the legs; and on the 7th there was found perfect anæsthesia and analgesia in both legs, from the soles of the feet to an inch and a half above the patella. He could walk well, but said he could not feel the ground under him. The special senses are normal beyond slight deafness in right ear, attributable to a chronic otorrhœa, and impairment of the smell in right nostril and of taste in the right half of the tongue. There was no history of diphtheria. His father had epilepsy. The case was brought forward on account of the sudden appearance of anæsthesia in the legs, which may disappear as suddenly. The boy suffered much from worms.—Dr. Owen suggested that the cause of the complaint might be in the digestive tract.—Dr. Wiltshire alluded to a case in which pain in one arm, with hyperæsthesia, followed by ascending paralysis of the limb, followed a blow on the thumb. The patient, a young lady, rapidly recovered under mercurial friction. He also mentioned a similar case produced by a fall on the hand; and a case of sciatica relieved by like treatment after morphia had failed. The morbid condition ascended in these cases from the injured extremity towards the cord. Dr. Heron thought the exaggerated tendon reflex pointed to some cerebral lesion, and suggested that the case was one of contrecoup.

Dr. Braxton Hicks read a paper on the Tension of the Abdomen and its Variations. First of all alluding to the form of the abdominal cavity, and its natural tendency to assume the spheroidal shape, unless interfered with by its bony wall, the author discussed the physical conditions of the viscera within, or implanted, or attached to its walls. He then described the tension normally existing both between and during respiration, pointing out work he had already done and published in the Royal Society's Proceedings, and that the respiratory movement of the abdomen could be registered as a wavy line on the drum of an instrument, like the cardiograph. He then demonstrated that the effects of body and limb movements were very powerful on this wavy line, and that tension was not only increased thereby, but also lessened to a similar degree, and that thus the belief of many obstetricians that at times there was an insuck into the cavity, received confirmation. This being accepted, the author then pointed out the conclusions which followed, of much importance practically—namely, that any opening existing, it was possible by any sudden movement for any irritating or septic matter to be drawn into that opening, whether it ends in a lymph space, veins, or peritoneum, and as pressure was momentarily taken off from the vena cava and iliac veins, a rush from the veins below would occur, which might detach and move heartward any clot in the femoral vein. Dr. Hicks then showed the effects of increased tension on the organs and on the muscular system, both of the abdomen and general body, and the effects of the opposite state, showing that without external support the abdominal vessels unduly filled, robbing the general system of so much of its blood, causing the shrivelled, flabby, and worn-out appearance of those who had lost along with the flaccidity of their abdominal walls the tone of the vascular system, and that the abdominal vessels being full of blood, a facility for hæmorrhage from uterus or bowel, etc., is given. The effect of relaxed peritoneum, as bearing on positions of the liver, uterus, etc., was then noticed, as also the effects of the pressure from within on the pregnant uterus. The paper ended with allusions to many other points flowing from the consideration of the subject

OBSTETRICAL SOCIETY OF LONDON.

A MEETING of this Society was held on January 10th, 1883, Dr. Matthews Duncan, President, in the chair.

Sacral Teratome.—Dr. Heywood Smith exhibited a Fœtus of about five months' intra-uterine age, having an outgrowth from the end of the coccyx about three inches and a half long, and seven inches in circumference. This consisted mainly of embryonic tissue: small round cells with a faint fibrillar arrangement. From the coccyx were traceable four vertebrae, consisting each of a cartilaginous body with spinous processes.

Porro's Operation.—Dr. Heywood Smith also exhibited a Uterus removed by Porro's operation. The patient was a primipara aged twenty, the conjugate diameter of whose pelvis was one inch and three-quarters or less. She had been in labour two days, and attempts at delivery by craniotomy and cephalotripsy had been made without success. The performance of Porro's operation occupied nearly an hour. The specimen showed clearly the rugæ on its peritoneal surface.

Superfetation (?)—Dr. Outthwaite exhibited a body looking like an Ovum of about a months' intra uterine age, which had been passed within thirty-six hours after the birth of a full-time child. The specimen was referred to a committee for examination and report.

Notes of a Specimen of Antelexion of the Uterus.—A paper by Mr. W. S. A. Griffith on the above subject was read. The specimen was one in the Museum of the Sussex County Hospital at Brighton. The uterus was sharply antelexed, and was fixed, and the adjacent parts agglutinated into one mass by firm old adhesions. The uterine cavity was dilated into a sac the size of an almond, and contained the remains of a clot. The patient had died from peritonitis while menstruating. Except for a previous attack of peritonitis, she had had remarkably good health. She was unmarried, and had never complained of painful menstruation until asked, during her fatal illness, when she said she had pain towards the ends of her periods. The bend was at the junction of the body and cervix. The cervical canal was not contracted, but rather larger than usual. There was no atrophy of the uterine wall. The author rejected obstruction as a cause of the dilatation, which he thought due to chronic congestion. He thought the specimen interesting as showing that acute flexion of the uterus might exist without interfering with the nutrition of the uterus, or with the general health.—Dr. Routh thought this specimen did not prove that the canal of a flexed uterus was not constricted; for the patient was menstruating, and the canal became dilated during menstruation. Further, the uterine cavity was here ulcerated, and this might have enlarged the canal.—Dr. Graily Hewitt said that without contraction of the canal there might be virtual obstruction from the coaptation of its opposite walls, and from the swollen congested condition of the uterine tissues resulting from the flexion. This was proved by clinical facts.—Dr. Herman agreed with Mr. Griffith that this case showed no evidence that the dilatation was due to obstruction. There was no angulation nor narrowing of the canal, which was bent in a curve. The uterus was fixed; and if it were admitted that here the dilatation was due to obstruction from flexion it did not follow that the same effect would be produced in a uterus which was free to move.—Mr. Griffith said that microscopic examination showed that the apparent ulceration was due to the patient having just ceased menstruating.

Case of Extirpation of the Uterus and Appendages for Epithelioma of the Cavity.—This paper, by Mr. Knowsley Thornton, was then read. The author thought that these operations being still on their trial, it was a duty to fully report every case. This duty was not sufficiently recognized. This reticence indicated that they were rarely immediately successful, and when they were, gave but a short interval without recurrence. He argued that speedy recurrence was to be expected. He had refused to operate in many cases, and thought that the only justifiable ones were those in which the disease was confined to the cavity or body of the uterus. He then gave at length the history of such a case, with details of the operation, and after progress to death on the fifth day. He referred to the statistics of the operation by the abdominal and vaginal methods. In any future case he would choose the vaginal method, and would avoid the use of ligatures altogether, leaving pressure forceps on for the first few days. These would serve as drains, and at the same time by their weight tend to draw together the wounded surfaces.—Dr. Edis suggested that in the abdominal operation septic infection might be avoided by removing the uterus per vaginam.—Dr. Aveling said that drainage was, he believed, first advised by Purmann in 1706, and in England by Johnson in 1769.—The President had taken part in three of these operations, all of which proved fatal. He was struck with the greater facility of the vaginal operation.—Mr. Thornton replied.

Transfusion.—A paper on this subject by Mr. C. E. Jennings was read. The author remarked on the dangers and difficulty of transfusion, which he thought too grave to be undertaken by a practitioner alone, at a moment's notice. De-fibrination of the blood rendered its nutritive value very small. But the value of transfusion depended primarily not on its nutritive, but on its dynamic, effect. This latter could be procured with greater certainty by the intra-venous injection of a large quantity of saline fluid. He had invented, and elsewhere described, a syphon for such injection. This instrument he had now modified, so that blood transfusion might be combined with the saline injection. The flow of saline fluid into the recipient's vein having been established with the syphon, the blood-donor's vein was opened with a trocar and cannula specially devised for the purpose, and the blood conducted by a tube into one limb of a Y-shaped glass tube, through the other limb of which the saline solution flowed, and by this the blood was carried on into the recipient's vein. Coagulation was prevented by the addition of a few drops of liquor ammoniac to the saline solution. Should the blood-donor become faint, by turning a stop-cock the current could be reversed, and the saline solution made to flow into the donor's vein.—Dr. Aveling thought the interest of the paper was in the proposal to substitute saline fluid for blood. He thought the apparatus a bad one; there was no certainty that blood would flow through it, no way of telling whether it was flowing or of measuring its quantity. The reversal of the current he thought dangerous, tending to carry clots into the donor's circulation. Life might sometimes be saved by auto-transfusion, raising the patient's feet high above her head.—Dr. Routh said that Mr. Jennings's solution contained potash salts. It had been found by experiment that the injection of potash salts was poisonous. The valves in the donor's veins would prevent the proposed reversal of the current.—Dr. Graily Hewitt thought the chief point in the paper was the attention directed to the dynamic effect of transfusion. This, he thought, was probably very important. There was

great difficulty in deciding when the operation was necessary. Patients after post-partum hæmorrhage might rally, and yet perish some hours later without further loss of blood.—Mr. Fenton-Jones thought Mr. Jennings's syphon an admirable instrument. The solution had been used with success, and therefore was not poisonous. He thought the current of saline fluid would act as a *vis a fronte*, and carry on the blood.—Dr. Fancourt Barnes said that he had found it difficult to get the blood to flow from the donor's arm, even with Roussell's instrument.—The president regarded transfusion as little more than a hopeful proceeding, demanding encouragement and study. Patients who survived it were often spoken of as having been saved by it—a manifest mistake. In many cases it had caused death. Sets of cases of transfusion, occurring in single practices within a limited time, were often published; he could not admit that extreme danger occurred so often. Injections of plain water had been used in cholera with splendid but temporary benefit; he would like to see it have a fair trial in cases of hæmorrhage. The attempt to use blood introduced most of the difficulties and dangers of the operation, and these were increased by complicated apparatus. He would use any good, clean syringe, preferably a glass one.—Mr. Jennings only advocated blood transfusion for the minority; he thought it dangerous. He had found by experiment that a few drops of liquor ammoniæ would prevent coagulation. He thought that the collateral circulation through venous anastomoses would allow the saline fluid, when the current was reversed, to enter the donor's vascular system. The amount of blood taken should depend upon the effect of its loss on the giver, not on measurement by ounces.—Dr. Herman said that saline intra-venous injection had been used at the London Hospital in four cases of puerperal hæmorrhage, of which two recovered and two died; water once, and the patient recovered.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Growth of the Crystalline Lens.—Paralysis of the Third Nerve, with Cerebral Symptoms.—Paralysis of the Sixth Nerve, with Choreiform Movements of the Face.—Movements of the Eyes in Ear Disease.—Peculiar Growth Developing from a Cilium to the Anterior Chamber.

THE ordinary meeting of this Society was held on Jan. 11th, Mr. W. Bowman, F.R.S., President, in the chair.

Mr. Priestley Smith read a paper upon the Growth of the Crystalline Lens, commencing by a quotation from the chapter by Otto Becker, in the Handbook of Graefe and Saemisch, to indicate the present position of knowledge on this subject. He then proceeded to describe an original research carried out during the last two years. He had examined 142 lenses, removed in their capsules shortly after death, from the eyes of eighty-three adult subjects. Special precautions were taken to avoid changes from absorption or evaporation of moisture. Each lens was accurately weighed, its volume was then measured by means of a specially-devised instrument, acting by displacement of fluid along a graduated tube (instrument exhibited); finally, it was measured as to its transverse diameter. The author's aim had been to examine at least twenty transparent lenses in each decade of adult life; this had been accomplished up to the age of seventy; but between seventy and

ninety the numbers were not yet fully made up. Detailed tables were appended to the paper, and the general results were demonstrated to the meeting by charts and diagrams. He had found that the average weight of the lens continually increased, the increase being, roughly speaking, at the rate of 1.5 milligrammes each year. The volume of the lens also continually increased, and in about the same proportion, the increase being at about the rate of 1.5 cubic millimetres each year. By calculation from the weights and volumes it was found that the specific gravity remained, on the average, about the same throughout life, though there were lenses of low and of high specific gravity in each decade. Reservation he considered necessary in accepting linear measurements of the lens after its removal from the eye; but from the data obtained, it was demonstrated mathematically that the enlargement of the lens was not by any means limited to the transverse diameter. The continuous growth of the lens sufficed to explain the acquired hypermetropia of old age without assuming that the lens changed its form; it was also, in the author's opinion, the cause of the shallow anterior chamber of the senile eye, which had hitherto been attributed to an advance of the whole lens, a supposition which could not be reconciled with the acquirement of hypermetropia. The continuous enlargement of the lens, though hitherto unobserved, and though apparently separating this organ from every other in the body, was readily intelligible from a physiological point of view, for the lens is, by development, a cuticular structure, the cells of which, unlike those of the cuticle, multiply within a closed capsule, and cannot be thrown off as they grow old, the older cells being surrounded by the younger. In the tabulated results, the relation of senility to the development of cataract came out clearly. Lenses which showed any opacity were distinguished from the others, and were found, when tabulated, to be, on the average, smaller than transparent lenses of the same age. As this difference was present even when the opacities were very slight, it seemed likely that a period of diminished rate of growth preceded the formation of the opacities of senile cataract. The opacities were in most cases limited to the equatorial zone, where the capsule and cortical layers of the lens were subjected to the traction of the suspensory ligament. This supported the conclusions recently published by Becker concerning the formation of opacity by separation of the fibre layers at the equator, and the bearing of the continuous enlargement of the lens upon certain other morbid conditions.—The President congratulated the Society upon having a paper read before it, which would prove to be a standard paper to which all would refer, and said that their best thanks were due to the author for his labors.—Mr. Higgins asked whether the author's research had led him to an explanation of the reason why presbyopia diminishes in very old people, and why cataractous subjects become hypermetropic.—The President pointed out that from the increase of the size of the lens with age the capsule would become stretched out, and it would be interesting to know if the capsule at the age of seventy is thicker than in early life, or whether it is any way modified as to elasticity by this necessary extension. That again might influence the shape of the lens. He trusted that Dr. Smith would continue his research.—Dr. P. Smith, in reply, could offer no explanation why old people became less presbyopic. There is increased hardness from diminished elasticity, and increased tension of the ciliary muscle, so that there were many factors producing change in the shape of the lens, changes which it was very difficult to record.

The increase in size of the lens must be in antero-posterior diameter, as well as in the lateral, but he could not say whether the increase was uniform in all directions. He had limited himself to establishing the physiological and anatomical facts, before venturing on the pathological side of the question.

Dr. Lees read notes of a case of Paralysis of the Third Nerve, with Cerebral Symptoms, and showed the patient, a girl aged six years and a half, who had been brought to the Hospital for Sick Children on November 10th, 1881, on account of a squint of the right eye and shaking of the left arm and leg. The squint had been noticed by the mother three months earlier, and the shaking began a fortnight after the squint. She had had three fits when a year and a half old, but none since, and had had slight headache over the right eye for a fortnight before she was brought to the hospital. There was complete paralysis of the third cranial nerve on the right side. The pupil was dilated, and did not respond either to light or in accommodation. The upper lid drooped lightly, but no affection of the fifth or seventh nerves could be discovered. Both optic discs were normal. The movements of the left upper limb consisted in slight forward and backward movements of the whole limb in a vertical plane, together with short flexions and extensions of the wrist. They were rhythmical and uniform, and occurred when the limb was not used; and the mother stated that they did not quite cease during sleep, but that they were worse when the child was excited. There was no distinct paralysis of the limb. Similar, but less decided, movements affected the lower limb. No history of congenital syphilis could be obtained, but an infant brother of the patient was subsequently found to be suffering from snuffles, and to have had some rash on the buttocks. After treatment for twelve months with iodide of potassium the shaking of the limbs could no longer be detected, and the squint had entirely disappeared, leaving only a little weakness of the internal rectus. The right pupil, however, remained dilated and motionless; it measured six millimetres, while the left measured 2.5 millimetres. The power of accommodation was entirely lost in the affected eye, and the pupil was still absolutely motionless. Vision with that eye was very imperfect, but by using convex lens of six dioptries she could read small type. Her condition remained unaltered up to the time she was shown to the Society. The case, Dr. Lees thought, presented the group of symptoms to which Mr. Hutchinson had given the name of ophthalmoplegia interna, and which he attributed to disease of the lenticular ganglion, but this case seemed to support the theory that the symptoms were due to a cerebral lesion, probably near the nucleus of the third nerve below the aqueduct of Sylvius.

Mr. Brudenell Carter asked whether any attempt was made to effect contraction of the pupil or change of accommodation by eserine.—Dr. Hughlings Jackson asked whether the patient had headache or optic neuritis, for the symptoms pointed to some affection of the crus cerebri. On the other hand, he never remembered to have seen rhythmical movements in a case of organic disease. Most cases of rhythmical movement of one side were either due to malingering or hysteria.—Dr. S. Mackenzie asked whether the ocular defect occurred at the same time as the affection of the left arm. If there were any interval of time between the two, there was possibly more than one lesion.—Mr. Hutchinson said the case was hardly one of ophthalmoplegia externa, which is motor paralysis of the third nerve, and in the case of ophthalmoplegia interna there is no dilatation of the pupil;

it is rather of small size, and there is never any evidence of action of the fibres supplied by the sympathetic. He thought the child's physiognomy very suggestive of syphilis.—Dr. Buzzard suggested, as the movements of the left arm came on about fourteen days after the paralysis of the right eye, that there may have been some slight loss of power in the left side, to which the irregular movements were sequential. That would imply a central lesion; but on examining the child he found there was no tendon reflex at the left wrist as he would have expected if there were a coarse lesion like a gumma in the crus cerebri. The case, therefore, tended rather to support Mr. Hutchinson's view that the ophthalmoplegia was due to lesion of the lenticular ganglia, and not to central disease; the limb affection being accidental.—Dr. Lees, replying to Mr. Carter's question, said that eserine was not used.—Mr. Carter said he had asked that question because in some cases of paralysis non-recovery was due to atrophy of the muscles, and it occurred to him that by the use of eserine the nutrition of the muscles might be improved, as in other cases it is by the use of electricity.—Dr. Lees had intended to adopt the course suggested by Mr. Carter, but had deferred so doing until he had shown the case. The history was that three months before the child was brought the eye-symptoms had shown themselves. There was no optic neuritis, and there had been a little headache. Although the pupils were dilated they were motionless, and there was loss of accommodation, the main signs of ophthalmoplegia interna, which in this case apparently depended on a cerebral lesion. Improvement had taken place in the eye symptoms and arm symptoms at the same rate. He had seen a case of tumour of the right crus cerebri where there was paralysis of the right third nerve, and of the left limbs. It seemed to him that a gumma of the inner nucleus of the third nerve would explain the paralysis, and that the limb affection might be due to collateral pressure.

Dr. Lees also read notes of a case of Paralysis of the sixth Nerve, with Choreiform Movements of the Face. It was that of a boy, aged eleven and a half years, who had had convergent strabismus from the age of three years. On examination in December, 1882, it was found that the left eye could not be brought to the outer side of the median position; there was no other interference with ocular movements; pupillary reaction and the optic discs were healthy, but each presented a crescent. Spasmodic contractions of the facial muscles, chiefly on the right side, occurred at irregular intervals. Those choreiform movements, as well as headache, which he had suffered from for some months, were probably due to the hypermetropia and astigmatism with which both eyes were affected. There was no paralysis of the seventh nerve.

Dr. Hughlings Jackson read a paper upon Movements of the Eyes provoked by Pressure on a Diseased Ear, and related the details of a case which, he said, resembled one reported by Schwalbach, and was important as giving a demonstration that ear disease was one cause of, or one factor in, producing vertigo. It was a clinical illustration of one of Cyon's experiments on the semicircular canals of rabbits. The patient was a woman, aged forty-nine, who had suffered from otorrhoea on the right side from childhood. She had recently become subject to attacks of auditory vertigo, and had a peculiar unsteady gait resembling that produced by alcoholic intoxication. Pressing on the tragus of the right ear caused certain definite movements of both eyes. First the eyes moved slowly, to the left, then they move back again by jerks to the

right, at the same time she felt giddy and there was apparent displacement of objects to the left. This displacement was synchronous with the slow movement of the left. This patient was examined by Dr. Laidlaw Purves and by Mr. Couper, and under treatment by syringing the ear, and the internal administration of quinine, she improved so that only the very slightest movements of the eyes were producible by the pressure spoken of. Dr. Jackson referred to certain researches by Dr. James, of Boston, U.S.A., which seemed to show that deaf mutes were not easily made giddy by rotatory movements, and were not at all liable to seasickness. In conclusion he thought that the procedure mentioned in this case might probably be helpful in the diagnosis of some difficult cases, and that the different results obtained at different periods, in such cases would be some measure of the patient's progress. In reply to the President, Dr. Jackson said that the slow movement of the eyes was from right to left, and that apparent movement was to the same side, and according to the patient's statement, coincident in time. He referred to a note on this subject by Professor Donders, which he had communicated to the Society last session.

Dr. Maddox contributed a paper descriptive of a New Method of Testing the ordinary relation between Convergence and Accommodation, and exhibited an instrument designed by himself for this purpose.

A paper dealing with a case of a Peculiar Growth developing from a Cilium in the Anterior Chamber, contributed by Mr. Rockliffe (Hull), was read by Mr. Nettleship. The patient was a man, aged twenty-three. In August, 1881, he received a vertical lacerated wound in the outer third of the cornea, and the lower lid was injured at the same time. Six weeks after the accident an eyelash could be seen in the anterior chamber, reaching from the angle of the chamber to the middle of the pupil; there was a slight pink zone round the cornea, and cataract. An attempt to remove the eyelash at this time failed. In Sept., 1882, the eye became acutely inflamed, and, at the inner end of the cilium, was a peculiarly white woolly growth. This growth rapidly increased, and, on Oct. 18th, Mr. Rockliffe opened the anterior chamber, when the tumour, with cilia firmly adherent to it, was carried out with the gush of aqueous. Dr. Brailey examined the mass and reported that it consisted of flattened epithelium cells exactly like the more superficial cells of the conjunctiva; it seemed possible that the cells of the root-sheath had proliferated within the anterior chamber.—Mr. Nettleship some years ago had examined a similar specimen from a patient of Mr. Couper's.—Mr. Power had seen a similar case under Mr. Hancock's care. A boy when climbing cut his eyelid with a lamp he held in his hand, and an eyelash was thus transplanted on to the iris. After a time a new growth started from this and formed a circular mass of hairs, passing round the anterior chamber. The mass was removed without difficulty.—Mr. Couper remembered the case mentioned by Mr. Nettleship. In the chamber it looked like a syphilitic gumma, but on removal Mr. Nettleship found it to consist of epithelium cells together with much cholesterine, so that it was surmised that some sebaceous cells had been introduced with the hair. In this case the hair had curled up in the anterior chamber so as not to be visible until this was opened and the tumour removed.

— ARRANGEMENTS have been made for the meeting of the Sanitary Institute of Great Britain to take place at Glasgow in the autumn of the present year.

MEDICAL OFFICERS OF HEALTH SOCIETY.

A MEETING of this Society was held on Dec. 15th, 1882, Dr. J. W. Tripe, President, in the chair, when a short paper was read by Mr. S. R. Lovett on the Illegal Occupation of Cellar Dwellings. A woman who was nearly dead from cold and hunger had been discovered in a cellar in Dudley-street. The cellar was a small rubbish hole, measuring 13 ft. by 9 ft. The woman had no right to be there; she did not lodge in the house; she was a tramp and a trespasser. A similar case had occurred two years before, when a woman was found dead in a cellar. Such cases occur through the front doors of tenemented houses being left open day and night. People walk in uninvited, sleep in the cellars and on the stairs, use the closets, and even ask for soap and water in the morning. They do not take possession of their sleeping places until night; and, as the Legislature has fixed the hours of inspection of dwelling-houses between 9 a.m. and 6 p.m., the sanitary inspectors are powerless to deal with them. Mr. Lovett, in conclusion, asked what remedy could be found to prevent such illegal occupation. In the discussion which followed, in which the President, Dr. Bristowe, and Dr. Bate took part, the opinion was expressed that the medical officer of health could take no action.

Dr. G. A. Heron then read a paper on the Tubercle Bacillus, of which the following is an abstract. Last June the author began to give attention to the clinical aspect of Koch's discovery of the bacillus of tubercle; sixty-two patients had come under his observation in whose sputa he had detected the bacillus. They were of both sexes, from ten to sixty-five years of age, of various occupations, and all unmistakably suffering from phthisis. In three of these patients he had at first searched the sputa for the bacillus unsuccessfully, but found it in two cases in the third week, and in the other in the seventh week. His experience of the sixty-two cases inclined him to the belief that the presence of these organisms in the sputum would sufficiently indicate the prognosis. Given a persistence for some weeks of fewness of the bacilli of tubercle in the sputum, that case will probably run a long course; on the other hand, given the persistence of a large number of bacilli early in the history of a case, that case will run a short course and end in death. In the cases most rapidly fatal, the bacilli were grouped in numerous masses. Grouping may occur when the bacilli are few as well as when they are numerous, but the feature alluded to is that where the masses of bacilli are numerous they give a characteristic appearance in almost every microscope field. Three or four bacilli in a field indicate the presence of few of these organisms, thirty or more in a field must be regarded as numerous. Koch's work was undertaken in the interest of the public health. He found the sputum when dried, as it may sometimes be seen drying upon a hospital floor, to be as surely fatal in its results when inoculated as when he inoculated with the bacillus obtained by cultivation of the organism from tuberculous tissue. Taking his views as true, we must admit that the expectoration of a consumptive person probably always contains a poison of a most virulent kind. After referring to the deposit of tuberculous sputum upon handkerchiefs and other linen, the author suggested that this might be a possible, if infrequent, source of infection; but Koch has indicated other possible sources of infection, for he has demonstrated the presence of tubercle in animals with which man comes in frequent contact. The question, How does phthisis

spread among mankind? is one of the most difficult to answer, but the explanation must be sought for in the light which Koch has shed upon it by his brilliant discovery.—In the discussion which followed the President, Dr. Bristowe, Dr. Corfield, and Dr. Samuel West took part. Some interesting microscopical specimens of tubercle bacilli were exhibited by Drs. Heron and Samuel West.

A meeting of this Society was held on January 19th, 1883, Dr. J. W. Tripe, President, in the chair.

A paper on an extensive Outbreak of Diarrhoea from polluted water was read by the President, of which the following is an abstract:—On November 6th, 1882, he received information that the inhabitants of almost every house on Clapton Common had been seized with diarrhoea and sickness, accompanied in some cases by more or less depression. Inquiry showed that the milk came from several sources. The chief outbreak occurred on November 4th and 5th. On the 7th, at the request of the author, the Clapton main was thoroughly scoured out. On the 8th fresh cases occurred; and on the 10th the main was again cleansed. Cases also occurred on the top of Stamford-hill, while those at Clapton were likewise confined to the higher part. An examination of the plans of the Company's mains showed that a cross main extended from Clapton to Stamford-hill and adjoining roads, and was connected with the Kingsland and Stamford-hill main at a point immediately below where the disease had occurred, and that the main at Clapton Common terminated in a dead end without any valve. Some hundreds of persons were affected, often several cases occurring in one household. A house-to-house visitation was not made, but the author heard of several cases in which water-drinkers alone in a family were affected, and there were several striking instances in which visitors were attacked. Thus two ladies took luncheon at a house on the common, one drank sherry and the other sherry-main-water; the former escaped, the latter suffered. Another visitor to another house took luncheon and drank water, with the result of being attacked on his return to Chiselhurst. There were three servants in one family, two of whom were water drinkers, the last not; the water-drinkers alone were affected. The disease was not fatal to anyone. Analysis of the water showed but a very slight increase of organic matter; but on November 7th, Mr. Wigner, to whom a sample had been submitted, found some vegetable debris, consisting of fibres, mycelium, and some animalcules, but no sewage fungus. On the 9th there were no animalcules or mycelium. The author believed that the presence of a main with a dead end at the top of the hill had allowed a growth of mycelium, and perhaps of other organic bodies, owing to the water remaining there unchanged for some time, and that they became suddenly mixed with the ordinary supply a day or so before the outbreak. In the discussion which followed, Dr. Corner, Dr. Corfield, Dr. Gwynn, Mr. Shirley Murphy, Dr. Heron, and Dr. James Stevenson took part, and the President replied.

MIDLAND MEDICAL SOCIETY.

The ordinary meeting of this Society was held in the Birmingham Medical Institute, December 6th, Dr. Malins, President, in the chair.

The President showed the Ovaries and Fallopian Tubes which he had removed from two patients. One was single, aged thirty-eight, and had suffered ovarian pain for thirteen years. Considerable ad-

hesions were found in the pelvis. The second patient was married, aged thirty-nine. The left ovary was soft and friable, and was removed with difficulty. Both cases did well.

Mr. William Thomas exhibited Three Polypi of the Rectum, each about three-quarters of an inch in diameter, all of which had been removed from a child six years of age. Allusion was made to the rarity of multiple polypi of the rectum, this being the only case he had met with or read of. He also showed the heads of two Femora, removed by resection from two cases of morbus coxae, which presented similar features. In both the head of the femur rested firmly on the margin of the acetabulum, and at the point of contact the cartilage was completely gone, so that the cancellous tissue of the head of the femur rubbed against that of the margin of the acetabulum. In each case the head of the femur was grooved by the pressure.

Dr. Sanders showed a Fracture and Dislocation of the Body of the Seventh Cervical Vertebra, the posterior edge of the lower inter-vertebral cartilage pressing upon the cord, but without injuring it. There was also a fracture of the left laminar process of the vertebra, but no hæmorrhage into the cervical canal. The patient lived eight days after the receipt of the injury, and during life there was complete paraplegia of all nerves below the first dorsal.

Mr. F. L. Phillips exhibited a man, aged twenty-five, who had been treated for epilepsy for fourteen years, and was now covered with a rash of thirteen months' duration. There was no history of syphilis. The eruption consisted of papules and tubercles on the face and back of shoulders, arms, and legs. Some of them were as large as a walnut, and tended to suppurate at the apices, forming rupial-looking patches, but were not itchy. This condition was attributed to the prolonged use of the bromides.

Mr. Phillips also showed the Metatarso-phalangeal Joint of a man who had had many attacks of gout. The cartilages and ligaments of the joint were infiltrated with fawn-colored urate of soda. The patient, who was a chrome worker, died rapidly from an attack of acute gouty bronchitis.

Dr. C. Lewis exhibited a specimen consisting of a Suppurative Ovarian Cyst, with a uterine attachment, which had been removed from the body of a girl, aged eighteen. Three days before death, having previously been in fair health, malaise and slight tenderness over the right ovary were complained of. The following day there was a high temperature, and all the signs of traumatic peritonitis. The cyst was the size of a hen's egg, containing between two and three ounces of pus, and was very adherent to all the pelvic viscera. A small rupture was found in the cyst wall. The left ovary was also found to be enlarged, and the Fallopian tube to contain a small pyo-salpinx.

Mr. T. Nelson showed twenty Calculi, which one patient had passed per urethram at different times. The stones varied in size, one being as large as a horse-bean.

Dr. Savage read a paper on "Some of the Diseases of the Fallopian Tubes." He referred especially to hydro and pyo-salpinx. These diseases exist, in the author's opinion, much more frequently than is laid down in the text-books; and that there is such a frequency should not seem so surprising, seeing that both uterine and Fallopian tubes are developed from the same fetal structure, Müller's duct. As causes which could be ascertained, he mentioned gonorrhoea, both recent and latent, the abuse of pessaries, especially intra-uterine ones, and pelvic peritonitis or ovaritis. The first effect of inflammation is to cause obliteration of the uterine and fimbriated ends of the

tubes, thus allowing a collection of the abnormal secretion. The relatively large amount of areolar tissue in the wall of the tube, as compared with that in the uterine wall, accounts for pus being so common in the former. Surgery is able to step in and remove where necessary these tumours, the diagnosis of which must often be presumptive, based on the physical signs and the clinical history. The operation is often a difficult and a tedious one on account of the frequent accompaniment of firm adhesions, and the danger of an escape of the fluid contents in the case of pyosalpinx. If left alone the termination may be:—1st:—Resolution and absorption; this would be very improbable where pus is present, and it would not affect the results of former adhesions. 2nd. Bursting into the rectum or vagina, which would have a curative tendency, or into the peritoneum; this would be certainly fatal unless early surgical interference be adopted. The operation for the removal for diseases such as these is an extension in abdominal surgery which commenced in ovariectomy. In the discussion which followed Mr. Ross Jordan, Dr. Malins, Mr. Chavasse, and Mr. Harmer, took part.

Dr. G. P. Best read a paper "On the Methods of applying the Tests for Albumen." After remarking on the importance of the early diagnosis of granular kidney, and the fact that this could only be settled by the discovery of small quantities of albumen in the urine, he glanced at the more careful methods of examination from time to time suggested; and while arguing that the very suggestion of these more elaborate methods implied certain necessities, he brought forward his idea of utilizing the syringe or suction principle for the purpose of meeting them. First was considered the advantage in point of accuracy of the apposition of urine and nitric acid obtained by the use of the syringe; a point most important in those early cases of granular kidney above alluded to in which the quantity of albumen is small. Secondly, the convenience of the application of this method in house-to-house visiting. In illustration he exhibited a pocket apparatus, arranged for him by Messrs. Salt & Son, which exemplified the general principle as well as the particular application. In this portable case Dr. Best substituted for nitric acid the hydrochloric solution of common salt of Dr. Roberts, which acts equally well, and is better suited for packing.

CAMBRIDGE MEDICAL SOCIETY.

At a meeting of this Society, held on December 1st, 1882, Professor Humphry, M.D., F.R.S., President, in the chair, Mr. Wm. Adams, F.R.C.S., Surgeon to the Great Northern Hospital, read a paper on "Dupuytren's Contraction of the Fingers," which was illustrated by a number of plaster casts showing the condition of some of the hands on which he had operated, before and after the treatment. In 1832 Dupuytren described, from a dissection, the anatomical conditions existing in this form of finger-contraction which we now distinguish from other forms of contraction by his name. He demonstrated the fact that the fingers were drawn down by contraction of the fascia alone, and that the tendons took no share whatever in producing or maintaining the contraction, which he found to be entirely removed after division of the fascia. Dupuytren especially described the digital prolongations of the fascia as passing laterally to the sides of the phalanges. He divided these digital prolongations, and was surprised to find that he could at once straighten the fingers; "the tendons [he observed] were not

implicated in any way, and their sheaths had not been opened." Dupuytren's description has since been confirmed by other observers, more especially by Goyrand of Aix; the late Professor Partridge, who placed a dissected specimen in the Museum of King's College; and, it is believed, the late Mr. Stanley dissected a specimen which exists in the Museum of St. Bartholomew's Hospital. In 1864 a good demonstration of the relation of the fascia to the tendons and their sheaths was accidentally afforded the author. A gentleman who suffered from Dupuytren's contraction of the fourth and fifth fingers met with an accident in attempting to hold a restive horse. The contracted fingers were torn open, and the skin in the palm of the hand torn across the sheaths of the tendon were not injured. The tendons in their sheaths were seen lying at a depth from the surface, running along the concavity of the curve, in proximity with the bones, whilst the fascia had evidently been stretched across like the string of a bow. Mr. Adams turned this accidental occurrence to practical account by altering the method of operating, which had previously been based upon the idea of a deep tendinous contraction, which could only be divided by a deep puncture, and passing the knife from below upwards, as in ordinary tenotomy. He now passed it between the skin and the fascia, and cut from above downwards; and he had also modified the details of the operation, especially directing attention to the digital prolongations of the fascia, as they pass to the sides of the phalanges; and improved the mechanical appliances to be used in the after-treatment. The anatomical demonstrations above referred to, he thought, made it clear to any surgical mind that the only rational and efficient treatment must be the division of the contracted fascial bands, which would certainly not yield to mechanical extension. Mechanical treatment is only applicable to very slight cases, when contraction is only commencing. But should the operation be performed by open-wound, or by the subcutaneous method? Dupuytren in the year 1831 operated by open-wound, making three incisions. Suppuration followed, but the case progressed favorably, and all contraction being removed, the natural movements of the fingers were restored. In 1831 Stromeyer re-introduced, in an improved form, the operation of subcutaneous tenotomy, which had been first devised and performed by Delpech in 1816, but only in one case which was followed by inflammation, so that he never repeated the operation. Subcutaneous surgery, therefore, dates its origin from 1831, and was introduced into England by Dr. Little in 1837. The more recent changes have been in favor of a return to the method of operation by open-wound, and the operation recommended by Prof. Busch, of Bonn, is that which has attracted the most confidence. He (Mr. Adams) apprehended, however, that if the subcutaneous method of operating were carefully performed, its results would be far more perfect than could be obtained by open-wound, and without any of the risks which this method must necessarily entail. The tendency to relapse does not exist in any marked degree, but on the contrary is rare and exceptional. Moreover, it is satisfactory to know that the causes of relapse are within control, and that if relapse should occur, the operation can be repeated with a certainty of success.—Mr. J. H. Hough, upon whom Mr. Adams had operated for this contraction, gave an account of his own case. About twelve years previously, when a boy at school, he observed a small swelling in the palm of the left hand. For some time it gave rise to no annoyance, but when an undergraduate he found that he was obliged to give up rowing on account

of the severe pain in the palm which that exercise induced. When a student in London he showed his hand to the surgeon for whom he was dressing, who at once said that the affection was fascial and not tendinous, and suggested an operation. The operation was incomplete as he was not under the influence of an anæsthetic, and unable to bear extension. A year later a more complete operation was performed, and for a time he did very well; as soon, however, as he left off extension the hand relapsed. About a year ago the inconvenience he suffered in consequence of the contraction made him determine to undergo further treatment, and he accordingly placed himself under the care of Mr. Adams. The hand was now perfectly free; a very slight degree of contraction existed in the ring finger, from contraction of one of the digital prolongations of the fascia, which had taken place since the operation, but which gave no trouble.—In answer to Mr. Hough, Mr. Adams said there could be little doubt of the existence of a gouty tendency in the great majority of cases of this form of contraction.

Mr. Lawrence Humphry (of the Victoria Hospital for Diseases of the Chest) showed several Tissues and Fluids taken from Tuberculous Patients, which had been stained by Ehrlich's method, and in which the bacilli were present in considerable numbers. He also demonstrated the manner in which he had prepared them.

Mr. Lucas exhibited a Liver affected by malignant disease which had originated in the lesser omentum and spread along the bile-duct, causing total obstruction and extreme jaundice. The liver had undergone no enlargement, and the patient had shown no sign of impairment of nutrition.

YORK MEDICAL SOCIETY.

THE ordinary meeting of this Society was held on December 9th, 1882, Mr. W. H. Jalland in the chair.

Mr. Jalland made some remarks on two cases of Excision of the Knee treated by him at the York County Hospital. Both patients were shown. The results were satisfactory. In one case the patient was up within a month of the operation.

Mr. Jefferson read notes of a case of Pernicious Anæmia. The patient was fifty-two years of age. He stated that for six months before admission to the York County Hospital he had suffered from severe epigastric pain which kept him awake at night, and that for two months he had vomited after meals. When admitted he was feeble and emaciated; his expression was indicative of suffering, and he complained of severe pain at the outer border of the left rectus on a level with the umbilicus. There was no tumour or enlargement of any of the organs. His urine was normal. The case was thought to be one of malignant disease. A pill containing morphia, creasote, and nuxvomica was ordered, and after ten days the vomiting ceased. Citrate of iron and quinine were then given with cod-liver oil. In fourteen days he gained sixteen pounds in weight, and within a short time an additional stone. He returned to work and has had no relapse.

Mr. Clifford Gill showed some sections of Cancer of Bone. The patient from whom the diseased bone was taken was an elderly woman, who for many years had been insane. A tumour was noticed in the neighborhood of the sacro-iliac synchondrosis, and this when removed had attained the size of a Maltese orange. Shortly after the appearance of this tumour, a small scirrhus tumour of the breast was detected. On examination under

the microscope the bony tumour was found to present the characteristic cancerous arrangement.

Mr. Spencer read some remarks on Acute Rheumatism. As illustrating the connection between acute rheumatism and erythema multiforme, he took three cases. Those of two young women between sixteen and twenty, and that of a man aged forty. The women were fair-complexioned and anæmic, the man dark and anæmic. In each case there was a period of invasion, and, in two, sore-throat during this period. In all these the attack followed on a chill, the erythematous rash commenced by distinct papules on the hands and feet, and the urine was turbid and deposited urates copiously. In one there was no affection of the joints. In the other two many joints were affected. After some allusion to the remarks of Trousseau, Bristowe, Powell, and Thin on the subject, Mr. Spencer referred to a case brought before the Society last session by Mr. Jefferson, where the order of symptoms was: firstly, pericarditis; secondly, erythema papulatum; and, thirdly, acute rheumatism.

Mr. Spencer then read the following notes:—A young delicate girl, sixteen years of age, who had suffered from chlorosis for some time, was exposed to wet and cold. Four days afterwards she began to suffer from synovitis of the ankle-joint. The general symptoms were slight, and there was no febrile disturbance. On the following morning, when rising from the sofa, she fell backwards in a fainting condition, and soon afterwards died. On post-mortem examination the walls of the heart were found to be thin, the valves normal, and the foramen ovale patulous. A laminated fibrinous mass, which was partially adherent, occupied the apex of the left ventricle, and a quantity of translucent fibrin, possibly of post-mortem origin, extended from the superior vena cava into the right auricle through the patent foramen ovale into the left auricle, and through the mitral orifice into the left ventricle which it nearly filled. Mr. Spencer discussed briefly the question of the essential nature of acute rheumatism, referred to the zymotic and chemical theories of its etiology, and, finally, pointed out its relationship to gout, in which disease a poison or poisons manufactured by perversion of a normal process is known to be the predisposing cause.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.

A meeting of this society was held on Dec. 21st, 1882, Mr. B. Walker, President, in the chair.

Mr. Gubbins exhibited specimens from a patient in whom existed Complete Absence of Left Kidney and Supra-renal Capsule, Rudimentary Left Lobe of Liver, etc. The patient, a man aged twenty-four, had been under the care of Dr. Branson, in the Sheffield Public Hospital, where, on Nov. 16th, he had been admitted, suffering from anæmia, following a severe attack of hæmatemesia. The vomiting of blood recurred several times, and he died at the end of a fortnight. The patient had been in India for two years and a half, had drunk freely, had several attacks of ague, and had been discharged from the army for enlarged spleen. At the post-mortem examination the following condition of parts was found:—The liver weighed 2lb. 6 oz., and consisted almost entirely of the right lobe; microscopical examination showed moderately advanced cirrhosis; the spleen weighed 2 lb. 2 oz., and was tough on section; the right kidney weighed 13 oz., but was otherwise normal in appearance. The left kidney was entirely absent, neither was there supra-renal capsule nor ureter; there were many pints of clear

fluid in the peritoneal cavity; the lungs were healthy; the heart weighed 14 oz.; there was only one ridge and one opening (right) in the bladder; there was no malformation of any part of the genital organs discovered. Mr. Gubbins remarked on the interest attaching to this case from the absence of the left kidney and supra-renal capsule, as well as the rudimentary condition of the left lobe of the liver, and said that in 1878 Dr. Brenner (*Virchow's Archiv*) had collected records of forty-eight cases of congenital absence of one kidney; but in all these cases, except five, the supra-renal capsules were present. Dr. Brenner also stated that in one-third of his series of cases there was some malformation or arrest of development in one or other of the genital organs.

Dr. Dyson exhibited the morbid specimens from a patient who had suffered from Ovarian Cystic Disease. The woman, aged thirty-five, was delivered of a weakly child two weeks before her death. The cyst was simple, unilocular, and filled with pus; it was tapped a fortnight before death and eleven pints of pus removed, but had rapidly refilled. The patient suffered from capillary bronchitis and pneumonia ever since her confinement, and this, together with great exhaustion, had never permitted an opportunity for ovariectomy. Some recent peritonitis was present in various situations, but in each of them at a considerable distance from the trocar wound, which was quite healed. A great point of interest in the case was the condition of the lower lobe of the left lung; this was small, very tough, and fibrous; the bronchial tubes, both small and great, were dilated, and in many instances cretified. The breath of the patient during life was peculiarly offensive.

Dr. Keeling related the particulars of a case of Puerperal Tetanus. With the exception of some flooding, to which the patient had always been liable in her confinements, parturition in the present instance was normal, and had been followed by a satisfactory recovery up to the tenth day. Symptoms of lock-jaw manifested themselves on the eleventh day after labour. The patient died in a paroxysm of apnoea three weeks after her confinement, and on the ninth day after the first appearance of tetanus.

Mr. A. Jackson exhibited a Portion of Catheter removed from the Male Bladder by him the same day by the ordinary lithotomy operation. The piece of flexible catheter was thickly coated with phosphates.

Mr. E. Skinner related particulars of a case of Retroversion of the Gravid Uterus. The patient, aged nineteen, was in the third or fourth month of pregnancy, and was on September 10th suddenly seized with abdominal pains and feelings of faintness and sickness. Later on, a midwife detected a hard swelling at the mouth of the vagina; and on September 15th Mr. Skinner first saw the case. The patient was then suffering great pain, the abdomen was distended, and she was pale and faint. He detected at the orifice of the vagina a firm round tumour about the size of an orange, pressing upon the perineum and descending the anus; this was the fundus uteri, and the os was situated above the pubes. An attempt to pass a catheter along the distorted urethra failed, but later in the day was successful. No urine had been passed since the 10th. Attempts at replacing the uterus caused such distress that they were not persevered with then, but later in the same day, when the bladder had been emptied, with the patient in the knee-elbow position, it replaced itself without difficulty. On the 17th there was recurrence of pain and distress, and the uterus was again found to be retroverted. It was again replaced, and a Hodge's pessary introduced to

support it. On the 18th she was delivered of a four months' foetus, and made a good recovery. Mr. Skinner stated also that, a month later, he found retroflexion, which he replaced, and for which she still wears a pessary.—In the discussion which ensued, Dr. Keeling, Dr. Martin, Mr. Jackson, and Dr. Dyson took part.

ACADEMY OF MEDICINE IN IRELAND.

OBSTETRICAL SECTION.

At the meeting of the Section on Dec. 22nd, 1882, the President, Dr. Denham, delivered his opening address, taking for his subject the Progress made in Obstetric Medicine during the Last Fifty Years. He selected as the basis of his remarks a comparison of the Rotunda Hospital Reports of Drs. Collins and Shackleton with those recently published by Dr. George Johnston. Dr. Collins during his seven years' Mastership had 16,414 deliveries, in which the crotchet was used 118 times and the forceps or vectis 27 times. The number of deaths amounted to 164. Dr. Shackleton reported 13,748 deliveries, with the use of the perforator in 130 cases and of the forceps in 200 cases, and the loss of 163 patients. Dr. Johnston reported 8,908 deliveries; 28 craniotomy, 90 version, and 750 forceps cases. He lost altogether 169 patients. Commenting on these figures Dr. Denham observed that it was patent that by the more frequent use of the forceps in modern obstetrics much had been done for relief without adding to the dangers of labour, and that great numbers of children were now delivered alive who under the old practice would have had to be destroyed. The beneficial results of the introduction of chloroform, the greater use of sea-triangle tents, the operation of ovariectomy, followed as it has been by so many new operative procedures, were briefly alluded to as having done much to bring gynecologists into the front ranks of bold and successful operators, and to break down the barrier which at one time existed between this and other branches of the profession.

Mr. Arthur Benson exhibited a male patient showing a well-marked example of recent Spontaneous Detachment with Rent in the Substance of the Retina.

Dr. G. F. Duffey showed the Heart and Pericardium of a male patient, aged fifty, exhibiting the recent pathological effects of an acute pericarditis which had lasted only for about eighteen hours.

Dr. Roe exhibited a series of Frozen Sections which he had lately made:—(1) Section through medial horizontal plane of foetal head; (2) section through the shoulder-joint and upper part of the chest; (3) section through the level of the third costal cartilage.

Dr. Poole showed, for Dr. Kidd, two Dermoid Ovarian Cysts removed from an unmarried patient, aged thirty-eight. The growth of the tumour had been noticed for three years. The larger tumour involved the left ovary, and weighed on removal about 6 lbs. It consisted of numerous loculi of various sizes, some containing glairy mucoid fluid, and others masses of sebaceous matter mixed with hairs. Hard centres of ossification were felt in a portion of the cyst walls; one of the larger cysts contained a matted mass of long dark hairs, on removing which a mass of bone was found jutting sharply into the cavity, and bearing on its apex two closely united teeth. The smaller tumour belonged to the right ovary, and consisted of two cavities, one containing sebaceous matter with a few hairs, and in one part of its walls a mass of bone; the other contained a quantity of light-

colored hair and several teeth irregularly set in a bony wall.

Dr. Neville exhibited a specimen of Fœto-amniotic Adhesions, associated with numerous Deformities of a Full-time Fœtus, including complete Ectopia of the Abdominal Viscera, and with it a four-months fœtus, around whose right forearm the funis had become looped and adherent, associated with deformities of both hands, etc.

Dr. More Madden read a paper on Cicatricial Occlusion of the Vagina. Clinical experience of retained menstruation or impeded parturition, consequent on post-partum adhesions of the vaginal walls, is, he said, fortunately more limited than must have been the case formerly, when the second stage of labour was frequently allowed to run on for twelve or even twenty-four hours, and when instrumental assistance was directed by the most eminent authorities to be withheld until the vital powers were all but exhausted. Still such cases are occasionally met with. Of somewhat greater frequency in the causation of this condition in modern practice is the opposite error of premature application of the forceps before the natural dilatation of the passage, or by the misdirected force or undue haste with which instrumental extraction may be effected. Another source of such occlusion is the abuse of escharotics for the treatment of uterine disease. Apart from these causes, the occurrence of vaginal occlusion after parturition is exceptional. A case of this kind recently came under his care in the gynecological ward of the Mater Misericordiae Hospital. The patient, married, aged thirty-eight, had given birth to four children. She never had any difficulty in parturition, and her recoveries were always rapid. Six months before admission she had a miscarriage on the fourth month. This was caused by over-exertion, and presented nothing peculiar. Up to this time her general and uterine health had been excellent. Two months after miscarrying she began to complain of obscure pelvic pain, with sense of local fullness and bearing down. Her menses did not return, and as she had previously been very regular in this respect, she naturally supposed herself to be again pregnant. The pelvic pain increasing, however, and being now attended with dysuria, troublesome tenesmus, and obvious impairment of her general health, she sought medical advice. When admitted into hospital, the pelvic cavity was found to be filled by a large globular tumour, which extended backwards so as to flatten the rectum against the sacrum, and upwards and forwards so as to displace the bladder. The entrance to the vagina was thus obstructed, so that the finger could only be passed in for an inch and a quarter. On bi-manual recti-abdominal exploration, the uterus was found enlarged to the size of the fourth month, but in its normal position. The patient was then placed in the lithotomy position, the parts widely separated by retractors, and the seat of the obstruction was seen to consist of a tense, convex, fibrous-looking septum. This diaphragmatic-looking cicatricial structure was punctured with a fine trocar, and a small quantity of retained menstrual fluid drawn off by the aspirator. As the fluid was too viscid to pass freely through the cannula, the aperture was enlarged so as to admit the point of the finger, with which it was torn through so as to allow the gradual escape of about eighteen ounces of thick, treacle-like, catamenial matter. For two days afterwards this continued to drain away, and probably as much more escaped in this way. The membranous partition described formed the floor of a large hour-glass-shaped cavity, the lower part of which was bounded by the distended vaginal walls, communicating

through the open os and expanded cervical canal with the dilated uterine cavity which formed its upper and smaller portion. On the day following the operation she had rigors, her pulse and temperature ran up, the abdomen became tympanitic, there was considerable uterine pain and tenderness, and for the ensuing week her life hung in the balance from severe metro-peritonitis. This, however, ultimately subsided under treatment. The opening was then cautiously and gradually expanded by dilators, and kept patulous by glycerine tampons until all trace of constriction had disappeared. She was retained under observation until the next monthly period, which was perfectly normal, had passed over, and being then well, was discharged from hospital. The treatment of cicatricial vaginal obstruction is by no means as safe as it is facile. And the safest instrument in the removal of these adhesions is the surgeon's finger—the mortality following the use of any cutting instrument being nearly threefold that resulting from their digital separation.—Dr. Athill said that the case was unique in his experience. He did not think that the occlusion could have resulted so completely from any abuse of caustics. It was probably due to the occurrence of adhesive inflammation, such as he had seen result in a like way in the case of women who had never been pregnant.—Dr. Kidd narrated the history of a case recorded by the late Dr. Sawyer, in which a cicatricial occlusion of the vagina was found as an impediment to labour at the end of her second and third pregnancies, the occlusion having on each occasion to be opened up by crucial incisions. He insisted on the impossibility of negating the co-existence of pregnancy with almost any amount of occlusion.—Dr. J. A. Byrne thought atrophic contraction was limited to older women than Dr. Madden's patient. Strong escharotics injudiciously applied were, he thought, among the most frequent causes of vaginal or cervical occlusion. When retention of the menses resulted, they should be let out slowly and cautiously.—The President thought that conception might occur in spite of very considerable occlusion. Occlusion did not seem to be so frequently met with now as when the forceps was less often and more tardily used.

Dr. Neville read a paper on Breaking Strain, or Tensile Strength of the Umbilical Cord, founded upon 125 experiments made by him on the fresh cords of full-time children. Having explained the method of making these experiments, in which only the 12-14 inches of the cord nearest to the placenta were tested, he stated his conclusions as follows:—In 100 cords from which the blood had been allowed in great part to escape before subjecting them to strain, the average tensile strength amounted to 12.5 lb.; one cord bore a strain of 27 lb.; nine cords a strain varying from 20 lb. to 25 lb.; eighteen of from 15 lb. to 20 lb.; forty-eight of from 10 lb. to 15 lb.; twenty-three of from 5 lb. to 10 lb.; and one of less than 5 lb. In the case of twenty-five cords tested without allowing any escape of the blood contained in them, the average breaking strain was found to be very little above 11 lb., or nearly one and a half pounds less than in the other case. The cords belonging to male were found to have an average strength of 1.5 lb. more than those of female children; multiparity made no appreciable difference in strength. Dr. Neville considered the question of a gradual drag as affecting inversion of the uterus. Assuming as conditions a strong funis abutting at or near the centre of the fundus on a firmly adherent placenta, and a flaccid pliable uterus wanting in contraction and retraction, he thought improper tractions on the cord very likely to terminate in inversion.—

Dr. Macan considered that there could be no doubt that inversion might readily be effected by pulling on the cord under the circumstances laid down in the paper. He would lay special stress on the fact that traction, in order to result in this way, should be made at right angles to the uterine wall, at the site of placental attachment. This only could happen when the placenta had a fundal attachment.—Dr. Atthill compared inversion as an accident of delivery with that which resulted from an intra-uterine tumour. In the one case he believed that, as a matter of personal observation, the tumour, and in the other case the placenta, would always be found attached to the fundus. The fundus was the part of the uterus most susceptible of irritation. Irritation would set up contractions, and these would expel either the tumour or placenta, and along with either might invert the uterus. Pulling on the cord might facilitate the inversion, but could not act as a sole cause of this accident.—Dr. Neville did not reply.

Dr. J. R. Kirkpatrick exhibited a specimen of a Mummified Fœtus, with the Placenta and Membranes belonging to both children, of a pregnancy which had gone to full time. There was a single placenta and double membranous sac, that portion of the placenta which belonged to the mummified fœtus being shrunken and degenerated. The fœtus appeared to have died about the sixth month, and to have been since retained without occasioning any pathological symptoms. It was first born, after which the other child presenting by the shoulder was turned and born alive and healthy. The living child, a female, weighed 8 lb. The placenta was quickly afterwards naturally expelled. The mother was a healthy multipara, aged thirty-three years, her six previous labours having terminated normally.

Editorial.

ON OSTEOMALACIA IN CHILDHOOD.

It will be remembered by those who attended the Section for Children's Diseases of the International Medical Congress of 1881 that Dr. Rehn, of Frankfort, showed a remarkable specimen of extreme softening of the whole skeleton of a child. Along with some signs of rickets there were also indications of osteophytes, very similar to those described by M. Parrot as characteristic of congenital syphilis. We regret not to find a full account of this remarkable specimen in the Transactions of the Congress. Dr. Rehn has, however, followed up the subject at a recent meeting of a Medical Association held at Eisenach, and his cases there recorded are worthy of careful consideration.

The first is that of a girl aged sixteen months. She was a miserable child, with some undoubted signs of rickets, very considerable beading of the junctions of ribs with the costal cartilages, and bending in of the ribs beyond. The scapulae were thin, and the infra-spinous portions bent in. The clavicles between the first and second thirds were also bent, and so were the radii and ulnae. The bones of the forearm, the humeri, the femora, and one tibia were thin and easily bent. The connecting zone of diaphysis and epiphysis in the long

bones was inconspicuously marked, and the lower extremities were quite straight. The spleen was not enlarged, and there was no pyrexia. The child had been nourished with what is called "ordinary milk," and had lived in an unhealthy home. With the administration of better milk there was marked improvement. The child, however, succumbed after a month or two to an attack of capillary bronchitis. The right tibia and radius were submitted to Von Recklinghausen for examination. The tibia showed to the naked eye trabeculae of osteoid substance, which could easily be cut; it occurred principally in periosteal deposits, especially on the middle of the diaphysis, but also within the spongy axial substance, as well as in the bone cortex. A rachitic zone was to be made out at both ends. Various measurements are given, of which the most important is that the thickness of periosteal deposit about the middle of the shaft was nearly four times as great as that of the compact layer of the bone cortex. The radius was bent in its middle, and formed an angle of 120°; a fracture was not recognizable; still the flexibility was at this point at its greatest. At the bent spot the medullary canal was completely wanting, and the bony substance was quite uniform and finely porous, being made up of trabeculae of osteoid substance, and leaving only faint traces of the old bony cortex to be recognized. On the side on which the angle of the bend opened an especially marked periosteal layer was present. There was a rickety zone at both ends of the radius, which showed microscopically the characteristic proliferation of cartilage cells. Von Recklinghausen ultimately came to the conclusion that the essential characters of the case were those of osteomalacia, the bone trabeculae being quite devoid of lime except in the cortical portion; and he considered that the rickety features were of secondary importance. In none of the other four cases recorded was an autopsy obtained, and it will serve our purpose to give Dr. Rehn's general résumé.

Amongst prodromal symptoms, he mentions unrest, sleeplessness, and tenderness on movement—signs, in fact, which we are accustomed to associate with the oncoming of rickets. The extreme softness and flexibility of the long bones, as indeed of the whole skeleton, and the marked thinning of the bones, Dr. Rehn instances as the most important features; and he insists that the enlargements at the junctions of the shafts with the epiphyses were only moderate in amount or entirely wanting, at all events in the lower extremities. Fractures were frequently found. Cranio-tabes was present in two cases. The order in which different parts were affected in regard to intensity of disease was, first, the bones of the forearm and leg, then the humeri, and, last, the femora. As respects other symptoms, diarrhoea was not present in any one of the cases, splenic enlargement occurred in three, and in all there

was a high grade of anæmia and emaciation. In no case was pyrexia present. Profuse sweats occurred often. The urine showed no increase in earthy phosphates, except in one doubtful observation. The course of the affection lasted over several months. Three, perhaps four, recovered; and the two who died succumbed to respiratory troubles.

In regard to etiology, Dr. Rehn's observations are very meagre. The age of the patients—the first and second years of life—he gives as predisposing causes, and remarks on the fact that all his cases were of the female sex. He assumes that an insufficient amount of phosphoric acid and lime salts in the food-supply must be the proximate cause of the malady, but does not venture further than to quote Roloff's well-known experiments on the induction of osteomalacia in animals.

As to diagnosis, Dr. Rehn, admits that there is an osteomalacia associated with hereditary syphilis, but says that none of his patients had any sign of the latter malady. Nevertheless, as all the cases came first under observation at the age of one year or upwards, it is open to doubt whether hereditary syphilis could be absolutely negated. It is certain that many syphilitic children, especially when hand-fed, pass into a state of extreme marasmus, in which there may be considerable splenic enlargement, the pathognomonic signs of syphilis having disappeared. With regard to the distinction of these cases from examples of rickets, Dr. Rehn maintains, as we have before said, that the swellings at the junctions of diaphyses and epiphyses were moderate or slight in amount, and especially in the lower extremities, were sometimes entirely absent, whilst the softening was always a striking feature. Further, he considers the thinness of the whole skeleton and straightness of the lower extremities characteristic of the infantile osteomalacia. The excessive tenderness on movement, and in some cases pseudo-paralysis, he says, attained a far higher degree in these cases than in any examples of true rickets which he has seen.

The prognosis of the infantile osteomalacia, Dr. Rehn points out, so far as can be learnt from these five cases, is more favorable than in the adult form of the disease. Good nourishment, and protecting the bones from injury, constitute the therapeutics.

We have given in considerable detail Dr. Rehn's observations, because at the present time the natural history of rickets and its allies is awakening renewed interest. Dr. Rehn does not refer to the geographical distribution of his cases, but it is interesting to remember that adult osteomalacia is not an uncommon disease in the Rhine country, not very far from which, at all events, these cases must have come. But we venture to think, with all respect to the great authority of Professor von Recklinghausen, who supports Dr. Rehn's view, that it must still remain an open question whether

these infantile cases should be put in the same category with adult osteomalacia. There is a mollities ossium, more or less generalized, associated sometimes with cancer, as osteitis deformans is also sometimes associated with cancer. It is also admitted by Dr. Rehn that osteomalacia occurs in some cases of hereditary syphilis. Dr. Rehn maintains that in his cases rickets was only a concomitant, but it may be held by some that in rickets the features of (1) enlargement at the junction of shaft with epiphyses, and (2) of softening of shaft, may coexist in varying proportions. It is certain that such is the case in animal rickets, in which also a third varying feature must be added—viz., the new formation of massive porous bone. A valuable test would be the bringing forward of an infantile skeleton in which there were no enlargements that could be found post mortem along the junction of the epiphyses and diaphyses, and in which there was nevertheless softening of the shafts. We are free to admit that in some of our museums in London there are infantile skeletons in which there are abundant bendings, fractures, and deformities, and some new porous bone, but in which the bending of ribs is almost nil; and it is possible that Dr. Rehn might claim these specimens as examples (though less marked than his first case) of osteomalacia. But these it must be remembered, are dried and varnished specimens, in which the soft proliferated cartilaginous material has shrunk and partly disappeared.

We have always been taught that a good working distinction between osteomalacia and rickets is that in the first there is softening—a quasi-decalcification—of already formed bone, and in the second a formation of new imperfectly developed osteoid material. In Dr. Rehn's case it is expressly stated that there was a considerable formation of soft periosteal deposit, and if these cases are to be admitted as true osteomalacia this feature must be added as a special manifestation in the infantile form.

Dr. Rehn frankly admits that amongst the gaps to be filled up is an account of the bone marrow. As far as we can gather from the few sentences given the description hardly conforms on this point with the typical appearances with which we are familiar in the adult specimens. Without committing ourselves to a definite opinion as to the nearest affinity, we quite admit that these cases deserve to be put into a sub-group apart from the ordinary form of the rickets of children. Besides the desiderata to which Dr. Rehn has referred, it is greatly to be hoped that the further progress of such cases may be noted. Recovery seems to have been satisfactory so far as it was traced, but one would like to know if in any of them subsequent growth is specially retarded. The natural history of some very curious stunted children, such as one shown by Mr. Dent last year at the Pathological Society, and one by Mr. Barwell during the present session, has never yet been

worked out. Some of these cases appear to have had good maternal nourishment, the bone changes probably dating from a severe attack of some acute disease. The hypothesis with regard to his case was started by Mr. Dent that there had been some form of osteomalacia subsequently recovered from, but inducing arrested growth. In regard to both experimental investigation and clinical observation it is clear that we have a great deal to learn about the bone changes of infancy, but in the meantime our gratitude is due to Dr. Rehn for his valuable contribution.

THE SIGNIFICANCE OF THE BACILLUS OF TUBERCLE.

ALTHOUGH only a short time has elapsed since Koch's important discovery of the bacillus of tubercle was made known, facts are being rapidly accumulated in support of the truth of that discovery; observers in various parts of the world are engaged in the work, and in drawing conclusions from the facts observed. The subject is now forming material for debate at the Medical Society of London, where Dr. Whipple introduced it in connection with a case in which the detection of the organism proved of great service in establishing a diagnosis; and we publish a paper recently read before the Society of Medical Officers of Health by Dr. Heron, detailing his experience in sixty-two cases of phthisis of dissimilar type, and amongst individuals of different classes. Much no doubt remains to be established, and in particular should caution be used in arriving at conclusions respecting the question of the communicability of phthisis from one human being to another, which is, after all, the most important issue arising out of Koch's experiments. This is the question which, long a matter of popular belief, must now be submitted to the most rigorous scientific scrutiny, and seeing how vast a revolution it would make in the care and treatment of tuberculous individuals, we must not be content with anything short of actual demonstration of the fact of contagion. The discovery of the bacillus was not indeed a fact which was unexpected by pathologists. The whole pathological history of tuberculosis—its mostly local origin and frequent general diffusion throughout the body—pointed to its infective character, and a virus was assumed to exist years before it was associated with the presence of a definite micro-organism. The doctrine of Buhl, that miliary tuberculosis in a majority of cases resulted from the infection of a caseous focus, received greater significance when experimenters, as Villemin, Wilson Fox, and Sanderson, tested it by the inoculation of tubercle upon the lower animals, albeit their experiments proved too much in showing how prone rodent animals were to such disease upon the slightest irritation. Further, Cohnheim a few years ago fully and freely adopted the

doctrine of the infectiveness of tuberculosis, applying it not only to the possibility of the transference of the disease from man to man, but from animals to man—a conclusion which was further encouraged by such writers as Creighton, who advanced arguments in support of the transmission of bovine tuberculosis to the human species, through the consumption of the flesh or milk of the diseased animals. Thus, neither Baumgarten's work, nor that of Koch, came upon a world unprepared to accept their teachings. The conclusive and brilliant research of Koch was accepted all the more freely because it seemed to be the natural outcome of the slow growth of pathological inquiry upon the disease.

Pending the progress of the debate at the Medical Society it would hardly be advisable to enter fully into all the bearings of the subject, but there are a few points which seem to be fairly well established as arising out of the presence of this organism in tubercular material, points which were ably dealt with by Dr. Whipple and the speakers in the debate. The first of these is as to the nature of phthisis. All observers unite in saying that the bacillus is never present in the sputum unless the case is one of phthisis. For a generation and more the whole attention of pathologists has been directed to the subject of the nature of a disease that appears under so many forms, runs so varied a course in different cases, and presents such a complexity of lesions after death. Lænnec's criterion of tubercle, the tubercle corpuscle of Lebert, the giant cell of Schüppel, have one and all had their day, nothing pathognomonic or distinctive being found in their character or source. Of late years, it is true, not only the French, but the German school has so far reverted to Lænnec's teaching as to have arrived at the belief in the underlying presence of tubercle in every form of phthisis strictly so-called, a view that ten years ago was advanced by Dr. Wilson Fox before the Pathological Society, and opposed by several able pathologists imbued with the teaching of Virchow. If the bacillus be the constant concomitant of tubercular disease—if, in other words, Dr. Koch's researches be accepted and confirmed, as they are being, then at last we have a criterion of tubercular disease which will tend to establish, as Dr. Green pointed out, the doctrine of the "unity of phthisis." In this respect also, then, just as with the infectiveness of tuberculosis, Koch's research comes to verify an idea that was being slowly arrived at by pathological histologists.

Another point of advance is the aid given in the diagnosis and prognosis of tubercular disease by this discovery. Dr. Whipple's case illustrated its value on the former head. The case was one of that class in which the symptoms of pulmonary mischief were almost in abeyance, albuminuria and diarrhoea being its prominent features. Moreover, there was almost an entire absence of pyrexia throughout, so that the thermometric indications

of tuberculosis were wanting. As the case progressed, a few indeterminate physical signs appeared in the lungs, and an examination of the sputum revealed the presence of bacilli. In such a case, where the tubercular disease was suspected, but not proved, the detection of the bacillus clinched the diagnosis, which the post-mortem examination confirmed by revealing not only extensive tubercular ulceration of the bowels and lardaceous disease, but also widespread softening tubercle of the lungs. A case the converse of this was mentioned by Dr. Yeo. It presented the symptoms and signs of acute general tuberculosis, but repeated examinations of the sputum failed in detecting the bacillus. The patient died, and the lesions of typhoid fever were found, together with much bronchitis and pulmonary congestion, but not a trace of tubercle. Drs. Whipham and West both instanced other cases in which the absence of bacilli from the sputum accorded with the absence of clinical evidence of phthisis. Very interesting are the statements made as to the importance of these bacilli in prognosis. Drs. Heron and Gibbes have already pointed out that in the more rapidly progressive cases the bacillus is found in the sputum in great numbers, whereas in the more chronic forms it occurs quite scantily; and precisely the same observation has been made by Drs. Whipham and West, as well as by Balmer and Fraentzel. Dr. West supplied an explanation for this in the fact that the bacillus abounds in the caseous lining and contents of the pulmonary cavities, and may, therefore, be expected to be very abundant in the sputum in cases of rapid softening. This fact is one which deserves considerable attention, as bearing upon the supposed causal relation between the bacillus and the disease. We have yet to learn whether the very earliest stages of the disease are recognizable by the presence of the bacillus, and it is very interesting to learn from Dr. Whipham that in cases where the disease is arrested or is improving under treatment, they may be absent altogether. To clinical observations like these we require the addition of multiplied research into the diseased structures, and the bacillus must be found in the minutest granulation before assigning to it all the importance which is claimed for it.

The last point we will touch upon at present is the one to which we have already adverted as being by far the most important subject of all. What bearing has the discovery of the bacillus upon the doctrine that phthisis is contagious? The subject is one which is beset with difficulty, and most of us will agree with Drs. Whipham, Green, and West in approaching it with the greatest caution. For as Dr. Green pointed out, and as Dr. Richardson most strenuously urged, all that we know of consumption clinically is opposed to the notion. At any rate, there are other factors at work, such as an inherited tendency to the disease, and individual habits and surroundings

favoring its development, all of which have to be taken into the reckoning. Even looking at the subject from a wider point of view, and dealing with pulmonary phthisis as but one of many manifestations of tuberculosis, are we any nearer a solution of the question? Assuredly not; it yet remains to be proved that tuberculosis is contagious in the ordinary sense. Save in a few cases of almost direct breath-to-breath inhalation, we doubt if one practitioner in this country would affirm the proposition. Dr. Richardson said that in all his experience he had not seen one case that afforded support to this theory, and rightly pointed out that families predisposed to the disease and exposed to the infection, would be decimated on the development of a single case in their midst if the disease were contagious. The probability is that it will never be proved to be contagious in the ordinary sense—a view which by no means denies the truth of the facts as to its communicability by inoculation, which, as we have endeavored to show, are supported not only by the experiments of Koch, but by accumulating knowledge of the nature of tuberculosis. Let the fact of the inoculability of tubercle be first proved clinically, if it can be, before venturing to deal with the question of contagion at large, with all that would follow from the acceptance of the latter.

At present it may even be going too far to compare tuberculosis with such inoculable diseases as vaccinia and syphilis. Vaccinia is a disease in the virus of which a specific organism has been found; of its inoculability there can be no question, but of its spread by aerial contagion there is equally no ground for belief. Syphilis has even closer analogy with tuberculosis, but it is not contagious save by the direct transference of its virus. Is it not probable that the tubercular virus is conditioned by similar limitations, to which may also, in the majority of cases, be added the existence of other factors, of which there is danger of losing sight in the premature adoption of one narrow view?

VIVISECTION IN MANCHESTER.

THE views of persons possessed of common sense, to say nothing of those of scientific men, in the matter of vivisection have had a triumph in Manchester, which cannot long be delayed elsewhere. A great Anti-vivisection meeting was called by the International Association for the Total Suppression of Vivisection, and the resolutions proposed were rejected by constantly increasing majorities. The last one, barring a vote of thanks to the Chairman, was supported by only four hands. The three resolutions of the International Association and their fate are as follows:

"The Rev. H. N. Oxenham moved, 'that the practice of vivisection is directly opposed to the elementary principles of justice and morality implanted by a beneficent Creator in the hearts of men.'"

An amendment by Professor Arthur Gamgee was

decided to be irrelevant by the chairmen (Mr. J. B. McKerrow), who said that it had been determined, whatever happened, to put all the resolutions to the meeting. The resolution, being put, was lost, according to the report in the *Manchester Times*, "by at least twenty votes to one." The second resolution, equally characteristic, and moved in an equally characteristic speech by the Rev. W. A. O'Connor, was to this effect:—

"That the practice is not only immoral in itself, but necessarily tends, as is proved by professional evidence, to demoralize those who witness or take part in it."

This was lost says our contemporary, by an even larger majority than the former. The last resolution saving one of thanks to the chair, was—

"That vivisection may be shown, on the highest medical authority, to be useless as an instrument of scientific discovery, while it has served to suggest and perpetuate grave scientific error."

Only four hands were held up for this resolution. The discomforture of the anti-vivisectionists was complete. Of course they have a ready explanation—"The unfortunate absence of any experienced practical physiologist on their side"—(by the way, was there ever a meeting with an experienced practical physiologist on the side of the anti-vivisectionists?)—"the meeting was packed by medical students, etc., etc."—as if a public meeting in Manchester, called by the anti-vivisectionists, of 800 or 900 people could be packed by medical students. The result is far more easily accounted for. We unhesitatingly apportion the credit of the result equally in three directions: first, to the dignified statement of Professor Gamgee, characterized by scientific accuracy, by humanity, and by moderation; secondly, to the fanaticism and recklessness of the speeches of the promoters of the meeting; and thirdly, to the common sense of the people of Manchester, who are at once too shrewd and too religious to doubt that man is of more value than many rabbits and dogs, and that if the supreme right of killing and eating animals be allowed, it must carry the right—humanely exercised—of using them for experimentation that may conduce to the saving of human life. The power of Professor Gamgee's speech was chiefly in showing how sparingly and considerably the right of vivisection is used in England. He said he was convinced that during the last year in England there had not been twenty animals which had been put to pain in all the physiological laboratories put together. This statement was rudely used by one speaker, but it was not seriously refuted. We are sorry to notice that reverend gentlemen took charge of the extreme resolutions, and said the most absurd things about scientific men. They should really remember their own doctrines—to speak evil of no man; and especially to cultivate, if not a little charity, at least a little accuracy of statement, when traducing men who in the estimation of the public are as humane and religious as themselves.

PROFESSOR GRAHAM BELL'S EXPERIMENTS ON THE DETECTION OF METALLIC MASSES IN THE HUMAN BODY BY THE INDUCTION BALANCE.

Our readers will remember that an attempt was made to determine the position of the bullet in the body of the late President Garfield by means of an induction balance; it was, however, only partially successful, in that it afforded no evidence in support of the belief of the attending surgeons, that the bullet had travelled down on the right side, and at the same time failed to indicate where the ball really was, on account of its being placed at such a great depth from the surface. At the annual meeting of the American Association for the Advancement of Science held last August in Montreal, Professor Graham Bell read a paper in which he described the series of important experiments and researches which he had made with a view to render this instrument of real service to the surgeon in cases of gunshot wounds.

After referring to the discovery of the induction balance in 1841 by Professor Dove in Germany, and to the improved form of it invented by Professor D. E. Hughes, Professor Bell describes the simple form which he at first used. This consisted of two flat spirals of insulated wire, through one of which a rapidly interrupted voltaic current was passed, while its field of induction was examined by means of a telephone attached to the other; the currents induced in the latter producing a musical tone in the telephone. At every point in the field of induction, it was found that by turning the plane of the exploring coil a position of silence and another of maximum sound at right angles to it could be obtained. When the coils were in a position of silence, a piece of metal brought within the field of induction caused the telephone to sound; this effect was most marked when the spirals were in close proximity, and arranged with their planes parallel. The sound was most intense when the metal was brought over the spot where the two spiral coils overlapped.

Many suggestions as to the best form of construction of a practically useful induction balance were offered and tested, and numerous original experiments were undertaken by Professor Bell, which are all detailed in the paper before us. From these he learned that a better result was obtained by making the primary coil of greater diameter than the secondary, and by projecting the plane of the secondary considerably beyond that of the primary. It was further found advantageous to use a battery of great electro-motive force and slight internal resistance, and to connect the cells in series. At the suggestion of Professor Rowland a condenser was introduced into the apparatus, and it was found that this not only produced a different quality of sound, but also increased the hearing distance of the instrument. The problem then revolved itself into the construc-

tion of the most serviceable induction balance, and after many trials Professor Bell returns to his original form of two flat spirals, which he places in a recess turned out of a single block of wood; the coils are then temporarily connected with a battery, rheophore, and telephone, and are adjusted to the position of silence; the hollow in the wood is then filled with melted paraffine, and, on cooling, the coils are immovably fixed in a solid cake of this material. Practically, it is found to be impossible to fix the coils in their position of complete silence; but this is secured by introducing two other small coils of insignificant resistance, by means of which a kind of fine adjustment is obtained and a perfect balance easily secured. Metal may be introduced into this apparatus provided it is not placed over the spot where one coil overlaps the other. With this form of instrument President Garfield was carefully examined. No telephonic sound was heard down the right side of the abdomen, where the ball was believed to be lodged; but, raised above the trunk, an area of feeble sound was observed, which turned out to be caused by the wire mattress upon which the patient was lying. This examination led only to a negative conclusion, that the bullet was not where it had been formerly supposed to lie, but was embedded in the tissues too deep to affect the balance; the autopsy showed this to be the case. On Oct. 7th further experiments were made on patients at the house of Dr. Frank Hamilton. In one case, a bullet which had lodged in the right antrum was readily localized. The other case, used for experiment, was more striking; it was that of a man who, during the civil war in 1862, received a wound from a ball which passed through the sternal end of the left clavicle, and was supposed to have lodged in the muscles under the superior angle of the left scapula, and the symptoms confirmed this view; eighteen months later an abscess formed on the chest, and opened below the fifth rib to the left of the sternum. In this case the coils were moved over that portion of the back where the ball was supposed to be, but there was no response; when, however, they were moved along the front of the chest, at once a "loud and distinct" response was obtained over an area of about one square inch. The ball was actually "found to be within the thorax, probably in immediate contact with the inner surface of the ribs, the point being a little to the left of the sternum, between the third and fourth ribs."

In every case the instrument is more sensitive to metal placed inside the exploring coil than outside, and an apparatus devised by Mr. S. Tainter permits of this being readily done. In his instrument the exploring part consists of one coil only, which may be made in the form of a large ring consisting of several turns of thick insulated wire, which can be slipped around a limb. All the adjustments are made upon the stationary part of the instrument. When this is used, the loudest sound

will be produced when the ball is in the plane of the ring, and if the ring is slipped up the limb in three different planes, and the positions of loudest notes marked, the point where these three lines intersect will exactly localize the bullet. A similar ring might be made, consisting of a double wire, and be used in the same manner. The drawback to this modification of Professor Tainter's is that it does not detect metal at so great a distance from the explorer as Bell's apparatus.

Professor Bell also suggests that, either for the detection of bullets or for the estimation of the depth of a ball already localized by the induction balance, a simple electrical contrivance may be employed. It consists of a telephone, to one terminal of which a fine needle is fixed, and to the other a plate of metal of the same nature as the needle. The plate is placed on a limb to be examined, and the needle is thrust in where the bullet is believed to be, and when it strikes the ball, a galvanic battery is formed within the body, the two poles of which are the bullet and the metal plate. This will cause a click to be heard in the telephone each time the bullet is struck. This is a far simpler apparatus than the induction balance, and one far more easily procured, and it would be well if surgeons called upon to treat cases of gunshot wounds would test its practical utility. Professor Graham Bell's efforts to apply electricity to practical surgery are most praiseworthy, and the results he has obtained merit the attention of surgeons.

Reviews and Notices of Books.

A Treatise on Surgery; its Principles and Practice.
By T. HOLMES, M.A. Cantab., Surgeon to St. George's Hospital. With 418 Illustrations. Third Edition. London: Smith, Elder & Co. 1882.

MR. HOLMES may fairly be congratulated on the fact that a third edition of his book has been so speedily called for. This is in itself sufficient evidence that it is felt to meet the want of students. The literary ability of the author is acknowledged by all, and the style in which the volume is written is such as to justify his reputation. He has had, too, a long experience at St. George's Hospital, and is qualified to speak with authority on points of surgical practice; moreover, his position as a teacher, and more recently as an examiner, has made him well acquainted with the difficulties of students. This edition has been carefully and thoroughly revised, and while Mr. Holmes has forbore to introduce the novelties of surgical theory and practice, he has attempted to incorporate all those real and generally accepted advances that have been made during the last few years. As before, the work is well produced; it is clearly printed, on good paper, and the illustrations are both numerous and good. A strange error, however, has been allowed, evidently by inadvertence, to creep into one of them. On page 843 a woodcut to illustrate the operation of tapping a hydrocele is introduced, and the surgeon is represented as holding the trocar in his left hand. Mr. Holmes

speaks in no ambiguous terms of the value of Mr. Lister's mode of treating wounds. These are his words: "I cannot but express my own strong conviction of the value of the method of dressing wounds which Mr. Lister has introduced. I have frequently ascertained by thermometric and other observations, and pointed out to others, the perfect immunity from traumatic fever which in some cases follows even the gravest injuries or operations thus treated. . . . and on that account I advocate the use of the system, as well as on account of its utility in hospital practice; for it necessitates the dressing of important cases by the surgeons or house-surgeons themselves, and almost excludes the possibility of any subsequent inoculation." The style in which Mr. Holmes has chosen to write his book appears to be not specially well adapted for precision of statement, and as we have glanced through the work some points in which this want of accuracy and incompleteness of detail have appeared to us important have arrested attention. We indicate them here in the hope that they may be remedied in a future edition. Thus in reference to the antiseptic treatment of wounds no stronger solution of carbolic acid than one in forty is anywhere mentioned, and this is recommended for the cleansing of wounds already made, and for use in the spray producer. The same lotion is also stated to be efficient for cleansing putrefying sinuses. The "six or eight" layers of antiseptic gauze applied as the dressing are stated to be covered "with a light macintosh cloth which surrounds and overlaps the whole, in order to prevent the discharge from saturating the gauze." The directions for securing free drainage are equally wanting in accuracy: "Drainage of putrefiable matters is therefore secured by insertion into the wound, in any convenient part or parts, of a drainage-tube, or a piece of lint, or skein of horse-hair rendered antiseptic by immersion in carbolized oil; but the drain must not project beyond the antiseptic dressing any more than the 'protective' must, otherwise they would serve to conduct the undiluted atmosphere to the wound." The "deep dressing" is nowhere mentioned at all. The proper mode of preparing antiseptic catgut ligatures is also a matter which Mr. Holmes does not describe. Iodoform is not mentioned as an antiseptic agent; even Esmarch's striking results are not recorded. This agent is now so widely used that the student may fairly expect to find in his surgical text-book some allusion to its mode of application and uses. Since Mr. Holmes is able to advocate the use of the antiseptic treatment, it is a pity that he did not describe all its details with more precision. We are surprised to find Mr. Holmes teaching that compound fractures "unite in a very different manner from simple;" for while it is no doubt true that they are often attended with suppuration, sloughing, necrosis, and other complications, yet there is no *essential* difference in the process by which the break in the bone is made good. Lymph is exuded in both cases; this lymph comes from the same tissues, and it organizes into bone in each case alike; and in very many instances either Nature or art converts a compound into a simple fracture. We would not conceal from the student the obvious and oftentimes important differences that are met with in some cases; but it is not of chief importance, at any rate at first, to insist on the *uniformity* of Nature's processes, and only after this has been realized to point out the variations which occur, most often as the result of preventable conditions? An omission and an evident oversight in this same chapter will not escape notice. Nowhere do we find any reference to the blebs which to the uninitiated appear so threatening in many cases of fracture.

Their frequency of occurrence and their innocuousness make them worthy of notice; while the fact that they are of use in enabling the surgeon to diagnose a fracture when complicated with great oedema preventing proper examination of a bone, clothes them with actual importance. The error is in the statement that among the disturbances of health which may cause delay in the union of a bone, "disease of the kidneys, leading to a phosphatic state of the urine," is common. Mr. Holmes does not require to be reminded that excessive excretion of phosphates is never due to functional or structural disease of the kidneys, but to excess of those salts in the blood; while in the majority of cases in which phosphates are deposited from urine, the cause is to be found in deficient acidity of that excretion. In discussing the question of the passage of foreign bodies into the larynx, Mr. Holmes expresses his conviction that this may occur during swallowing, "without an inhalation." In support of this view he cites two cases, one of which is that of an adult, who "got a large piece of rabbit bone into the upper part of the larynx in consequence of laughing whilst he was eating soup." This appears to us to be an excellent and typical example of just the reverse, for can it be doubted that the piece of bone was drawn into the larynx by the forced sudden inspiration which followed the succession of expulsive expirations constituting the laugh?

As another instance of ambiguity that should be remedied in the next edition we would refer to the description of the lesion in Pott's fracture: it is not distinctly stated whether the dislocation is complete or partial, but we can well believe that the student would understand the phrase, "the astragalus is separated from the tibia," as applicable only to a complete dislocation of the joint. We regret to see that the term "canceroid" is applied by Mr. Holmes to "locally malignant" tumours. Such a use of the term is likely to give rise to serious misunderstanding; for it was originally employed to designate epithelioma, and is now commonly used in that sense, especially by French and German pathologists.

The chapter on Diseases of the Breast appears not to have received such careful revision as some others, and to be hardly worthy of such a very important, and withal frequent, group of affections. The etiology of "lacteal abscess" is thus described: "The common cause of inflammation of the breast is irritation in suckling, and usually in women who persist in doing so when in too weak a condition to bear it. Its cause is often to be found in an imperfect development of the nipple. The woman is generally a primipara, and the abscess usually occurs within a month after delivery." Each of these statements is no doubt true, but yet we think they are so made as to convey a wrong impression to the student, if indeed they do not confuse him. A deformed or diseased nipple obstructing the outflow of the milk will lead to abscess usually early in lactation, and often of course in primiparae, but this form has nothing in common etiologically with that due to over-lactation, and which occurs most often after months of suckling. The stage of milk congestion which precedes that of inflammation and abscess, and the proper treatment of which is so successful in preventing the latter, is not mentioned, nor is the very useful power of belladonna to check the lacteal secretion referred to. Chronic abscess of the breast is described as only occurring at puberty; we have not been able to find any mention of it as associated with lactation or abortion, or occurring after puberty. Mr. Holmes has no doubt seen chronic abscesses occurring at puberty, or he would not have described them, but it has been our lot to

see only acute abscesses at that period, and these have been nearly invariably superficial to the gland, and just beneath the areola. And we can hardly believe that Mr. Holmes is not familiar with the small chronic abscesses occurring often long after delivery or abortion, in women later in life, which at times are so difficult to diagnose from malignant tumours. The importance of these is such that Mr. Erichsen gives a special table of diagnosis. Apart from this, however, Mr. Holmes has omitted to give any directions for the treatment of these chronic abscesses. Again, the subject of tumours of the breast is incomplete. The work of Dr. S. Gross appears not to have been appreciated by Mr. Holmes, as he gives only the imperfect pathology of more than ten years ago, and states that cancer sometimes occurs "in the form of a defined mass separated from the gland by a distinct capsule." The most valuable sign of cancer of the breast—its fixity in the gland—is omitted altogether, while prominence is given to that popular but unreliable symptom, "lancinating pain in the chest and neck and down the arm." In the discussion of the cases suitable for operation, the facts of the age of the patient, the variety of the cancer, and its rapidity of growth, all of them of prime importance, are not alluded to at all.

A Treatise on Diseases of the Liver, with and without Jaundice. By Dr. GEORGE HARLEY, F.R.S., F.R.C.P., etc. London: J. & A. Churchill. 1883.

To those readers and practitioners who are familiar with the works of Budd, Frerichs and Murchison on the Diseases of the Liver, this treatise will be a great surprise. We had become so accustomed to brevity and method, that we are hardly prepared to find the same affections treated in the discursive and sketchy manner which the author of the present volume has chosen to adopt. Instead of handy, closely-printed volumes, with the materials of the subject compressed into five or six hundred pages, we have now presented to us a large book of eleven hundred pages, with much marginal space, and the widest letterpress, containing Dr. Harley's views on the pathology, diagnosis, and treatment of the diseases of the liver, with any digressions in which it may please the author to indulge, and not a concise, well-reasoned, and orderly statement of what is generally known of such affections by most well-informed physicians of the present day. The work therefore is of value in showing us what the author thinks of liver diseases, and in what respects he differs from other observers who have given special attention to the same subjects. The author's motto, that "true science is the key to wise practice," is sound enough, but surely he goes very far in the statement that the class of "scientific physicians" who, in addition to the ordinary routine, have spent some time in a physiological and chemical laboratory, is as yet a very small one. For the clinical teacher and observer who may even be conversant with physiological chemistry, and who, looking at its changes during the past twenty or thirty years, may hesitate to follow Dr. Harley in his inferences, and may consider some of his conclusions rash and perhaps liable to modification in the near future, even if not at the present time, our author cannot too strongly express his scorn and contempt. Some twenty years ago Dr. Harley published a small monograph on Jaundice, in which he divided all cases into those due to obstruction to the passage of bile into the intestines and those due to suppression of the

secretion, and he laid especial stress on the presence or absence of the bile-acids in the urine in regard to the differential diagnosis between these important conditions. Observer after observer failed in applying his simple test to cases of jaundice, and were consequently often led into error. Now we find that the test has not always succeeded even in the hands of the author, and "practical" physicians are told that in a treatise like this, intended for practical medical men, it is of no use to talk to them about the mode of chemically detecting bile-acids, but their scientific brethren may avail themselves of Hoppe's, Neukommen's, or Hilyer's method. The last is roughly and too incidentally described to be of any real use. However, the reference to it in the Chemical Society's Journal, 1876, page 445, is of value to those who may wish to undertake such an analysis. It is just possible that in another twenty years some of the views so positively laid down in this volume may also require considerable modifications. We should like a distinct and logical statement of the experimental data on which the following theory is founded. "In the human body not only is starch rapidly transformed into sugar, but sugar into non-crystallizable fat, and fat again in its turn into crystalline cholesterolin." We question whether any scientific proofs of the latter part of this statement be forthcoming, and yet this is the pivot on which Dr. Harley mainly rests his treatment for the prevention of gall-stones. The practice may be a good one, but the method by which it is arrived at is unworthy of the name of science. In many respects the work is extremely interesting, and although digressions from the main subject occur in almost every chapter, we are never bored; and everyone who is anxious to know the views of an observer who thinks for himself and is unbiassed by the views of other writers, will read it with great pleasure. The illustrative cases are told in a most amusing manner, the remarks on the mistakes of other medical men are not wanting in vigor even if they are not always in the best of taste, and the digressions themselves are in every case distinguished by the style and personality of the writer. It is not often that in a medical treatise, ostensibly scientific from beginning to end, we find so little with which modern physiologists and chemists would agree, but to compensate for this we are amused with disquisitions on spelling reform, the distinctions between a chemist and a druggist, the differences between scientific and practical physicians, the position of the mercurialists and anti-mercurialists, the A 1 character of the author's champagne, the drink of the Fiji islander and the food of the Chinook Indians. These and many more quaint tales and opinions will be found in this volume as well as more rational and interesting opinions on hepatic diseases and their treatment. Every credit is due to Messrs. Churchill for the excellent manner in which the treatise has been printed and published, and the illustrations, especially the two chromolithographs, are worthy of much praise.

Manuals of Elementary Science: Physiology. By F. LE GROS CLARK. Pp. 143. Society for Promoting Christian Knowledge. 1882.

This is a sufficiently complete and accurate little text-book. We presume it is intended for the higher classes in schools and for those who desire to obtain a rudimentary knowledge of physiology. We notice, however, a few errors. Mr. Clark speaks of the red corpuscles as "disks or cells." The term cell should be dropped. Whatever the corpuscles may be, they are not cells. The esti-

mated three ounces for the capacity of each ventricle is surely a little too low. The veins are said to have coats that are feeble than those of the arteries, but this is not so. A large vein will require a greater pressure to burst it than an artery of corresponding size. These, however, are slight slips of the pen, and, on the whole, the description of each organ would be intelligible to any moderately educated person.

A Handbook of House Sanitation for the Use of all persons seeking a Healthy Home. By EARDLEY BAILEY-DENTON, C.E. Enlarged and Revised by his Son, EARDLEY F. BAILEY-DENTON, C.E., B.A. Oxon. 8vo, pp. 218. London: Spon. 1882.

Wholesome Houses; a Handbook of Domestic Sanitation and Ventilation. By E. GREGSON BANNER, C.E. 8vo, pp. 124. London: Stanford. 1882.

Lectures on the Science and Art of Sanitary Plumbing. By S. STEVENS HELLYER. 8vo, pp. 332. London: Batsford. 1882.

It is very remarkable how little the sanitary conditions of the houses in which we dwell have been the subject of consideration by the general mass of the people. The smart outside appearance of the house, and still more of the "desirable villa residence," the existence in it of water-closets and possibly baths, and the assurance that it is drained into the main sewer, and that the drains are trapped, are too often all that are considered necessary by the coming householder, without any steps being taken to ascertain that the site of the house is dry and wholesome, that the closets, etc., are of good construction, and in working order, and that the drains are well laid, efficiently trapped, and thoroughly ventilated. It is a melancholy fact that many of those to whom the building and fitting of dwelling-houses are entrusted are either profoundly ignorant of the principles of sanitary construction, or culpably negligent in their application. In too many instances, also, where the knowledge exists and its practical application is intended, the work is, we fear, entrusted to incompetent hands and carried out without efficient and intelligent supervision. The result is that the defects are only found out by their consequences as shown in the broken-down general health of the inmates of the house, or by an outbreak of diphtheria or fever. That this is no imaginary picture has been proved by the history of too many families. During the last twenty years much has been done to improve the general public health, and to enforce attention to the sanitary conditions of towns, but these measures have not as yet had much effect in awakening the bulk of the public to the necessity of individual watchfulness over the state of their homes with a view to detect the causes of disease as they become developed, and adopt the necessary measures for their removal. In this direction much useful work may be done, and Mr. Bailey-Denton's Handbook of Sanitation is a valuable contribution to the knowledge of what is required and how it may be effected. He explains the conditions required in a house to ensure it being healthy—the external, including site, drainage, and construction, and the various methods of removing and disposing of the refuse, liquid and solid—and the internal, under which come the water-closets, baths, and lavatories, with a description of the various traps in use to prevent the introduction of noxious gases, and the different systems of ventilation. The second portion of the book is devoted to the important subject of water—

its qualities, sources of supply, storage and filtration, and distribution. On all these topics Mr. Bailey-Denton gives a clear, intelligible, and, as it appears to us, an impartial account of the various systems in vogue, with a statement of their relative advantages and drawbacks, and his descriptions of the various arrangements are illustrated by excellent woodcuts, which render his remarks easily understood. We consider this book to be one well deserving the careful study of architects, sanitary engineers, and medical men, and worthy also of the attention of educated non-professional persons who take an interest in questions relating to the health of the people. It bears the impress of thorough knowledge, theoretical and practical, of the subject of which it treats.

Mr. Banner's work has been written avowedly with the same purpose as the preceding, that of showing how to make wholesome houses; but he has confined himself to two subjects—ventilation and house-drainage. In both of these he recommends the system which he has invented under the name of the Banner System, and appends numerous testimonials of its efficacy, and a list of some of the more important places where it has been successfully adopted. The book deserves to be well considered by those who have to decide upon the system to be adopted in fitting a house; but it must not be forgotten that it is an exposition of one system only, and should be studied in comparison with others. This construction of trapless water-closets appears open to serious objections, even with the perfect ventilation of the soil-pipe ensured by the "Banner system."

The third book on the list may be considered as complementary to the other two. It treats of sanitary plumbing, a branch of work highly necessary in carrying out the construction of wholesome houses. The lectures were originally delivered at the request of the National Health Society, and were intended for the instruction of the workmen in that branch of trade, but they are of a character to be useful also to the employers and to all who may be called upon to report on the sanitary condition of dwellings. The description of the mode in which the work ought to be done is evidently that of a man who thoroughly understands it, and who does not hesitate to show up the defective way in which it is too often executed. It cannot fail to be useful by enabling those interested in the sanitary state of a house to detect flaws which might be productive of serious consequences, and to judge whether the proper remedy is applied and the work satisfactorily carried out. The author concludes his lectures with a very brief but useful "Code of Rules for House-Sanitation." This volume and Mr. Bailey-Denton's have each the advantage of a carefully-prepared index.

A System of Surgery, etc. By SAMUEL D. GROSS, M.D., D.C.L. Oxon., LL. D. Cantab., Emeritus Professor of Surgery in the Jefferson Medical College. Sixth Edition, Two Volumes. London: Smith, Elder, & Co. 1882.

Lectures on Surgery. By JAMES SPENCE, F.R.S.E., Surgeon to the Queen in Scotland, Professor of Surgery in the University of Edinburgh, etc. Third Edition. Two Volumes. Edinburgh: Adam and Charles Black. 1882.

We have placed these books together partly because they happen to have reached a new edition about the same time, and partly because, in spite of some differences, they possess many features

in common. Each is written by a teacher of unusually large experience; each is based on a long course of professorial lectures on systematic surgery, and each is almost exclusively the work of one hand. These characteristics suggest some reflections on the changes that are gradually revolutionizing professional literature.

Whether for good or for evil, the day seems to be rapidly dawning when works like those named at the head of this notice will become extinct. The growth and differentiation of medical and surgical knowledge, the increasing complexity of professional affairs, the continuous evolution of specialties in practice will tend to throw the bulk of medical writings more and more into the hands of experts. Already the shadow of the new order of things is upon us. Systems, dictionaries, and cyclopædias, by many hands, spring up like mushrooms, and threaten to extinguish the old-fashioned treatises framed upon antecedent lectures in which our fathers delighted. The latest development of the innovation has assumed the form of an "International" Cyclopædia of Surgery, owning, it is needless to remark, a transatlantic origin. To all this there is no serious objection, provided the purposes for which these books are compiled are not lost sight of or misunderstood. Works of reference are becoming increasingly necessary in every department of knowledge, and it is essential that the material out of which they are formed should be drawn from trustworthy sources. Accuracy and multiplicity of details are the chief desiderata in a work of reference. But in works intended for primary instruction something else is needed. Lucidity, method, and consistency now become paramount. What Descartes has said of philosophical systems and the various forms of knowledge may be applied to the construction of all educational works. "There is," he says, "seldom so much perfection in works composed of many separate parts, upon which different hands have been employed, as in those completed by a single master"; and, by way of illustration, he adds, "The sciences contained in books (such of them, at least, as are made up of probable reasonings without demonstrations), composed as they are of the opinions of many different individuals massed together, are farther removed from truth than the simple inferences which a man of good sense, using his natural and unprejudiced judgment, draws respecting the matters of his experience." This is especially true of medical writings. A cyclopædia of multiplex origin is usually a heterogeneous mass of detail forming a grotesque and incongruous whole. Some of the articles may possess technical merit, but many are crude collections of isolated facts, and occasionally it happens that two or more articles in the same volume are mutually destructive. On the other hand, a work by a "single master" will not only be free from these defects, but it will exhibit a unity of purpose and a harmony of effect indispensable to the elucidation of fundamental principles and the inculcation of knowledge. For the attainment of these ends the conditions of medical authorship would require to be more strictly imposed. Though there may be many teachers, few possess all the qualifications needed to write a systematic treatise on any branch of medical science. Mere ability will not suffice; the task demands a combination of talents rarely bestowed on one individual. A writer and teacher of the highest rank needs not only an active and cultivated intelligence, but he should in addition possess the instincts of a scientist and the insight of a philosopher. His faculty of observation should be prompt and unerring, his reason clear, his judgment sound; his knowledge of medical litera-

ture, methods, systems, and doctrines should be wide and accurate; and his acquaintance with collateral learning thorough, if not familiar. Doubtless many an author has attained popularity without these qualities; though none, perhaps, has acquired classic fame who did not possess them in some degree. The difficulties are, of course, greater now than formerly. It is not possible for one person to be adept in every department of medical and surgical knowledge; but it is not necessary that a man should be a polymath to be a successful and even a great teacher. Sound knowledge is indispensable, but soundness of knowledge implies depth rather than extent, and consists, as has been well said by the author of the "Intellectual Life," in "the complete possession of its essential parts." The essential parts of every art are the principles underlying it, not all the details of their application. Indeed, the bane of modern education is that soundness is sacrificed to versatility and facts made to assume the place of principle. This suggests the inquiry whether the art, no less than the science, of medicine is not greatly hampered by the circumstances of professional life, and whether each should not have its proper professors. As matters now stand, almost every medical teacher who is not possessed of private fortune has to discharge three distinct and independent duties which are always more or less conflicting and often antagonistic. He has to distribute his time and energies over research, exposition, and practice. The successful performance of one of these tasks often militates against an effectual prosecution of the others. Harvey, the scientist and philosopher, wellnigh ruined Harvey, the medical practitioner. "After his book on the 'circulation of the blood' came out, he fell mightily in his practice; 'twas believed by the vulgar that he was crack-brained and all the physicians were against him." Whether the discoverer of the circulation of the blood was better employed in investigating the mysteries of biology, or exercising himself in "his therapeutic way" by writing prescriptions for which few practitioners would "have given threepence," it is scarcely necessary to ask. The impracticability of attempting to combine the scientist, the philosopher, and physician has been repeatedly demonstrated.

Kant, nearly a century ago, in reference to the necessity of a division of labor, said: "It might deserve to be considered whether pure philosophy in all its parts does not require a man specially devoted to it, and whether it would not be better for the whole business of science if those who, to please the taste of the public, are wont to blend the rational and empirical elements together, mixed in all sorts of proportions unknown to themselves, and who call themselves independent thinkers, giving the name of minute philosophers to those who apply themselves to the rational part only—if these, I say, were warned not to carry on two employments together which differ widely in the treatment they demand, for each of which a special talent is required, and the combination of which in one person only produces bunglers. But I only ask here whether the nature of science does not require that we should always carefully separate the empirical from the rational part."

The duty of the medical practitioner as such, is to diagnose and treat disease, and to employ those means that science has placed within his reach for the prevention, alleviation, or eradication of human suffering. It is no part of his task to attempt the solution of abstruse biological problems. And so he who is fitted by natural tastes, aptitudes, and mental habits to engage in scientific search should not be distracted by the consuming cares

of professional practice or wearied by the tedium of elementary teaching. John Hunter, resentful at the interruption of his dissections by the necessity of earning that "guinea," manifested the genuine spirit of a scientific worker. Between the two extremes of the scientific worker and the practical physician the teacher will find his true place and purpose. He should unite in himself the shrewdness of the practitioner and the enthusiasm of the investigator. While utilizing the labors of both, he should preserve himself from their prejudices. His mission is to expound the doctrines of science, not to bolster up theories whether of his own devising or of another's; and even in teaching medical art he must be neither apologist nor partisan. His privilege is to foster thought in others, and to influence the mind and character of his pupils. This he can only do by keeping his own mind free of degrading prejudices and jealousies. In the words of Locke he "should keep perfect indifference for all opinions; not wish any of them true, or try to make them appear so, but, by being indifferent, receive and embrace them according as evidence, and that alone, gives the attestation of truth." This is impossible as long as success in practice is the goal at which every medical teacher has to aim. Profundity of thought is not to be expected in one who is distracted by the struggles of professional existence, nor judicial impartiality in a competitor for patients. Whether the attractions of teaching will ever supersede those of lucrative practice may be doubtful, but until they do, it is certain that, as heretofore, the greatest teacher will always sooner or later be lost in the fashionable and prosperous practitioner.

We have purposely abstained from comment or criticism of the books before us. They have formerly been noticed more than once in our columns, and it is enough now to remark that the present editions fully maintain the reputation the works have acquired. We have preferred to confine ourselves to a consideration of the conditions out of which they have arisen, and to throw out some hints for the reform of medical teaching and education.

One word in parting. Though Professor Gross's book is the outcome of his college lectures, the several parts have been extended, elaborated, and amplified, till it has become a complete and systematic book of reference alike for the student and the practitioner. The late Professor Spence's work, on the contrary, preserves its original character of university lectures, and as such affords a useful guide to the principles of surgery. A close scrutiny could discover defects, and here and there, perhaps, a few errors, but in its entirety the book is deserving not only of confidence, but of praise. We cannot do better than close this notice with the touching announcement prefixed to the second volume:—"The last line of this volume has been corrected, the last proof returned from the hands of the printer, when death removed its author from our midst; so the end of the work and of the worker have come together. The present edition is therefore in every way the perfect and ripe fruit of his experience."

Essentials of Vaccination. By W. A. HARDAWAY, M. D. Chicago: Jansen, McClurg & Co. 1882.

THIS work professes to deal in a short compass with the whole question of vaccination, and its author has certainly succeeded in his attempt. Beginning with a general history of the subject, it is shown that vaccination was known in many isolated places before 1775, as, for example, amongst

the mountaineers of Mexico; but this fact admittedly in no way detracts from the exact and convincing character of Jenner's discovery. It is taken for granted that there is such a thing as spontaneous vaccinia in the cow, although it is said the disease is rare in America. Several chapters are devoted to such subjects as the history of variola in animals, to the course of vaccinia in the human subject, and some account is given of Reynaud's experiments as to the absorption by the lymphatics of the vaccine virus. Dealing with the question of revaccination, the author insists that the value of the protection afforded is in direct proportion to the thoroughness of the vaccination, and to the quality of the lymph employed; he evidently disregards the notion, which we must admit to be somewhat antiquated, that one revaccination only is necessary in connection with the age of puberty, and he favors its somewhat frequent repetition even when no immediate danger of infection prevails. A large part of the work relates to the respective merits of bovine and humanized lymph, and in connection with the subject of revaccination the author alleges that the virus which has gone through many successive transmissions does lose much of its prophylactic influence. Several authors are quoted as to this, but we cannot forget that the nurses in our small-pox hospitals are revaccinated once only with humanized lymph, and that they retain their immunity from an attack of small-pox notwithstanding.

It is also contended that vaccination with heifer lymph is as easy of accomplishment in equally skilled hands as with humanized lymph, and Dr. Warlomont's success as regards every insertion in 300 children is referred to. This, however, was with fresh lymph; whereas in the case of heifer lymph there must necessarily be a much more frequent resort to preserved lymph than in the case of lymph taken from the arms of children. Besides which, out of 2,727 operations by Dr. Carstan, whose experience is also quoted, success at every insertion was only obtained in 1,563 cases. The remaining 1,164 therefore gave some measure of insertion-failure, a proportion unknown in this country in the hands of skilled vaccinators using humanized lymph. Throughout the volume there is a strong leaning towards the abandonment of what we term arm-to-arm vaccination. Some of the reasons given are sound; certain dangers can be avoided, and some of the objections to the operations are more easily set aside. But the advantages of heifer lymph are, we think, exaggerated. Thus, it is hinted that if the vaccination be performed with such lymph, it is unnecessary to produce the same amount of local effect requisite when humanized lymph is resorted to—an opinion which we believe cannot be supported by any known experience. The questions of insusceptibility to vaccination, of erysipelas following on or due to vaccination, and the inoculation of syphilis, are also dealt with. The views of previous authors, such as Jenner, Marson, Seaton, Buchanan, and others are quoted on the various subjects dealt with, and care has evidently been taken to produce a useful hand-book on the question of vaccination in its several aspects, and especially in its relation to small-pox.

Muscles, Mind, and Morals; or, Hints on the Prolongation of Life. By EDWARD T. TIBBIS, M.D. 12mo. Pp. 94. London: Simpkin, Marshall & Co.

A SENSIBLY written little book, in which the importance of exercise in the maintenance of health is clearly laid down. While fully admitting the

correctness of the author's statements, we would just point out that the difficulty that arises with many men, in the metropolis at least, is the time which would be occupied in faithfully carrying out the plan he prescribes. Throughout many months of the year a walk before breakfast is for a Londoner out of the question; but immediately after breakfast work begins, and most men have to get to their offices as quickly as possible. During the day exercise is impracticable, and we somewhat question whether a two or four mile walk when the system is tired out on an empty stomach, say at five or six o'clock, is very serviceable. Dr. Tibbits would, we have no doubt, say "Why toil so hard? take things more easily." But, alas, time is money, and the work that comes to a man must be got through, well, if possible, but at all events got through. The rest of Dr. Tibbits' remarks are but an expansion of the old adage, "*mens sana in corpore sano*," and he shows in short compass the good influence that exercise duly maintained exerts not only upon the mind but the morals.

Legal Medicine. Part I. By GEORGE MEYMOTT TIDY, M.B., F.C.S. London: Smith, Elder & Co. 1882.

MR. TIDY is following in the wake of fashion, and has given to the world this first instalment of his treatise on Legal Medicine in a very ponderous form. The book is an octavo volume as large as one of the volumes of Ziemssen's Cyclopædia, and weighs nearly five pounds. The paper is thick, the type is large, and the margins are liberal, and to these features chiefly is due the size of the volume. The title-page bears an extract from one of Canon Liddon's sermons, and the volume is dedicated to Baron Huddleston, and thus divinity and law are made to assist as it were at the birth of this last offspring of legal medicine. The book is necessarily, to a great extent, a compilation; and the large number of cases and extracts from medico-legal writers and the medical journals will be found to be among the most useful of the contents of the volume. For the most part it does not differ materially from other works on medical jurisprudence; and the reader who is acquainted with Christison, Taylor, Guy, Ogston, and Orfila will be able to read much of these author's writings in the pages of Mr. Tidy. Certain portions are new, and although their right to be included in a treatise on legal medicine is open to question, they are nevertheless acceptable, for they relate mainly to the chemical part of the subject, and that, we take it, is the part in which Mr. Tidy feels most at home. Then there is an interesting chapter on Combustibles and Explosives, a subject upon which every intelligent man of science will be glad to have some definite knowledge. There is a section on Handwriting and Inks which is interesting, and another on Methods of Embalming, of which the medical jurist ought clearly to have some knowledge. There are twelve chapters in the present volume, which are devoted to Introductory matter, Death, Identity, Causes of Death, Post-mortem Examinations, Sex and Monstrosities, Life Assurance, etc., Heat and Cold, Burns and Scalds, Lightning, Combustibles and Explosives, and Starvation. Thus the present volume deals with but a small portion of medical jurisprudence. The introductory chapter, which was delivered in the form of a lecture at the London Hospital in May, 1881, is less of a compilation than the rest of the volume, and may be looked upon as the digested and matured views of the author. The paragraphs on the "Process of Law" are too meagre, and are deficient in advice as to the mode

of serving subpoenas and the responsibilities they entail, together with details which every medical witness requires to know. The advice is very properly given never to make a post-mortem examination in a hurry or by "artificial light"—although the reason for this latter piece of advice (sound enough in itself) strikes us as peculiar—viz., "*that certain important appearances (such as the yellow color of the skin induced by picric acid poisoning, etc.), might and probably would pass unnoticed.*" "Don't walk down Piccadilly in the dark for fear of not recognizing the Pope" is a parallel piece of advice. It is certainly a very chemical view of pathology.

Coming to the subject of Evidence, we find the following:

"Evidence is of two kinds—(1) *direct or positive*, and (2) *circumstantial*. Thus, if a witness were to say, '*I am certain that the prisoner is the man I saw knock the deceased person down.*' provided the witness is to be believed, such evidence is *positive*, and the jury have no alternative but to find a verdict in accordance with it. But if the witness were to say, '*To the best of my belief the prisoner is the man,*' explaining that at the time the crime was committed the night was dark or that he himself was flurried, then a doubt hangs over the evidence of identity, which at best is merely *circumstantial*."

Mr. Tidy, we hope, means to say that when the direct evidence of identity is defective it will have to be established by circumstances; but he is not clear, and the student would be apt (if he were a very foolish and ignorant one) to take Mr. Tidy's last sentence in italics as a sample of circumstantial evidence.

Again, when speaking of the differences between common and skilled witnesses, Mr. Tidy says: "*A common witness has to speak to the matters of fact which have come within his personal knowledge—that strychnia was present in the stomach of the deceased,*" etc. It is something new to be taught that the presence of strychnia can be sworn to as a fact without the evidence of a skilled expert. A common witness might say that he saw some white powder in the stomach, or that what came from the stomach was bitter; but no common witness is capable of swearing to the presence of strychnia in the stomach, and we think that those whose profession it is to do so would object to be paid the fee of a common witness for this trouble.

Next we come to this remarkable paragraph:—

"And here a few words are suggested on the vexed question of *expert evidence*. Nothing is more terrible to contemplate than a traffic in evidence either for gain or notoriety. Hence we lay down this definite rule, that, in our judgment, should always guide the scientific expert—viz., that no one is justified in giving evidence in support of a case, or in support of that part of a case upon which he may be specially retained to give evidence, that he does not believe to be right and true. Any evidence offered by the expert in the witness-box should be as honestly and truly his scientific belief, influenced by reasons as definite and as accurate, as if he were arguing the points in dispute before a scientific tribunal competent to weigh his arguments and pronounce on his opinions with accuracy and precision."

It is rather galling to be advised in this quiet way that on the whole you had better be honest.

The paragraph is terribly suggestive of the nature of science in a law court, and seems to give color to the degrees of comparison of untrustworthy evidence once given by a now well-known judge—viz., "*positive, lies,*" "*comparative, big lies,*" "*superlative, scientific evidence.*" We hope Mr. Tidy will omit this paragraph in his next

edition, and substitute for it a shorter one, to the effect that a scientific witness is expected to speak "the truth, the whole truth, and nothing but the truth."

Brain. January, 1883. The original articles in the current number of this journal comprehend several which are of considerable interest. The first is an excursus into the region of pure hypothesis regarding the possible origin of the systemic diseases of the spinal cord from functional disturbance, by Dr. H. Donkin. An account of some interesting observations on the characters of the loss of hearing in hysterical hemianæsthesia is contributed by Dr. Walton, of Boston, U.S.A., the observation having been made in Charcot's wards. Dr. Ross, of Manchester, continues some clinical observations on the spasmodic paralysis of infancy. The theoretical pathology of angina pectoris and its bearing on the phenomena of counter-irritation, are discussed by Dr. Allen Sturge; and Dr. Ferrier describes a curious case of hemiplegic muscular atrophy. The shortest paper is perhaps the most valuable—a very careful collection of statistics on the subject of chorea by Dr. Angel Money.

Medical Annotations.

"Ne quid nimis."

TRUE KNOTS OF THE UMBILICAL CORD.

In the report of the Lying-in Hospital of Munich, published in the last number of the *Archiv für Gynæcologie*, Professor von Hecker gives the results of his observations on knots of the umbilical cord. This state of the cord was met with 83 times in 20,515 deliveries, or once in 247 labours. These knots are brought about by the passage of the child through a loop of the cord so placed that its foetal lies under the placental end; otherwise the passage of the child through it would only cause its disappearance. They may be produced during pregnancy or during labour; in the vast majority they arise during labour. These are readily recognized; they are loose and easily undone, and when undone leave no marks on the cord; while knots formed during pregnancy give rise to atrophy of the cord at their seat. It might be expected that a large and capacious uterus would at least favor, if it were not necessary for, the occurrence of the changes in the position of the foetus and cord which take place in the production of knots; but Hecker found such was not the case. Of the 83 cases, 32 were primiparæ and 51 multiparæ; this proportion is much the same as the proportion of total primiparæ to the total of multiparæ forming the 20,515 cases delivered. Of the multiparæ, again, 23 were two-para, 16 three-para, and 8 four-para, while only four women had had more than three children previously. Moreover, in only four cases was an unusually large quantity of amniotic fluid observed; while in three cases of twin pregnancies, two them being primiparæ, knots were present. These facts appear to show that the conditions necessary to the formation of the knots are not those which favor the mobility of the child, but that their production is essentially dependent on the position of the loops of the cord during labour. In 76 of the cases the vertex presented; in 77 delivery was accomplished by the natural efforts; in 73 labour set in at full term, in nine at nearly full term, and in one at the fifth month. With regard to the effects of the knots on the child, it was found that 69 of the children were

born alive; five were asphyxiated but afterwards restored, four were dead before labour, three died during labour, and two were asphyxiated and not restored. This gives a considerable mortality—11 per cent.; but it does not appear to depend upon the presence of the knots, for in all the cases, with two exceptions, other conditions were present which were sufficient to cause death. Again, in all the cases but four the length of the cord was above the average, and the mean length of this structure was 71.54 cm., or 21.54 cm. above the normal average. In several of the cases the placenta was attached to the lower part of the uterus. The position of the rupture in the bag of membranes showed this. This condition was noticed in 39 of the cases, and in 13 only was the tear central, while it was lateral in 20 and marginal in 6. The position of the knot was observed in 50 cases; in 41 it was near the navel of the child, and in 9 only near the placenta. In one case two knots were present, and in one case the knot was doubled. These observations are not only of great interest, but they are also of much value in their bearing upon the results brought about by knotting of the cord. Their apparent harmlessness probably depends upon the great length of the cord permitting movements of the foetus and its escape from the uterus without occasioning tightening of the knot. Indeed, knotting of the structure appears impossible—at least towards the end of pregnancy—in those cases where the cord is short, for a certain length is necessary for the formation of a loop which would permit the passage of the child through it. It is not improbable, moreover, that the lesions which have been described as the results of loops or knots of the cord, have occurred in cases in which the cord was comparatively short, but yet of sufficient length to permit the formation of loops or knots, but not of such length as to permit, without tightening, free movements of the child.

HURRY, WORRY, AND WASTE.

ATTENTION is every now and again called to the many irresistible proofs which exist that there is something radically wrong in our modern mode of working, and rarely a week passes without some signal collapse in the ranks of our foremost men. An endeavor has been made to show that the cause of that brain-wreckage which so commonly occurs among statesmen and politicians is the bad habit of turning night into day, which has been formed by the British Legislature. The truth is, however, that the breakdown of public men is not due to any special cause. They are affected, as the ordinary members of modern communities are affected, by the hurry, worry, and waste that are characteristics of the age in which we live, and which pervade all classes and sections of the community. The demon "over-work"—erroneously so called—is as active among commercial men who go to bed at ten or eleven o'clock as amongst statesmen who sit up hearing and making speeches until the small hours. Side by side with this fact must also be set another—namely, that as a rule the votaries of fashion and gaiety sit up a good deal later than members of Parliament, and yet do not suffer half so much. In truth we must look below the surface if we would search into the deep effective cause of the troubles we lament. It is not "over-work," but worry, that kills. Our men of brain might do a great deal more than they do if only they were less feverish in their haste, less harassed by worry, and less wasteful of energy. We are all too much in a hurry about what we do. We have too many irons in the fire, too much business on hand at the same instant, and are far too

energetic in our endeavors. With deliberation, calmness, and such reserve of strength as result from perfect restraint, a man may do an infinity of work without either trouble or injury. Breathless haste, eager anxiety, and an excessive expenditure of energy are the outcome of modern activity, whether in this country or on the Continent. The system of "quick returns" has been the bane of literature, almost distinguishing it and substituting in its place "journalism." The same system has revolutionized thought and science, and it is rapidly undermining the human constitution. We are impatient for results. Speeches are made with the knowledge that they will appear in print in a few hours, and that if anything is omitted the deficiency will be criticised by some watchful opponent in the Press. Every opportunity must be seized as it presents itself, or it will be lost. It follows that statesmen and politicians are kept on the strain of sustained attention, and their brains are for many hours in the twenty-four, whether in or out of Parliament, in a condition of ferment. The brains of speculators on the Stock Exchange, and even the brains of merchants in their private rooms, are equally taxed, and in the same way. All classes of the community share the turmoil. The period is one of brain-wearing impetuosity, of hurry, worry, and waste—the waste of cerebral energy and nerve force. The higher nervous centres are kept incessantly at work, and become, as it were, overheated, so that it is impossible they should quiet or cool down in the brief intervals of respite allotted to repose. Too often they do not rest even in sleep. The brain only dozes instead of sleeps, and as a result there are dreams of the recent day's work, that infallible symptom of impending mischief. The only marvel is that, looking to the utterly unphysiological character of our mental and nervous habits of work, the number of sudden failures is not greater than it is, and that we have not a larger percentage of brain-mortality to deplore.

ADVERTISING IN THE LAY PRESS.

ALTHOUGH the resolution passed last summer by the Royal College of Physicians condemning the practice of extensively advertising medical works and giving laudatory certificates with regard to medicinal and other preparations has been followed by very manifest results, it has not succeeded in entirely checking the practice; instances of which, when they do occur, attracting even more attention because of their being happily less frequent than formerly. A very marked contravention of the resolution of the College appeared in *The Times* of February 1st, in the form of an advertisement of one book occupying three-quarters of a column; surely an "extensive" advertisement in the most literal sense. It consisted of a number of separate lines setting forth the title of the work some twenty separate times, and after each enumeration of the title the name and qualifications of each contributor to the volume. It wanted only the indication of the subjects upon which these gentlemen respectively wrote to render it complete. We do not for a moment imagine that a single one of them has approved of the liberty that has been taken with his name; but we believe that they would one and all repudiate the act which brings them so prominently before the public, their names and titles being paraded in a column flanked on either side by notices of patent medicines. It is, moreover, difficult to see what gain can be derived by such a system of advertising, even for trade purposes, that could at all compensate for the distress and annoyance that must be caused by it; and we question the right of publishers, however

influential, to thus traffic with the names of contributors without their consent. To the profession, it is needless to point out that the very excellence of the work and the high character of its authors (including the President of the College of Physicians himself) render such advertising harmful in the highest degree, for it appears to give countenance to a practice which some authors would, it is to be feared, be only too pleased to adopt, especially as they would seem thereby to be following an example set them in high quarters.

FILARIA DISEASE.

DR. PATRICK MANSON contributes to the twenty-third issue of the *Chinese Customs Medical Reports* some further "Notes on Filaria Disease," with especial reference to filarial periodicity, the fate of the embryo parasites, the intimate pathology of the disease, and the causation of abscess by the death of the parent worm. He confirms the results of Dr. S. Mackenzie's experiments with regard to the inversion of the hours of sleep and waking, and adopts Dr. Mortimer-Granville's view that it is not simply the inversion of these states that exercises the influence on the filarial periodicity, but that "it is something recurring every twenty-four hours, just as the habits of sleeping and waking recur, and which is capable of being inverted just as these habits are, and by the same means." What this *something* may be is not yet clear, but it will be remembered that the ingress of the embryos commences some hours before the usual time for sleeping, and the egress similarly before the usual time for waking. From further experiments, which Dr. Manson hopes to make more complete hereafter, he thinks that filarial periodicity is maintained during prolonged watching, and also when the hours of the middle meal are changed from midday to midnight; also that prolonged sleep probably disturbs periodicity in the direction of diminishing the number of parasites in the circulation at the maximum period, and similarly when the usual eight hours' spell of sleep is broken up, and during an attack of fever. Dr. Manson cannot confirm Dr. Myers in his supposition that the filariæ die daily, and in the sequence that filarial periodicity depends on intermittent reproduction, and that we have to deal with a fresh swarm every twenty-four hours. He adheres to the view, illustrated apparently by the analogy of *F. immitis* in the dog, that the filariæ retire daily for a time to some organ or set of vessels. He believes "that filariæ embryos are nearly constantly passed into the lymph stream, and that whenever lymph finds its way into the urine, no matter at what hour, nor how long it has been running, it contains the parasite." The act of parturition is therefore a continuous process, and a test-case is recorded where filariæ were constantly found in urine rendered chylous by the rupture of a lymphatic in the urinary tract. Dr. Manson is confirmed in this view because his experience is that the filariæ are usually tenacious of life outside the body, and live on the slide as long as the blood-serum remains fluid or viscid. The languor observed by Dr. Myers may not be preliminary to disintegration, but to a periodical state of rest. Moreover, he has never seen in freshly drawn blood dead filariæ other than can be accounted for by violence. With regard to the intimate pathology of the disease, it is recognized that the parent worms and their offspring do not always, or even generally, give rise to disease in their host; and Dr. Manson believes that elephantoid disease, when it occurs, is due to the miscarriage of ova. He found on one occasion on puncturing an enlarged groin some ova (C. M. R.,

xviii., 49), and he then concluded that the parasite was oviparous, but subsequent examination of two specimens of the mature worm convinced him that it was viviparous. After a fruitless search for ova on many other occasions, a second case turned up in which ova were found in the lymph from a scrotum. Now the parent worm (as far as present knowledge goes) lies on the distal side of the glands, and this is probably her normal habitat, consequently her long, sinuous, powerful progeny (1-3,000" diameter) travel through the glands to reach the thoracic duct and blood-current. The miscarriage or premature expulsion of ova, however, is easy considering the method of expulsion, and the vast number of the progeny, but these ova (1-750" to 1-500") cannot pass the glands, and they plug the lymph-channels one after another, first in one part and then in another, where the current seeks to re-establish itself, until the entire lymphatic system is blocked of the part connected directly or indirectly with the vessel in which the parent worm is lodged. Abscess of the thigh and scrotum in China is frequently produced, Dr. Manson thinks, by the death of the parent worm, and he figures from such a source the fragment of a dead mature worm with embryos, and one ovum escaping from the uterus. With this exception all other phases of elephantoid disease are, he believes, produced as we have explained above.

DR. VAN BUREN.

We regret to learn that Dr. Van Buren, of New York, continues seriously ill, and that he has been compelled to resign the chair of Surgery at the Bellevue Hospital Medical School, which he has held with great advantage to the school and distinction to himself. Dr. Van Buren is best known in this country as the joint author with Dr. Keyes of a work on the Surgical Diseases of the Genito-urinary Organs. We believe there will be several candidates for the chair he vacates.

THE ANATOMICAL SOCIETY OF PARIS.

THE oldest established of the Paris medical societies, and one which has contributed so much to the study of morbid anatomy, is the Société Anatomique, to which M. Cornil has just been elected president in succession to M. Charcot. In his few opening remarks M. Cornil adverted to the history of the Society, the work it has done, and that which it has to do. He reminded his hearers that the Society was founded at the commencement of the century under the auspices of Dupuytren and Laennec; that after an interval of ten years' silence it was reconstituted in 1827, when Cruveilhier was elected perpetual president. In 1875 M. Charcot succeeded to the chair, which he has now yielded to M. Cornil. The Society is the field where most of the young internes earn their laurels; and its Transactions are a rich storehouse of pathological facts.

DR. OLIVER WENDELL HOLMES.

DR. WENDELL HOLMES has been appointed Emeritus Professor of Anatomy to Harvard University, and the report of the Committee of the Board of Bursars recommending this nomination refers to the fact that for more than thirty-five years Dr. Holmes had filled the chair of anatomy. "Taking great interest in his classes, he has met them with conscientious punctuality and never-failing enthusiasm. By the ingenuity of his demonstrations, the vividness of his descriptions, the brilliancy of his imagination, and the ever

ready resources of his varied condition, he has given to the dry details of a difficult study a rare attraction; each lecture, prepared with exact fidelity, being delivered with all the freshness of a first occasion." The report goes on to refer to his services in the cause of medical education, sanitary reform, charities, and public improvements, and says "he has hastened the advance of rational medicine. He argued the practice of what is now technically called 'surgical cleanliness' before Listerism was broached. His writings add dignity to the profession of medicine, increase respect for the honorable and educated physician, and discourage the charlatan." His retirement from the university, the committee point out, "calls for the expression of profound regret, and for the fullest academic recognition of his long and zealous devotion to its interests."

BACTERIA.

It is well known that bacteria are widely distributed and find entrance into the living organism in health as well as in disease. M. G. Colin recently communicated to the Académie des Sciences a memoir on this subject, in which he arrives at the following conclusions:—There is no part of the respiratory and digestive apparatus in which bacteria are absent, under normal circumstances, and in some localities they are met with in enormous quantities. But normally all these bacterial liquids are inoffensive. The microscopical organisms confer no virulent or toxic property. The liquids only become dangerous after some degree of putrefaction, and their effect is the same for all: the production of septicæmia. The microbia and their germs, which are found in the respiratory or digestive tracts, are probably, in the living animal, carried into many localities by diffusion-currents, and certainly in the dead body they reach all parts, and develop there if they meet with favorable conditions.

PORRO'S OPERATION IN ITALY.

DR. BIANCHI reports (*Gazzetta degli Ospitali*, Jan. 24th, 1883) a case in which Dr. Barsotti performed Porro's operation, at Lucca, on Dec. 28th, 1882. The patient was rickety, and suffered from pneumonia and mitral insufficiency. The deformity of the pelvis was so great as to render any process of embryotomy impossible. The operation for the removal of the uterus and ovaries presented no unusual difficulty, but the mother died from exhaustion the following day. The child (male) survived, and was in good health at the end of a fortnight. According to Dr. Negri, Porro's operation was performed in Italy thirty-eight times from May, 1876, to May, 1882; fourteen of the women recovered and twenty-four died. It would also be interesting to know how many of the children survived.

THE TREATMENT OF INFLAMMATION.

THE diapedesis of white corpuscles which occurs in inflammation is produced, according to Cohnheim and Hering, as a sort of mechanical filtration through the wall, but, according to Binz and others, is a vital process intimately connected with the irritability and chemical integrity of those structures. The opinion held as to the nature of the process must, as Binz has lately pointed out, modify considerably the therapeutic method employed. If there is only a mechanical extrusion of the cells through the wall of the vessel, it is of paramount importance, in all internal inflammations, to lessen the blood pressure. If, on the

other hand, there is an independent exit of the corpuscles which adhere to the wall of the dilated vessels, the aim of therapeutic measures must be to lessen their activity. Binz asserts that the white corpuscles only escape when the red corpuscles are passing by the stationary pale ones, and only so long as the latter possess the power of adhering to the wall, and the passage seems to be attended by changes of form similar to those which are presented by the corpuscles outside the vessels. He states that the diapedesis is stopped if the vessel is tied, and it is stopped also on both sides of the ligature, and therefore where the blood pressure is completely arrested as well as where it is in full force. It also stops when the colorless cells are paralyzed by any agent, such as quinine, eucalyptol, iodoform, or salicylic acid, without the heart or the vessels presenting the slightest alteration.

THE CHOLERA IN MEXICO.

No little apprehension is felt at San Francisco lest the cholera, which recently made its appearance at Chiappa, in Mexico, and has since extended northwards, should reach California. The districts which have been invaded by the epidemic are so near the forts of Guatemala and of Central America that there is considerable danger of its being brought to San Francisco and other ports of the Pacific by trading vessels. The cholera broke out at San Francisco in 1849, having been brought by a convoy of emigrants who had come across the plains from the Atlantic coast. The outbreak was soon got under then, but some of the poorer districts of the city are now so unhealthy that the result of a fresh epidemic might be much more serious. It is further to be noted that Chiappa, where the cholera first made its appearance in Mexico, is in the same latitude as the English West Indian possessions, where the cholera generally manifest itself first; so that it would be really interesting to ascertain whether the epidemic originates in the tropics of the Western hemisphere. One or two New York journals suggest that a competent medical man should be dispatched by the National Board of Health to Mexico in order to study the march of the epidemic.

MONGREL WORDS.

AMONG the duties of the Registrar-General might, with some profit, be included that of recording the birth of mongrel or misbegotten words with which medical literature is more and more inundated. Although no department is free from this terrible invasion, it is to gynaecology that we turn as the field where these creatures wanton and are rampant. They remind us of the strange exhibitions to be seen at country fairs for the sum of one penny—such as the pig-faced lady. But we will not compare them to the mermaid, round whom time has thrown something of a halo of romance; to the wyvern or the gryphon, the props of so many ancient houses; nor to the chimera of classical memory—so ugly, so unromantic, so unnecessarily and atrociously hideous are they. It is perhaps too late to protest against "cellulitis," or possibly "vaginitis," or "retro-uterine;" but why should we be obliged even to recognize the existence of such words as "peri-uterine," "pericerebritis," "endo-cervicitis" (a sort of sandwich nastier than any ever purveyed at Mugford Junction), or the wanton insult of "atrophicans" or "amyotrophic"? To tell the truth, most of these monsters are not of British breeding, but are generally imported from abroad, and in this respect we are doubtful whether the stolid unscrupulous-

ness of a German or the gay indifference of a Frenchman produces the more excruciating results. If these words are mostly coined abroad, they are adopted without scruple here; it is sufficient for many (who ought to know better) that a disease has been called the — of Prof. Geheimrath von Wurst, or the — of M. le Docteur Le Gros, for them to embody it and do their best to propagate it, instead of resolutely refusing it admission, or at least holding it up to proper derision in inverted commas, if it has unfortunately already taken root. We learned at school, "*Ingenuas didicisse fideliter artes emollit mores, nec sinit esse feros*;" but these gentlemen seem to think that the fact of such words being "*fera natura*" is sufficient excuse for "preserving" them. It does not, however, follow that a German professor who makes interesting autopsies is necessarily skilled in philology, any more than it follows that a Lord Chief Justice is necessarily an authority on experimental physiology, or a president of the Obstetrical Society on counterpoint and fugue. Besides, there is something ungenerous in the whole concern. The ancient Greeks are dead, alas! the ancient Romans are also no more (we wish we could say "*Alas!*"), and cannot defend themselves. If these gentlemen must try experiments, let them do it on each other; let the Frenchman make words with English heads and German tails, etc., and see how they all like it. It seems to us far from improbable (though we are not able to state it as a fact) that Dr. Schliemann's recent excavations have been materially facilitated by the commotion which such liberties must have produced among the bones of the Trojan heroes. The mode of production is probably very simple: you borrow a Greek and a Latin dictionary from a friend, look out one or more words, prefixes, and terminations from each, and put them into a sort of literary rat-pit to fight it out together. Seriously, these words are rarely necessary; they are mostly new names for things which have been known since the year 1; but if a new name should become necessary, its formation is too important a matter to be dealt with in this way. For the offenders—in Latin at least better than their own, however far removed from a classical type—we would suggest the following prescription:

Herr Geheimrath Prof von Wurst.

R Felem novemcaudatam (3×3).

Dorso vel natibus ter die fortiter applicandam.

SPINA BIFIDA.

A SUB-COMMITTEE of the Clinical Society of London was appointed a short time ago to investigate the treatment of spina bifida by injection. We gladly accede to the request of the committee to state that they are anxious to receive: (1) Reports of cases treated by this method; (2) descriptions of specimens of this deformity; (3) recent preparations, or examples in still-born infants, which they may be allowed to dissect; they suggest that these specimens when dissected should, if not otherwise desired by their owners, be presented to the Hunterian Museum. The committee will also be glad of the opportunity of examining living examples of this deformity. Letters should be addressed to Mr. R. W. Parker, 8 Old Cavendish-street, and specimens forwarded under cover to Mr. F. S. Eve at the Royal College of Surgeons, Lincoln's-inn-fields. We gather from this request that the committee intend to investigate not merely the actual statistical results of the injection treatment of spina bifida; by a careful study of many cases and specimens it is to be hoped that they will be able to determine such facts about the natural history of spina bifida as

will form a rational scientific guide to its treatment. We trust that the committee's appeal for aid will be responded to by all who can give them information.

THE PHYSIOLOGY OF THE CRINOLETTE.

A CRITICISM of the details of male and female attire comes legitimately within the scope of medical practice, and at a time like the present, when so much attention is being paid to what is vaguely known as "hygienic dress," that criticism may not be out of place. The most recent fashion in female dress is prominently characterized by the "crinolette," a structure of cunning and mysterious workmanship, with the outward and visible signs of which we are being rendered very familiar. The crinolette is to the crinoline what varioloid is to small-pox—a mild and modified form of a serious affection. The æsthetic value of this strange garment and its significance as a means of decoration we do not propose to discuss, although if it be true that "dress is to the body what language is to thought," it would be interesting to ascertain what this deforming protuberance is intended to express. We can look at it only with physiological eyes, and even from such a limited point of view the garment is interesting enough. In the first place this conspicuous appendage is heavy; its skeleton is, we believe, of steel, and its soft parts of horsehair; and it must add not inconsiderably to the burden to be already borne by the fashionably dressed female. It would not, perhaps, be difficult to demonstrate the exact amount of unnecessary waste of muscular force that the wearing of the excrescence involves. Not only, be it noted, has the sheer weight to be carried, but there must be a good deal of fine muscular action required to adjust the body when erect to this slight but certain disturber of its line of gravity. In the next place, the crinolette offers a distinct impediment to the act of walking, and in this way again involves considerable muscular activity. As a feature in out-door clothing, therefore, it appears singularly inappropriate. Moreover, it is very desirable that the body should be as evenly clad as possible, and that its temperature should be maintained in all parts at one uniform level. The crinolette very grossly disturbs this principle, and by keeping a mass of unnecessary clothing over one part of the body, throws an undesirable strain upon the heat-regulating properties of the skin. This garment, moreover, is secured round the waist, adding one more constriction to that part, one more burden to be borne about it, and making one more addition to its already too numerous coverings. Lastly, the crinolette even now bids fair to compete with the crinoline in encouraging a prevalence of "deaths from fire."

AN ENGINEER'S LUGGAGE.

THE almost motherly care exercised by the Government, and others in authority over us, respecting our lives and welfare, which is so often held up to ridicule, is fully justified if we may judge by one instance of the extreme recklessness and utter disregard of human life and property displayed by some members of the community. An engineer, of Newcastle-on-Tyne, was on January 15th fined £20—a most inadequate penalty—for carrying, in conjunction with his assistant, a large quantity of blasting gelatine, which was to be used to blow up a dangerous wreck at Deal, in a second-class *smoking* carriage on the North-Eastern Railway. The explosive compound was carried in hand-bags, and it is painful to imagine the probable result of an accidental kick by a

blundering passenger, or, supposing these bags to have been placed on the network above the seats, a sudden jerk of the train in starting or stopping which might have sufficed to dislodge them. A glowing fusee or the smouldering end of a cigar might have fired a charge that would have annihilated passengers and train, and would have effected in a moment such widespread destruction as fogs, deficiency in the working of signals and block system, or any of the numerous causes which usually contribute to our railway catastrophes, would not bring about in a decade.

SUICIDE BY CHILDREN.

THERE is, unhappily, no room to doubt that children—especially precocious children such as the social system of France produces—resort to suicide in a startling proportion of instances without being insane in any scientific or practical sense. Probably no other community sets the same value on life which we are accustomed to attach to it. It is the possession we most prize, and that with which we are least likely to part as an act of free-will. Except under extreme pressure no man or woman in this population voluntarily dies unless life is utterly unbearable. It is otherwise with peoples accustomed to see life thrown away under very slight provocation, and who generally regard it as something which has a market value not above price. With such habits of thought and expression as prevail in society on the Continent, children of even tender years are likely to fall into heroic states of mind and perpetrate acts which end in their deaths, without actually appreciating what they do. These young persons are not mad or deranged, or even particularly emotional; they are simply the victims of bad example and vicious influences. There is practically no family life in France, and there never can be so long as the individual, instead of the family, is regarded as the unit of the nation. We are drifting into the same economic fallacy in England, and when the idea is popularized, so that the orderly constitution of society is destroyed, as it is on the other side of the silver streak, we too shall be discredited by the prevalence of suicides among the young. The state of matters in this respect which exists in France is a disgrace to that nationality. The question is not one of medical science, but of political economy.

RADICAL CURE OF PROLAPSUS UTERI.

Dr. CANEVA, of the Ospedale Maggiore at Milan, comments, in the *Gazzetta degli Ospitali* of Dec. 20th, 1882, on the unsatisfactory results of mechanical supports, and of vaginal plastic operations, in the treatment of complete uterine prolapsus. He recommends an alternative operation, with the object of suspending the womb from above, by promoting adhesions between its body and the parietal peritoneum in the hypogastric region. The patient is to be kept in bed for some days before the operation, to maintain the uterus reduced. The bowel having been cleared by injection the previous evening, and the bladder emptied just before anæsthetization, whilst the patient is lying on her back, the operator introduces a metallic sound, and entrusts it to a competent assistant, with instructions to maintain the anterior surface of the uterus in contact with the abdominal wall. Commencing at a point two inches from the pubis, an incision is to be made three inches upwards along the linea alba down to the peritoneum over the body of the womb, which can be felt by the finger with increasing distinctness as the division of successive layers proceeds. So soon as the peritoneum is reached, the

most delicate stage of the operation is entered upon. The wound is to be enlarged transversely, and an area of peritoneum at least an inch and a half in diameter exposed, by drawing aside the margins of the wound and detaching the serous membrane with the handle of the bistoury or with the finger. The assistant holding the womb fixed with the sound against the exposed peritoneum, the operator, with a fine needle threaded with catgut, sutures the parietal peritoneum to the corresponding serous investment of the womb. The sound is not to be withdrawn, until the surgeon has satisfied himself that the proceeding has resulted in the effectual suspension of the uterus to the abdominal wall. In closing the wound, two or three of the stitches are to include the peritoneum. The whole procedure is to be conducted with strict antiseptic precautions and Listerian dressings. Dr. Caneva has not given any clinical results, but promises a further contribution.

Correspondence.

"Audi alteram partem."

"INUNCTION IN SCARLATINA."

To the Editor of THE LANCET.

SIR—As this subject is one of considerable importance, kindly allow me to add a few words to the discussion. Inunction has done some good service, and should not be hastily condemned as a dangerous and perilous proceeding. No better means exist for isolating successfully scarlet fever cases among the crowded houses of the poor. It is easily applied, and its efficacy to prevent the spread of infection is believed in by the people who use it. I would be very sorry to disturb a growing popular faith which is so useful, unless there were sound reasons for doing so.

The objections that are brought against inunction are that it clogs the pores of the skin, and so checks perspiration, thus throwing the function of the skin on to the kidneys, and disposes to the sequelæ of albuminuria, dropsy, and rheumatism. If this is true, then inunction ought to be abandoned, and some of the other more cumbersome modes of daily disinfecting to be substituted. The objections seem to me to be based on the idea that inunction is just the same as varnishing the whole body or immersing it in oil. If inunction were in any way similar, I would at once admit the seriousness of the objections; but it is fortunately very different. The skin requires a certain amount of oily matter, otherwise sebaceous glands would not be placed all over the body excepting the palms of the hands and soles of the feet. In the febrile state the epithelium gets hard and dry, and the secretions of the skin are arrested. The rubbing in of oil makes the harsh epithelium soft and supple, and encourages perspiration instead of further checking it. This lubrication also lowers an elevated temperature, as I have on several occasions tested. If of benefit in the febrile stage of scarlet fever, it certainly can do no harm during the desquamative stage, but rather good, as the patients seem less liable to take cold; while it is of inestimable value in arresting the most pregnant source of infection, the shedding and scattering of the minute epithelial scales.

With this object I have for the last fifteen years used the oil in many serious epidemics of scarlet fever, and have been surprised at the rarity of albuminuria and dropsy where inunction has been used; while these sequelæ were common enough

among those who did not use it. During the last two months I have had forty cases of scarlet fever in my district. Carbolized oil (1 to 30) was distributed. Two cases of dropsy occurred. On inquiry I found that in neither of these cases had the inunction been used.

The rubbing of oil into the skin cannot be so very dangerous, or it would not be so general a custom in eastern countries. It is the only toilet of some African nations, keeping the skin soft and its functions active under a scorching sun and in a hot, dry atmosphere. The ancient athletes oiled their bodies before entering on their contests, and Celsus recommends old oil to be applied with friction in fevers.

With this old and general use of inunction we never read or hear that anasarca was a usual accompaniment, as it ought to be if the theories of the objectors to inunction were the result of practical experience.

I am, Sir, yours very faithfully,
J. SINCLAIR HOLDEN, M. D.

Sudbury, Suffolk, Dec. 4th, 1882.

THE ANTEGENETIC DISCOVERY OF FŒTAL SEX.

To the Editor of THE LANCET.

SIR—Medical scientists have hitherto greatly relied upon the ascertained rate of pulsation of foetal hearts as a means of an antegenetic discovery of the sex of the child. (The term antegenetic conveniently embodies the idea "before birth," and is homologous with the word antenatal.) But the method is admittedly unreliable, even to the most accomplished ear; and the object of observation itself gives rise to so many fallacies that any conclusion drawn from it must be, to a great extent, conjectural.

There is, however, a common expression as to the manner of "carrying" the child—the external appearance during gestation—which has not received the attention which I believe it deserves. Simply stated, the form of the abdomen is a great means of diagnosing the foetal sex, and is, after a little training of the eye on the point, less open to fallacy, though *ex facie* more so than the counting of the cardiac pulsations. Briefly formulated, if the form of the abdomen be conoid and projecting (child carried in front), the child is male; if the form be more flattened and rounded (child carried round about), the child is female. The manner of gestation must be observed personally; no statement of the patient is to be absolutely relied upon. Absolute size of abdomen I do not now notice to have much bearing on the question, save as a guard against occasional cases of plural birth.

These principles have been put to a practical test in the course of the last twelve cases of labour which I have attended, and with the following results:—In two I could make no prediction, owing to the children having entered the world almost simultaneously with my entering the room; in a third (which I delivered for a midwife with the indicating axis-traction forceps, it was a matter of greater concern to see the sex of the child than to predict it, especially as the conditions for prediction were unfavorable. The remaining cases were those of eight multiparæ and one primipara, who gave birth to seven male and two female children, all cases of single pregnancy it will be seen, and all were head presentations. As to time, one was three weeks, another four days before, and the remainder in the course of the first stage of labour. Position and dress have, in most cases, no great influence on the result. I have reason to

believe the method applicable to breech presentations, and to a period of at least two months before delivery. I positively diagnosed the sex of seven of the nine, but was more guarded in the cases of two of the multiparæ, to whom I "expressed the opinion" that the children would prove to be males. They were males, so that I was correct in all the cases where there was any ground for judgment. My reasons for less confidence in the two cases mentioned were, in the one, an habitually small parturient projection, but the patient remarked that "she carried this one more in front than the last," which was a girl; and in the other a rather indefinite conoid shape, due to abdominal obesity, which is a source of occasional indetermination. In the latter case the fetal heart was 144 in the interval of a pain; in the former I did not auscultate.

As yet I have not even constructed an hypothesis to explain the facts, but further clinical observation may give rise at least to a theory. And this observation may be very well made and recorded by using a strip of pliable metal, such as lead, for the purpose of obtaining an outline of the abdomen in the plane passing through the spinous process of the second lumbar vertebra and umbilicus, and a tracing of the abdominal curve between the xiphoid cartilage and the pubis.

I am, Sir, yours sincerely,

A. DRUMMOND MACDONALD, M.B. Ed.

Peel-street, Dingle, Liverpool, Jan., 1883.

NEW YORK.

(From our Correspondent.)

THE year closes with the publication of some excellent works on Histology and Anatomy by the American publishing houses. I will briefly refer to some of them to which my attention has been drawn, and as my task is descriptive and not critical, I will leave any expression of opinion as to the merits of the works to the authorized reviewer.

Messrs. J. W. Vail & Co., New York, publish a work on "Microscopical Morphology of the Animal Body in Health and Disease," by Dr. C. Heitzmann. This is a handsome volume of about 850 pages and illustrated in a manner that leaves no room for improvement, with 380 original engravings made from drawings by the hand of Dr. Heitzmann. As Dr. Heitzmann is a skilled professional microscopist and an excellent draughtsman, the work must be esteemed a valuable one, if only as a record of histological work, which the author claims to have occupied ten years of intense labor. Had Dr. Heitzmann merely recorded the result of his microscopical observations, the work would doubtless have been received as an authority on the subject and proved highly acceptable to students following this line of research. But Dr. Heitzmann has assumed the rôle of a reformer, and aims to overthrow the cell theory and modern views on protoplasm and living matter, presenting in their place original theories of his own, and urging on the reader facts and conclusions which he is not sanguine will meet the approval of professional microscopists. The whole work is based on the assertion that protoplasm consists of a number of granular bodies from which radiate delicate greyish threads, the ends of which blend with other granules, so as to convey the idea of an extremely delicate network, the outer contour (an amoeba, quoted as an example), consisting of a continuous thin layer of a slightly shining substance, into which also penetrate filaments from the granules. Dr. Heitzmann observes this struc-

ture in the amoeba, the red and white blood-corpuscles, and in all forms of protoplasm and living matter. This reticular structure in the hands of Dr. Heitzmann enables him to explain the phenomena of the development of living matter, and many of the mysteries of organized life. He appears to have established in this city a school of microscopists who are devout believers in his theories, while the larger number of histologists give Dr. Heitzmann's conclusions a cold reception and exhibit a want of faith which must be distressing to one imbued with so much enthusiasm. Dr. Heitzmann's book includes papers by about twenty microscopists, who may be termed his disciples; many of these show undoubted talent, and are valuable contributions to the literature of the subjects treated. Dr. Heitzmann labors under the difficulty of writing in what to him is a foreign language. He is apparently unconscious of the necessity for submitting his manuscripts to the revision of one who is a scholar of the English language. This self-confidence has led him into errors of expression which not only make his explanations difficult to follow, but has caused him to make declarations which have brought him within the toils of the American reviewers. One critic, who confesses that Dr. Heitzmann probably does not intend to convey such "notions," draws attention to the fact that in the work reviewed the office of the ovary is said to be the production of a principle, this principle being the ovum, this ovum being called an organ, and the organ a vesicle. This work is not a manual of histology, nor intended as such, but the student cannot fail to receive many aids to his study by perusing the book.

"A Manual of Histology," edited by Dr. Thomas E. Satterthwaite, Professor of Histology in the New York Post-Graduate Medical College, published by William Wood & Co., of New York, second edition, is a work of a different character to the one just described. I believe this work is already known in Europe as well as in this country where the author holds a high place among investigators in this department of original research. Dr. Satterthwaite has no startling theories to elaborate, but is thoroughly practical in all that he offers. The methods of one who has for years made histology his daily occupation must surely prove valuable to those engaged in similar work. The cumulative work of others and the whole literature of the subject have been tested by him, and all that proved valuable and useful has been here reproduced and explained, in the light of his own experience, for the benefit of future students. After explaining his methods, Dr. Satterthwaite takes the reader through a course of practical histology, and finally introduces over twenty original papers by physicians who have associated themselves with the author in producing this work.

Professor Burt G. Wilder, M.D., of Cornell University, in conjunction with Professor Simon H. Gage, B.S., of the same university, has produced a new manual on Anatomy, which will be of considerable service as a class-book, and to those who endeavor to acquire by unaided study a knowledge of the subject. The title of the book is as follows:—"Anatomical Technology as applied to the Domestic Cat, an Introduction to Human, Veterinary, and Comparative Anatomy." The work is published by Messrs. A. S. Barnes & Co., of New York. There are many reasons for making use of the cat for anatomical purposes in preference to other animals, and as the adult human subject is inconveniently large, and not easy to obtain, the course of study offered by Professor Wilder may be followed with advantage by medical students as a preliminary training in anatomical manipula-

tions. The work of Mr. St. George Mivart, "The Cat," etc., is an admirable monograph, and describes the entire structure of the animal. It, however, makes frequent and wholly unspecified substitutions of human anatomy for that of the cat, and gives no practical directions for the student. Professor Wilder does not assume any previous knowledge on the part of the reader, but as a practical teacher leads the student from the simple to the complex, and offers a preliminary training in the best methods of preparation and preservation, which is worthy the study of all engaged in such investigations. Nearly one hundred and fifty pages are devoted to Professor Wilder's methods, and knowing as I do his skill in this department, I suggest that no higher model for the perfect construction and equipment of a dissecting studio can be found than the one he describes. The work is profusely illustrated with original drawings made specially for this purpose, and they may be relied on as accurate. Perhaps minor errors of observation and interpretation may be found in the text; but I think the reviewer who critically examines this work will have some difficulty in tracing inaccuracies of any magnitude.

New York, December 30th, 1882.

ACTION OF POTASH ON ALBUMEN.

To the Editor of THE LANCET.

SIR—I am far from desirous of entering the arena of controversy. Still I would venture to submit to the notice of your readers a few experiments on the action of a potassic hydrate solution on ov-albumen. A solution of pure potassic hydrate was prepared, the water employed for the purpose being twice distilled, and absolutely free from ammonia. The solution was boiled for half an hour, filtered through asbestos, and again boiled for an hour. It had a specific gravity of 1.5488.

Experiment 1.—Some ov-albumen was treated with two to three times its bulk of the potassic hydrate solution. Before heat was applied a small quantity was tested with a solution of lead acetate, with no appreciable result. To the remainder of the solution heat was applied, and it was allowed to boil for two minutes. On being again tested with the lead acetate solution a copious black precipitate of lead sulphide was thrown down. During the application of the heat a piece of lead paper, and a second piece of paper moistened with nitro-prusside of sodium, were placed in the neck of the flask, but the results were entirely negative.

Experiment 2.—Some ov-albumen was treated with about ten times its bulk of the potassic hydrate solution. It was tested with a solution of lead acetate at various stages with the results indicated:—(a) Cold. Result: No action. (b) At the moment of its registering 100° C. Result: A slight yellow discoloration, but no precipitate nor blackening of the solution. (c) After five minutes' active boiling. Result: The solution became of a reddish-brown color. (d) After ten minutes' boiling. Result: A slight but definite precipitate of a reddish-brown color. (e) After fifteen minutes' boiling. Result: A precipitate of a dark-brown color. (f) After thirty minutes' boiling. Result: A dense black precipitate proved to be lead sulphide. (g) After two hours' boiling. Result: Similar in all respects to what occurred after thirty minutes' boiling.

Throughout these experiments no traces either of sulphuretted hydrogen or of ammonio sulphide were set free from the solution. The conclusions I submit are manifest:—

1. That by the action of a boiling solution of

potassic hydrate on ov-albumen an alkaline sulphide is formed.

2. That this alkaline sulphide is not ammonio sulphide.

3. That with strong solutions of albumen the formation of the sulphide takes place rapidly, but that with dilute solutions it occurs more or less slowly, according to the quantity of albumen present.

Lastly, I would notice that the series of tints observed in Experiment 2—viz., yellow, reddish-brown, black—corresponds to the tints observed when sulphuretted hydrogen is first passed through a dilute lead solution—i.e., during the short interval that elapses before the black lead sulphide becomes actually formed.

I am, Sir, your faithful servant,

C. MEYMOTT TIDY.

Mandeville-place, W., Jan. 24th, 1883.

DILATATION OF THE FEMALE URETHRA.

To the Editor of THE LANCET.

SIR—In a clinical lecture on "Calculus in the Female Bladder," published in your valuable journal, Mr. Heath is accredited with the following words:—"I proceeded to dilate the urethra with a pair of polypus forceps and then introduced my little finger, and subsequently my forefinger, without difficulty. In this rapid dilatation there is, of course, some laceration, and it is usually upwards under the pubes and *does no harm*" (the italics are mine). This statement coming from so distinguished a surgeon, is, I think, calculated to do much harm, unless properly interpreted. Although so fortunate perhaps as not to have met with a mishap in his own practice, I am sure Mr. Heath does not intend to convey the idea that dilatation of the female urethra carried to the extent of admitting the forefinger, and to laceration, does not carry with it more or less danger of permanently impairing the retentive power of the bladder. It is undoubtedly true that the urethra and neck of the bladder is, in some females, susceptible of remarkable dilatation. In an operation for the removal of a soft villous growth from the bladder of a female, Winckle introduced both fingers and forceps into the viscus, the urethral mucous membrane was fissured, and yet none of the 150 grammes of water injected after the operation escaped from the bladder. In a similar operation by Schatz, although the urethra was dilated to an extent admitting two fingers, she could not retain her water one hour after the operation, though she soon regained the full tonicity of her sphincter; but, on the other hand, it is well known that this *not difficult* operation has been responsible for a great deal of suffering and misery in the protracted, and, in some instances, permanent incontinence of urine which it has occasioned, and rather than inculcate a feeling of safety, the novice should be warned against repeating an accident which has occurred in most experienced hands. That laceration of the urethra occurs, as a matter of course, is not to be wondered at when we consider the rude instruments that are made to serve the purpose of urethral dilators. In order to conform to the conditions by which alone a maximum degree of dilatation, without laceration, can be accomplished, the expansive force of the dilator should be distributed equally over all parts of the circumference of the urethra, by the unrolling of rounded blades, and not upon two or three sides of the canal as effected by the uterine dilators, polypus and bone forceps, so commonly employed. Again, the dilatation must be as gradual as it is continuous and uniform; that is, the degree of force ex-

erted should be carefully regulated to the amount of resistance to be overcome. An instrument providing for the conditions aforesaid is constructed by Tiemann & Co., of this city, and has been used here with great satisfaction for several years. It is both dilator and speculum. When closed it is 39 mm. in circumference and is capable of expansion to $6\frac{1}{2}$ centimetre.—Yours truly,

ALEX. W. STEIN, M.D.,
Surgeon to the Charity Hospital, etc., N. Y. City.
New York, Jan. 10th, 1883.

THE EFFECT OF TEMPERATURE UPON THE STAINING OF THE BACILLI OF TUBERCLE.

To the Editor of THE LANCET.

SIR—In one or two of the recent communications to your journal reference has been cursorily made to the influence of temperature upon the staining of the bacilli of tubercle, but sufficient prominence has not, I think, been given to this most important fact. With active staining fluids of the best kinds, and with material rich in bacilli, failure may result as a consequence of the fluids being maintained during the process of staining at too low a temperature. This has been a common experience during the recent cold weather; even the temperature of a moderately warm room at this time of the year is too low to give uniformly good results. I endeavored at first to obtain the necessary temperature by placing the capsules containing the preparations and fluids near the fire upon the hob or hearth, and although many of the results were highly successful, some failed, for it seems to be the case that not only too low a temperature, but even too high a temperature, may lead to failure. A water-bath is the apparatus best fitted for the purpose, as the temperature can in this way be easily maintained at about 100° F. for some hours; or if the expense of a water-bath be too great, an apparatus quite sufficient for the purpose may be made out of an ordinary hot-water dish or tin, upon which the preparations are placed, covered by a tea-cosy or a cap of felt or flannel.

Koch's experiments have shown that the temperature is all-important in the cultivation of these bacilli; and it is interesting to find that the same temperature (about 100° F.) at which they grow best is also that at which they stain best.

I make this communication in the hope of saving others the vexation and lost labor which ignorance of the fact long caused me.

I am, Sir, yours truly,
SAMUEL WEST,
Physician to the Chest Hospital, Victoria Park.
Wimpole-street, W., Jan. 8th, 1883.

ANTHRAX.

To the Editor of THE LANCET.

SIR—In an annotation in a recent issue you draw attention to the fact that, contrary to the generally received opinion, the placenta does not always constitute an impassable barrier to the passage of the bacilli of anthrax from the blood of pregnant animals to that of the foetus. In corroboration of that statement I may tell you that during the past summer while investigating an outbreak of anthrax in a flock of forty ewes—produced by the carcass of an anthrax sheep

buried in the pasture ground the previous summer—I found well-marked anthrax lesions in the foetuses of three ewes which had succumbed to the affection; and not only this, one or two of the animals aborted and recovered: it was also observed that most of the ewes which had lambed before the symptoms of the disease were shown recovered and did well. This case only confirmed strongly the opinions I had previously entertained in reference to this matter.

I am, Sir, yours truly,
THOMAS WALLEY,
Principal, Royal Dick's Veterinary College.
Edinburgh, Jan. 19th, 1883.

HAZELINE IN PROLAPSUS ANI.

To the Editor of THE LANCET.

SIR—A widow lady, aged about forty years, has suffered for several years with prolapsus ani of a severe character, attended with frequent hæmorrhage. About a fortnight ago the bleeding was very profuse, so much so that wine and brandy had to be given to her frequently to keep life in her. All remedies had been tried by her medical attendant, Mr. Hutchings, of Southborough, and failed to arrest the hæmorrhage for any time. I wrote and advised them to try hazeline, and found it has just been tried with great success, all bleeding having stopped, and there has been no return of it. The patient is recovering.

I am, Sir, yours, Etc.,
G. HOTHER, M.R.C.S.
Lewes, Nov. 15th, 1882.

KEROSENE OIL.

To the Editor of THE LANCET.

SIR—A few days ago I was summoned hurriedly to see a child, between one and two years of age, who had swallowed accidentally some lamp oil (kerosene). As the amount swallowed was very small, and readily induced vomiting, I contented myself with causing further vomiting, and administering castor-oil. On looking up the subject afterwards for information, I was unable to come across anything bearing on it. Therefore I have addressed myself to you, and shall feel greatly obliged to any of your readers who will answer the following questions:—1. What is more or less the analysis of kerosene-oil? 2. Is it poisonous, and if so in what dose and with what symptoms? 3. What medicine would it be judicious to administer as an antidote, or partial antidote, if any?

I am, Sir, yours truly,
TROPICUS.

"PHYSICIANS' PRESCRIPTIONS."

To the Editor of THE LANCET.

SIR—It is singular that there should be so much difference of opinion on this subject. If we look at the case accurately, the whole question seems to lie in a nutshell. A patient consults me—that is, seeks my aid. Why? To rid him of an ailment or to relieve his suffering. To do so I probably employ a combination of certain drugs, and I give a chemist written directions—the prescription—what drugs to combine and how. Clearly the nature of my prescription is a matter of no concern to the patient; his business is to use the means I prescribe for him. His right of

property extends solely to the bottle of medicine he receives from the druggist by my direction, and no further. The prescription itself, if it belongs to anyone, belongs to me, otherwise the patient might as well claim the knife with which I amputate his leg. He is allowed to retain the prescription simply as a matter of convenience for reference, for future repetition, and for identification; and I do not retain it, because it is probably of no further use to me. But curiosity, which in this case has its foundation deep in the instincts of human nature, leads a patient eagerly to scrutinize my prescription; if there is something in it he does not understand he often asks me for an explanation, just as another patient will not hesitate to inquire as to the contents of the bottle I may hand to him in the surgery. Both wish to have a hand in their own treatment, a desire which, like much of the meddlesomeness which often hampers the physician, springs from the all-powerful instinct of self-preservation. But it is absurd to suppose that the possession of a prescription confers on the possessor the right to use it on himself or on others at his own discretion.

I am, Sir, yours obediently,

W. J. TRENTLER, M.B. Edin.

Fletching, Jan. 30th, 1883.

LIME-JUICE AS AN ANAPHRODISIAC.

To the Editor of THE LANCET.

SIR—Having for some time been employed as surgeon in the mercantile marine, I have often heard it stated amongst the sailors that lime-juice acts as above; and on the voyage home I have known sailors positively refuse to take it solely on that account. Would any of your readers who have been at sea kindly give their experience on this point. By way of experiment, I tried it upon myself for a month, without any stimulant whatever, and in my own case, to my astonishment, it acted as "Jack" maintains it does.

I am, Sir, yours respectfully,

NAUTILUS.

December 18th, 1882.

News Items, Medical Facts, &c.

DR. AUSTIN FLINT has recently delivered a course of lectures on Auscultation and Percussion in Philadelphia. He has at these lectures demonstrated that most of the various sounds elicited by percussion and heard in auscultation may be produced and studied artificially with great ease. In his closing lecture he recommends that students should be made familiar with the sounds in this way, their character and mode of production, before passing on to actual clinical demonstrations of them.

EUROPEAN TRAVEL.—Persons contemplating a trip to Europe, or any other part of the Globe, either alone or with excursion parties, will find it to their advantage to investigate the numerous facilities offered by THOS. COOK & SON, the well-known Excursion Managers, of 261 Broadway, New York.

Full particulars of their arrangements will be mailed free, on application, to any one interested.

A DRESS has recently been exhibited at the rooms of the National Health Society, Berners-street, intended for the protection of sanitary visitors, nurses, and others who are compelled to enter

the apartments of persons suffering from infectious disease. It is made of glazed mackintosh, and completely covers the wearer, only the hands and face being left unprotected. It is stated that by the use of this garment the necessity for changing the ordinary attire is removed, and that the danger of communicating the disease is obviated. As often as may be convenient it may be cleansed with disinfectants. A respirator formed of medicated cotton-wool between two layers of thin net is added to the costume. After being used the cotton-wool is burnt and the net washed.

PATHOGENESIS OF EPITHELIUM.—Dr. Carl Hempel Reed, Resident Physician at the Philadelphia Hospital, has arrived at the following conclusions after a lengthened investigation of the pathogenesis of epithelium, with special reference to the formation of cancer:—1. Primary true cancers are found only in locations where there is pre-existing epithelium. 2. No cancer has been proved beyond doubt to have originated heterotopically. 3. The cicatrization of cancers explains the young connective tissue infiltration. 4. Young connective-tissue cells or white blood-corpuscles are never seen inside the alveoli. 5. The epithelial cancer-cylinders are independent of the connective tissue. 6. The endothelial ensheathments of connective-tissue trabeculae forming the alveoli are intact. 7. Secondary cancers have a concentric growth. 8. The proliferating power of epithelium normally is greater than that of any other tissue. 9. The results of the experiments show that the epithelial covering in the healing of ulcers is exclusively derived from the epithelium of the border, a most conclusive proof of this being the gradual advancement of the pigment from the borders of the healing ulcer; this fact, by analogy, forming a strong testimony in favor of the epithelial origin of cancer. 10. The transformation of connective-tissue cells into epithelial cells, in extra-uterine life, does not occur, physiologically or pathologically.

SUBACUTE ATONIC DYSPEPSIA.—"The preparation I have found to answer a most admirable purpose in such instances is neither strictly a food nor a medicine, but a sort of nondescript, betwixt and between. I allude to maltine, pepsin and pancreatine. As is well known, it is the half-way digested albuminoids and saccharine elements of wheat, barley and oats. Largely abounding in diastase and charged with the elements needful for carrying on the digestive process, all that is needed to complete the gastric process on a small quantity of appropriate food is heat and the vermicular action of the stomach.

On more than one occasion have I noted, during the past few years, the invaluable properties of the above preparation, after all other resources had failed. For the debility succeeding the acute diseases of those whose stomachs are inherently weak, or for the irritable and weak state which the long continued administration of medicines for some other disorder oftentimes engenders in the digestive organs, for the failure of energetic action during exhausting processes—as lactation, or large suppurative discharges, as well as for the gastric feebleness often attendant on tuberculosis, peptic maltine fills a place that no other preparation does, and in a truly satisfactory manner. It is altogether constructive; it is bland, even more so to the stomach than any food; it is not nauseating."—J. R. Black, M.D., in *Cinn. Lancet and Clinic.*

THE LANCET.

A Journal of British and Foreign Medicine, Physiology, Surgery,
Chemistry, Criticism, Literature and News.

JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

PUBLISHED MONTHLY.

No. 5.

NEW YORK, MAY, 1883.

Presidential Address

DELIVERED AT THE

CLINICAL SOCIETY OF LONDON,

On January 26th, 1883.

By ANDREW CLARK, M.D., LL.D.,

Physician to the London Hospital.

GENTLEMEN—Another epoch in the history of the Clinical Society has come to an end, and a new epoch begins to-night with us. Standing thus between the past and the future—between the work which has been done, and the work which lies before us to do—the opportunity naturally offers, and we may profitably avail ourselves of it, to inquire somewhat concerning both. On former occasions of this kind you have been treated to dissertations on subjects occupying at the time the attention of the profession, to discourses on what may be called the “philosophy of clinical medicine,” to delineations of the sorts of knowledge necessary to continued advancement in our art; and to eloquent exhortations to active, purposive, honest, clinical work. To-night for the short time that I shall presume to stand between you and the business which we are assembled to consider, I shall take humbler ground, and contenting myself with a short survey of the completed labors of the Society, I shall endeavor to elicit therefrom such fresh helps for future guidance as may enable us to make our printed Transactions still more worthy of the work wherewith we are occupied, and of the workers therein.

It seems to me after a careful examination of the contributions made to the Transactions of the Society during the reign of my illustrious predecessor, that both in matter and in manner, in abiding interest and in clinical importance, in fertility of practical suggestions and in successful boldness of the operative procedures recorded therein, the volumes embodying those contributions will bear favorable comparison with any like number of volumes which have been issued before them. I have discovered in this later work no decay of earnestness or of strength, none of faith or of knowledge, none of foresight or of judgment; and in some ways, as in the recognition of clinical affections unconnected with sensi-

ble anatomical changes, it has taken, as I at least am convinced, higher and truer ground.

Examining the whole series of our Transactions, and calling to mind the character of the discussions elicited by many of the papers, one cannot fail to become impressed with a vivid sense of the great and growing importance of the work which the Society is silently but surely doing. The general good results of the Society's work are now so obvious and have been so often mentioned that they need for remembrance only the barest notice. We see how, through diversity of inquiry, community of work, unity of purpose, and severity of procedure, we have improved our methods, added to our knowledge, established new connections, multiplied our resources, settled a surgical revolution, and widened, deepened, and in some quarters transfigured our views. All this is plain, and the statement of it may be open to the accusation of commonplace. But what is not so plain, and what is not commonplace, is the influence which the Society has exerted and is exerting upon the scientific character of individual workers; and this, although less obvious, is not less important. The Society has improved the scientific characters of good workers; it has implicitly exposed and repressed bad workers; and it has framed for the guidance of all alike a standard of work which is sensibly elevating the profession and benefiting our art.

In the work of the younger members of our profession I see, or at least I think that I see, greater care, patience, and accuracy in observation, a more rigorous fidelity in the record of therapeutical experiments, wiser caution in speculation, graver deliberation in judgment, a growing frankness in the confession of oversights and errors, increasing severity in the siftings and testings of their own conclusions, a readier effacement of the personality in the work, less unseemly eagerness for mere priority of publication, a deepened sense of the responsibilities of premature speech and writing, a rapidly abating bitterness in the conflicts of opposing views, a more robust and manlier spirit of scientific life, and less reluctance in making admission that there is no unconditional truth in the results of our inquiries—no finality in our finished work, no creed in medicine. But the Society has done more than train good workers; it has repressed bad workers. For one competent and conscientious worker there are ten who are incompetent and unconscientious, and who in divers ways hinder our progress and spoil our present

possessions. Intolerant of the patient and painful toil of the true worker, acute in power of superficial observation, gifted with a certain showy versatility, quick at catching hold of new ideas, ingenious in guessing, crude in experiment, loose in therapeutic trials, hasty in speculation, strong in dogmatic assertions, accomplished in the transfiguration and use of other men's work, finding what they want wherever they seek it, unhindered by difficulties, facile in speech, ready in writing, thirsting for notice, such men, now, alas, not uncommon in medicine, begot papers so quickly that they can have no necessary relation to time, observation, or thought, and flood our literature with their unworthy if not unvarnished lucubrations. The favorite hunting-ground for such men is therapeutics, and their favorite sport is the catching of remedies, the putting of them to new uses, and the setting forth of their successful results. These men discern no difficulties and have no failures; they can illustrate their successes by scores of cases, and explain them by the most ingenious theories. There is scarcely any limit to the extent or the variety of their achievements; and as they flaunt along in the fulness of self-satisfaction, they look down with pitying condescension upon those in the straight and narrow way who conscientiously toil with small success in seeking after truth, but who, nevertheless, missing the praise of men, find strength and solace in their sacred search.

Another great work of our Society has been, and continues to be, the gradual unfolding of the exact relations which morbid anatomy and, incidentally, experimental pathology should hold to clinical medicine. These two chief servants of our art, excited and carried away by their marvellous successes, and assuming a joint sovereignty over our art, look down with condescending superiority upon clinical medicine, ridicule her claims to supremacy, scoff at her empirical distinctions, reproach her with being unscientific, and strive to torture her into a slavish subjection to their theories. But the true relation is not this; it is, indeed, the converse of it. For the structural change is not disease, it is not co-extensive with disease; and even in those cases where the alliance appears the closest, the statical or anatomical alteration is but one of other effects of physiological forces, which, acting under unphysiological conditions; constitute by this new departure the essential and true disease. For disease in its primary condition and intimate nature is in strict language dynamic; it precedes, underlies, evolves, determines, embraces, transcends, and rules the anatomical state. It may consist of mere changes in the relations of parts, of rearrangements of atomic groupings, of recurring cycles of vicious chemical substitutions and exchanges, of new conditions in the evolution and distribution of nerve force, and any or all of them may be invisible to the eye, inseparable from life, and indiscernible in death. Undoubtedly the appearance of a structural alteration in the course of disease introduces a new order of events, sets in action new combinations of forces, and creates disturbances which must be reckoned with, even as mechanical accidents of the pathological processes. But always behind the statical lies the dynamic condition; underneath the structural forms are the active changes which give them birth, and stretching far beyond the limits of pathological anatomy, and predated by the actions and interactions of multitudinous forces, there is a region teeming with manifold forms of disease unconnected with structural change and demanding the investigation which it would abundantly reward. It is in this mysterious and fertile region of dynamic pathogenesis that

we come face to face with the primitive manifestations of disease, and learn how much knowledge from various sources is needed to understand it aright; it is here that we see how, without help from physics, chemistry, and biology, collecting, converging, and meeting in a common light, no single problem in disease can be completely solved; it is here that we are made to comprehend how the nature of a pathological product cannot be determined by its structural characters, but by the life history of the processes of which it is only a partial expression; it is here that we observe how, in therapeutic experiments, the laws of the race are conditioned and even traversed by the law of the individual; and it is here that we discover how clinical medicine is to become a science, and how she is already, beyond question, at once the mother and the mistress of all the medical arts.

And here in this relationship of processes to products, although only incidentally and inferentially touched by them, I must advert for a moment to the results of pathological experiments. As to their necessity and value in the progress of medicine there cannot be any justifiable doubt. But for whatever purpose they may be employed, however carefully they may be designed, and executed, however successful may be the precaution taken to exclude error, experiments have their subtle difficulties and dangers which are perilous to truth and cannot be wholly averted. By the prestige of precision, which often undeservedly they possess, undue weight is attached to their results, and by the assumption that in like conditions the results would be the same in man as in the lower animals, flagrant errors are committed and currency is given to false or inadequate generalizations. The experimenter interprets the results of his experiments by the light of their structural results; he forgets, or he ignores, the life-history of the processes by which they have been evolved, and he takes no account of the fact beyond controversy, that different clinical states find occasionally the same structural expression. In such circumstances doubt is inevitable, and it is only to clinical medicine that any just appeal for its solution can be made. To her at last all such experiments must be brought for trial; she must be their examiner, critic, interpreter, user, and judge. And no results of experiments can be made of any avail to medicine, or be used with safety in her service, until they have been filtered through the checks and counter-checks of clinical experience, and have responded to the test and counter-tests of clinical trial. And had these principles exerted their just influence in the recent debates concerning questions of this kind, we should not have had a seton in the neck of a man taken as the parallel of a seton in the neck of a guinea-pig; we should not have had the artificial tuberculosis of the rodent declared to be identical with the natural tuberculosis of the child; we should not have had grey tubercles and caseous pneumonias pronounced, on the grounds of mere likeness of structure, to be of one and the same nature; and we should have been spared the sight of science drunken with success and drivelling with prophecies, soliciting the public on the common highway.

Of such examples of good work done by the Society there are many more known to myself than I could give if time permitted, and doubtless there are many more known to others than I could not give because they have escaped my notice. But I have given enough to justify, and even to require, a little reckoning of our shortcomings. Happily, the Society has still its imperfections; and as they are unlikely to be easily remedied we shall not

lack motives to endeavor, nor miss the reward which comes from rightly endeavoring.

One of the defects which I notice in the Transactions of the Society is an incompleteness, outside the immediate objects of interest, in the history of many of the cases recorded therein. If we are to make real use of a case, and if the case is to help us with other cases to make great and true advancement in our art, it must be given to us as a complete whole. We must have not only the family and personal history, but we must have also the nature, assemblage, and progression of symptoms elucidated by all the assistance that can be had from physics and chemistry, from the spectro-scope and microscope, from physiology and experiments. I do not presume to say that incomplete cases are either valueless or unwelcome, for doubtless they have often an interest and value peculiarly their own; but I do say that for all the higher and truer objects of medicine our earnest and unflinching endeavor should be to make every case as complete as the collateral knowledge of the time will enable us to make it. Hence the necessity and value of purposive, concurrent, and co-operative work. Hence arose the great medical renaissance of Germany, when Virchow and Brücke, Ludwig and Traube, Meyer and Lieberkühn, Lehmann, and Helmholtz, bringing together the results of their critical and experimental studies in various departments of knowledge, resolved, as if by magic, some of the obscurest problems in physiology and medicine. But of all the defects in the work of the Society, the one which I consider to be at once the most important and the most inexplicable is the seemingly studied disregard, in the treatment of a patient's malady, of these minute conditions of his daily life which practically make or unmake health. So that special management being almost nothing, and special medication almost everything, it would seem as if physiological principles were of no account in therapeutics. But a more critical study of disease will soon convince us that this inference is unsound and its application incorrect. Putting aside for the moment inherited affections and parasitic maladies of whatsoever sort, I shall assume that chronic disease, a state of parts, and not a thing interposed between them, is the eventual outcome of continued violation, conscious or unconscious, of physiological laws as they exist for the race, or as they are conditioned by the peculiarities of the individual organism. I shall further assume that those violations are not exceptional and gross, but daily and minute, and that their effects, infinitesimal from day to day, become visible only after longer periods of time, and so escape recognition, except by those who are trained to discern the casual connections of subtle things. And I shall furthermore assume that the organism, in virtue of the inherent forces maintaining its solidarity, tends to repair existing, and to repulse threatening disorders, and that when placed in favorable, and liberated from unfavorable physiological conditions, this tendency issues and ends in successful action.

And now let us take for illustration a case of primitive uncomplicated gastric catarrh. Assuredly it does not come without a cause, and it is not introduced from without, but begotten within. It is in fact engendered out of a more or less prolonged and perhaps petty violation of the laws of stomach digestion, and it is maintained by conditions which, although apparently too trivial to be worthy of notice, are yet sufficient to hinder the formation of healthy peptones, and to traverse the reparative powers of the organism. What is ordinarily done in such a case? The patient is told in a vague sort of way to have a light and

nourishing diet, to take daily exercise, to avoid anxiety and overwork, and to try bismuth and alkalies with an occasional alterative aperient. Now, speaking, if I may be permitted to do so, from my own experience, it is certain that in such a case management is of more moment than medicine, and that without a rigid and even minute obedience to the physiological conditions of healthy digestion, the chances are small of a speedy and permanent recovery from the gastric catarrh. But the instruction of a "light and nourishing diet" admits of the widest diversity of interpretation, and with the most loyal desire for literal obedience, the patient, according to his age, habits, and station in life, may be unwittingly guilty of doings the most conflicting and injurious. He may eat too often or too seldom, too hot or too cold, effervescent or still. And without a conscious but yet real and great departure from the intention of his instructors, he may frequently refresh himself with cups of tea and coffee and make glad his heart by incidental glasses of wine or of beer.

Now there is a right way and a wrong way in the management of every such case; and although they lie so near each other, and are so much alike that the distinction between them is not easy of discernment, it is necessary that the distinction shall be made. For it is upon giving or not giving a correct and minute attention to the physiological conditions affecting the quantity, quality, and character of the solid and liquid food, the times and the circumstances of eating and drinking, the amount of exercise, work, and sleep, and the adequate discharges of excrementitious functions, that our work will succeed or fail, that our case will turn for evil or for good, and that the patient will either recover his health or drift into permanent valetudinarianism.

If time permitted and the occasion would justify it, I could easily produce from the records of our common experience in every department of medicine illustrations the most various and conclusive of the peril of neglecting and the profit of following minute physiological considerations in the treatment of disease. On this occasion I shall content myself with one.

Some eight years ago I was summoned to a consultation in South Kensington, where, in presence of the patient and his family, I met Dr. Andrew Stephen and Dr. Taylor. It appeared that the subject of our consultation, having been ill for many weeks, and growing rapidly worse, had been brought from Wales to London for further advice, and that the advice given was opposed to the feelings and convictions of the patient and his friends. The family therefore refused, without the help of another opinion, to carry out the proposed treatment; accordingly, with the acquiescence of the doctors, I was summoned to examine the patient, and to state my views, without previous consultation with my colleagues, but in their presence. The patient, a tall, stout man of about sixty, with flushed face, suffused eyes, anxious countenance, and swollen legs, sat leaning forward in an arm-chair, partially undressed, breathing laboriously, and apparently in much distress. He complained of shortness of breath and palpitation, of confused sensation in his head and occasional dizziness; of general weakness and of indescribable depression. The patient had a loaded tongue, with fetid breath, and, although troubled with nausea, was able to take freely of food and drink. The abdomen was distended and the liver distinctly enlarged. There were frequent discharges of fetid gases from the bowels. The feces, discharged twice or thrice daily, were dark, offensive, and unformed. The urine was scanty, pale, faintly acid, of a density of

1010, and slightly albuminous. The heart was large, flabby, murmurish, frequent, quick, and irregular in time and force. The pulse was small, thready, irregular, and beating over a hundred times in a minute. The legs were cedematous, bluish-red, and cold. The cervical veins remained continuously distended. Both lungs were congested at their bases, and there was frequent cough, with frothy, and sometimes sanguinolent expectoration. Nothing worthy of note was discovered in the nervous system.

Inquiring now as to the treatment which was being pursued, I was told that in the opinion of all who knew him, and of all the doctors except the last who had been consulted about him, the patient was a man of naturally delicate constitution, that he needed constant keeping up, and that his chances of life were in direct proportion to the amount of support that he could take. Accordingly he was taking food and wine every second hour, had iron, quinine, and strychnia three times daily, and, being increasingly thirsty, he drank milk-and-soda water without much regard to frequency or amount. Questioned as to my opinion of the patient's malady, and urged by my colleagues to say exactly what I thought, I replied that he was a man with deteriorated but not seriously diseased tissues and organs, and that he was in peril of death, not so much from his malady as from the means used for its cure, that he was being poisoned by food and wine, that he was in the condition of a fire having more coals put upon it than it could burn, and that his chimneys being choked he was in near danger of being suffocated with his own smoke. My colleagues agreeing with this view of the case, and the patient, after much discussion and explanation assenting, he was placed upon a precise and severe regimen. He was ordered to have four simple nursery sort of meals in the course of the day, to have an ounce of brandy diluted with eight parts of water at dinner and supper, to be restricted to two pints of liquid in the course of the twenty-four hours, to take nothing of any sort between meals, and as soon as he was able to move about the rooms in which he dwelt. In the way of drugs he was directed to take for a week or longer a grain of calomel at night, followed by a salient aperient on waking in the morning, and to have twice or thrice daily, two hours after food, infusion of gentian with bicarbonate of potash, iodide of potassium, tincture of digitalis and aromatic spirits of ammonia. For the first three days he was no better for this treatment. It tried him severely through the restriction of his liquids, and, declaring himself worse for it, he threatened to discontinue it, and to return to his former ways. But on the fifth day he began to improve, and then, his confidence being gained, there was no further difficulty in continuing the treatment, which, when digestion improved, was added to by the administration of reduced iron with meals. At the end of three months the patient declared that he was well, and all that could be said against him was that he had a weakish heart, that he was breathless upon exertion, that he had rather inadequate kidneys, and that to maintain his sense of well-being he was compelled to live by rule. This rule was a mid-day dinner with an ounce of brandy in half a pint of water, a moderate breakfast and tea, with eggs, or poultry, or fish, extreme moderation in the use of fluids, tepid sponging, warm clothing, gentle exercise, and early hours. Within a year I heard of the patient being in fair health and managing his ironworks in Wales. What I have since heard of him from time to time is instructive. Occasionally, losing his faith or lacking strength to follow his rules, he returns to the freedom for which he

longs, frequents society, dines late, rejoices again in his wine, and has all that his heart desires. For a time all goes merrily and well, and he breaks sarcastic jokes over the heads of his physicians. But sooner or later this seeming well-being ceases, and his troubles reappear. The urine diminishes in density, and becomes albuminous; the heart loses its strength and regularity; the breathing is oppressed; the nights are sleepless and the days depressed; till at last, after much suffering, his obstinacy is conquered, and reconvinced, and humbled and penitent, he returns to his obedience and again recovers his health.

Such cases are common enough, and my experience forbids me to doubt that in fevers and inflammations, in hæmorrhages and acute diseases of every sort, the issue of particular cases turns oftener than we are perhaps ready to admit upon an adequate understanding of the physiological principles applicable to the removal of the conditions imperilling life, and upon the resolution and patience, the minuteness and fidelity, with which they are enforced. Such considerations are true and important, not only in diseases jeopardizing life, but also in common disorders, which, although devoid of serious peril, invade our comfort, hinder our work, and dull our joy in life. I do not forget that through hereditary influences and unsuitable but inevitable environments many persons are doomed to be constantly ailing without being really ill; that their normal state is one of suffering; that no physiological readjustments and no specific medication can give to them the pleasant sense of health; and that attempts to effect what is impossible issue only in greater suffering or in disaster. But making full allowance for such cases, there remain countless numbers who are willing and eager to make any and every sacrifice necessary to recovery, and who are left to continue in suffering because the physiological principles and compensations applicable to their relief are derided, disregarded, or denied.

Reviewing anew the completed Transactions of the Society I am struck with the inadequate representations found therein of that interesting and instructive group of clinical affections which is unconnected, except casually, with sensible structural alterations of the tissues and organs. The group contains numerous members of divers sorts, and I cannot doubt that every one of them would repay thorough investigation, with fresh additions to our knowledge of the origin, the nature, and the relations of disease. Many of them, familiar to experienced practitioners, have no sufficient recognition in medical literature; and a full account of them all would contribute more than any other account that I can imagine to a just understanding of the relations of dynamic to static conditions, and of physiological to pathological processes.

Let me make mention of such members of this group of affections as lie nearest my thoughts at this moment. And, first, there is the morning agony of middle-aged nervous people, often the precursor of melancholia. A man awaking at early dawn is conscious of undefinable malaise and unrest; his mental and moral outlook become dark and gloomy; aching pains arise in the limbs; unable to lie still, he tosses restlessly about his bed; the malaise deepens into distress, and he groans; a cold sweat breaks forth over all his body; and then in a few minutes the attack subsides, and the patient finds himself in his accustomed health and spirits. In the second place, I will mention the temporary incomplete hemiplegias with aphasia, which, closely allied to migraine, occur often in women, and occasionally in men, otherwise healthy and strong. A woman, neither hysterical nor nervous, suddenly fails to see distinctly; the field

of vision is invaded by moving zigzag lines of light, arranged either in circles or in forms resembling the outlines of a fortification; there are slight ringing noises in the ears, and trifling confusion of thought; numbness follows about the tip of the tongue, on one side of the lips and mouth, in the right thumb, and more rarely in the right leg; the connection between ideas and their correlated words is interrupted; articulation falters; there is, perhaps, passing loss of power in the right hand or arm; the breathing and the pulsation of the heart are quickened; the feet and hands become moist and cold; and then, after a period of time varying from ten to thirty minutes, with or without a slight headache, the attack ends with a few deep sighs and a discharge of limpid urine. Curiously enough, when headache occurs early in attacks of this kind, and is severe, sickness soon follows; disturbances of speech, sensation, and motion seldom arise; and the distinctions which, in its fully developed form, separate this affection from migraine are obliterated. In the third place, there is the dry barking cough of boys and girls about the age of puberty. This curious but not uncommon affection is characterized chiefly by recurring paroxysms of a dry guttural cough, which resembles the barking and, occasionally, the howling of a dog. This affection is usually associated with various slight disorders of the nervous system, and with defects of will; it is greatly influenced by the emotions, and sometimes instantaneously cured by sudden surprise or shock; it is occasionally so distressing to others that servants, and even friends, cannot stay in the house in which the patient dwells; it is only in a small degree amenable to treatment; lasts from three or four months to as many years, and ends, in my experience, always, in complete recovery. In the fourth place, I would call attention to the cases grouped under the term renal inadequacy; cases in which, without discernible structural alterations of the kidneys, they are, nevertheless, incapable of producing a urine of sufficient density and of healthy constitution; cases in which the blood, getting charged with excrementitious matters, and nutrition and innervation becoming thereby disordered, the patients suffer in general health, fall immediately into peril from attacks of acute disease, and cannot, with ordinary chances of success or of safety, undergo a common surgical operation. In the fifth place, I will mention the numerous and important cases occurring among young persons in whom, under the strain of prolonged competitive examinations and great excitement of any sort, the urine temporarily falls in density, loses its healthy characters, and becomes albuminous. Of the young men competing for places in the Indian Civil Service examination, I have ascertained, by repeated personal examination, that more than a tenth becomes albuminuric. And, not to weary you further with illustrations, necessarily imperfect, of this group of affections, I will conclude with merely mentioning the glycosuric storms which, without sensibly damaging the body or materially impairing health, come and go throughout a lengthened life; the gouty spasms of the diaphragm so often mistaken for some affection of the heart; and those strange cases of antochthymia, in which the blood, when divided into minute streams, is ready to clot on the slightest provocation from the structures around.

Next in importance to the work of the Society are the manner and circumstances in which that work is done. Under these heads many reflections occur to me as worthy of being submitted to your consideration; but the time at my disposal is so short, and the list of cases for consideration so

long, that I must confine myself to the setting forth of a very few of them.

The general meetings of the Society have been well attended; but whilst the junior members have been conspicuous by their presence, the senior members have been conspicuous by their absence. This is much to be regretted for the sake of the work of the Society and the discipline of its members. The seniors themselves suffer in manifold ways from their non-attendance. They miss the stimulus which comes from contact with youthful enthusiasm; they slide into stereotyped habits of thought, expression, and work; they lose their receptivity; they ceased to adjust themselves to their ever-varying environments, and thus they become old, and the labor which should be life is transfigured into virtual death. The Society suffers; for it needs the large experience, the wide views, the sharpened insight, the cautious temper, the sober judgment of disciplined age, to control, regulate, and carry to their best issues the minuteness of detail, the flow of imagination, the hasty generalization, the speculative passion, and the dogmatic fury of our fervid youth. The pleas of pressing occupation and of consequent fatigue are doubtless true, but nevertheless they must be disallowed; for no good can be got without sacrifice; and the sacrifice of ourselves, even at the cost of suffering, is the only, or at least the chief, occasion of getting the strength which we need for the greater purposes of our lives.

Of late years there has arisen in the domains of general literature and of controversial theology a habit of dealing with the relations of ideas to words which is calculated to throw into confusion all the higher controversies of the time and to inflict serious injury upon letters, the advancement of knowledge, and even the moral life of man. Under cover of a particular word, connected by long usage and by common consent with a sufficiently definite idea, a new idea, totally different from the old, is introduced, and is then used as if the one had become merged into the other, and as if there were no doubt or difference between them. For example: By a religious man most people would understand a person devoutly loyal to his ideal of a Divine Ruler of the universe, and fervent in his endeavors to die to himself that thereby he might live to God. But in these days all this is being changed: a man who is emotionally interested in anything—in art, or physics, or science—is a religious man. His sanctity is to be measured by his fervor; and morality has just this relation to this religion that, if it interferes with its culture, so much the worse for morality, which is a defect or a disorder that forthwith must be thrust aside. Now this juggling with words and ideas—this throwing of dust into people's eyes so that controversies which cannot be settled may be stifled—this unpardonable sin in literature, is threatening to invade the realms of medicine, to confuse our discussions, and to render hopeless our progress in some departments of knowledge. For instance, the word tubercle is now often so used as to comprehend the most diverse ideas, and to give apparent reconciliation to the most conflicting views. One may not object to an author using in his works words in the sense, usual or unusual, in which he has defined them; but one must protest with all one's power against the habit of a man who puts on the clothes of another man and struts along the common highway pretending to be him.

A few more words upon a different aspect of the working of our Society and I will hasten to a conclusion. The cases recorded in our Transactions are for the most part admirable. It cannot justly be said of any one of them that it is destitute of

interest or of instruction; many are fertile in fresh expedients for treatment or conclusive in their bearing upon questions still contested or unsettled, and in not a few one finds the spell of original, creative, and far-reaching thoughts. But however highly we may rate the value of any one of those cases standing by itself, its value for every purpose conceivable in our relation to it would be doubled standing side by side with a record of the debate which the case had excited. For thus we should secure various views corrective or confirmatory of the position taken up by the narrator of the case, and we should obtain in this way what we can rarely, if ever, obtain in any other way, the ripe experience, judgment, and wisdom of busy practical and successful men. For the literary and practical faculties are seldom combined in one person, nay, in the course of time there often arises a sort of antagonism between them. The man who can observe, collect, classify, reason, invent, apply, is often through the direction of nature or the force of circumstances deficient in the qualifications necessary in one who is to speak and write with ease. His habit of accumulating and using knowledge for practical purposes weakens the power of methodical exposition, so that from his improving treasury we get fewer gifts, and the habit of continuous literary effort is not only neglected but shunned. And yet these are the very men whose knowledge is in an especial manner worth the getting; these are the men whose halting words straight from the watching and questioning of nature are oftentimes more precious than eloquent speeches; these are the men whose experiences worked into a few clear ideas, packed into a few awkward sentences and spoken in so many minutes, will sometimes bring to a conclusive close the discussions of many days. And when you cannot induce such men to write, you may tempt them successfully to speak, and the temptation will not be made more difficult, nor the responsibility in speaking less, by the knowledge that their words will be preserved in that storehouse of facts, experiments, and reflections which this Society will give to the generations that follow after this.

And as of like, although not equal importance, I shall venture to ask the Council to permit the publication in the Transactions of the reply made by the author of a paper to the criticisms which it has elicited. After reading in one of our journals the record of some interesting and important debate in which various, and perhaps contradictory, views have been advanced, we are told that "the author having replied, the Society adjourned." But what the author exactly said, how he dealt with the facts, cases, and criticisms adverse to his views, what he admitted or what he refuted, whether the case collapsed or succeeded, we are not informed. And thus, deprived of the most important evidence of the most important witness, we decide the case not according to evidence, which is incomplete, but according to prepossessions, which neither necessarily nor usually influence us aright.

And now that our work awaits us, let us turn to it with justly attuned minds. For surely the burden of it is not mere occupation or interest, not mere success or failure, not mere profit or loss, not mere distinction for ourselves, nor even honor for the profession to which we belong. The true and serious burden of our work as we smoothly say so often, and entirely realize so seldom, is the prevention of disease, the relief of suffering, and the prolongation of life. And this is the burden of it, not in a loose and general sense, but in a solemn and particular sense; it is the burden of it as it affects not merely many persons, but one per-

son, one with whom we have to deal as if he were the sole object of interest and importance in the world, as if all the momentous possibilities of life and death, of the preservation or the destruction of the family life, and of all the good or evil which might issue out of recovery or of death, were centered in him, and depending upon us. Important as our work thus is to the life and welfare of the individual and the family, it is not less important to the life and welfare of the State and the world. For this work, as it is sound or unsound, successful or unsuccessful, affects, for good or evil, the numbers of the population and its physical constitution, the supply of labor and the sources of wealth, the education of the young and the direction of their energies, the moral conditions of society and the objects of political organizations, the development of the race and the fulfilment of its destinies. Such reflections, common as they are, serve to remind us of what our familiarity with them makes us forget—the momentous and far-reaching influences of our work, and of the solemn responsibilities which lie upon us in undertaking and discharging it. Such reflections may further help us to cherish the spirit of self-sacrifice in active endeavors to overcome our ignorance of disease, till at last, with fulness more or less, knowing and foreseeing, preventing or controlling, stilling pain or curing disease, repulsing death and renewing the conditions of continuing life, we may justify the boast of our father, Hippocrates, and to men in their extremities of need give help like gods.

I cannot close these desultory and imperfect remarks without adverting to the honor which you have conferred upon me in electing me to the presidential chair. It is an honor which, although unanticipated and unsought, is not unvalued. I regard it, indeed, as the highest honor which I or any physician could receive. For titular honors may be got by Royal favor or the influence of a great Minister, or may fall upon one through accidents of position and of service. But this honor no favor, influence, or accident can purchase. It is a spontaneous gift of the profession, and the recipient of the honor must be free from grave reproach, and at least credited with some sort of merit.

I do not deceive myself with the thought that I am sufficiently worthy of this great honor, nor do I forget that there are others before me worthier of it than I. But I am not here to-night to quarrel with your judgment; humbly and gratefully accepting it, I shall strive to justify it by endeavoring in singleness of heart and fervor of purpose to co-operate with you in the divine work which you are doing for the relief of suffering, the advancement of knowledge, and the higher discipline of ourselves for the better service of both.

—THE magistrates at Kells, Ireland, were recently engaged in hearing a charge of indecent assault brought against Dr. Sparrow, medical officer, of Kells, by a female dispensary patient. Dr. Sparrow was accompanied in court by a number of medical men in the district. After the girl had been examined at considerable length, the magistrates unanimously dismissed the case, and held Dr. Sparrow free from any imputation. Defendant's counsel said that had the case proceeded Dr. Sparrow had in court many witnesses, medical and others, who could have established beyond a doubt that, so far from being guilty of the extraordinary charge made by the girl against him, he had simply done his plain duty as a medical man.

ABSTRACT OF

Jettsonian Lectures

ON THE

TREATMENT OF SOME OF THE FORMS OF
VALVULAR DISEASE OF THE HEART.*Delivered before the Medical Society of London.*

By A. E. SANSOM, M.D. Lond., F.R.C.P.,

Physician to the London Hospital, Senior Physician to the North-Eastern Hospital for Children, etc.

LECTURE II.

MITRAL REGURGITATION.

I HAVE to ask your attention this evening to the subject of the treatment of various conditions of disease associated with a certain imperfection in the mechanism of the heart—an imperfection of closure of the left auriculo-ventricular orifice at the time of systole, occasioning the reflux of a portion of the contents of the left ventricle into the left auricle, the mitral valve being inadequate to close the orifice. Pathological anatomy teaches that such result may be brought about by several varieties of morbid change: (1) By dilatation of the left ventricle without structural disease of the valve; so the free borders of the curtains are drawn upon by their circumferential attachments and prevented from a perfect apposition in systole. (2) By diseased conditions of the valve curtains, the tendinous cords, and fleshy columns, induced by endocarditis and the changes consecutive thereto. (3) By rupture of the valve curtains, cords, or columns, and their consequent incompetence. It has been supposed that rupture may occur from sudden strain in a healthy heart; but Drs. Wilks and Moxon have given strong reasons for the conclusion that there must have been some dilatation, at least of the left ventricle, previously; they consider that this accident is not of infrequent occurrence. (4) By atheromatous disease, patches of which may be observed upon the valve, with consecutive degenerative change, rendering it inadequate. (5) By ulceration of portions of the valve and the surrounding structures.

Mitral regurgitation is not, however, wholly to be interpreted by pathological anatomy. It is to clinical investigation that we must chiefly look for guidance. Of this condition a murmur at the left apex of the heart with the systole is the sign almost, though not quite, pathognomonic. The only condition with which it is likely to be confounded is, in my opinion, pericardial roughening at or about the apex. I have never known a difficulty about the differential diagnosis in the case of adults, but I have observed such difficulty several times in children. In cases of children I have repeatedly said that the quality, character, and situation of a systolic apical murmur will not declare with precision whether there is exocardial or endocardial disease.

Combined clinical and necropsic observation soon convinces us that in certain cases wherein we have determined from such physical sign that mitral regurgitation existed during life, no lesion indicating inadequacy of the mitral valve to close its orifice has been discovered after death. Moreover, in some cases where we have not only observed the sign mentioned, but where the whole category of signs, symptoms, and consecutive changes which experience has taught us to associate with mitral inadequacy, have been present, the autopsy has demonstrated no determinate lesion at the orifice.

It will best serve a practical purpose, I think, if we divide the cases in which the signs indicating mitral regurgitation are evident into clinical groups, discussing the bearing of the collateral signs upon treatment in each group. We shall thus consider the cases as we meet with them in practice.

I. A case presents itself manifesting signs indicating mitral regurgitation in the subject of marked *anæmia*. We have to inquire whether or no there has been antecedent disease, leading up to organic change at the mitral orifice. Supposing such signs are not in evidence, have we a right to assume that actual mitral regurgitation can be induced by the condition of *anæmia*, without concurring causes? The answer is, in my opinion, undoubtedly in the affirmative. In cases of *anæmia* and chlorosis a murmur is sometimes heard exactly in the site of that indicating mitral regurgitation. Assuming that in these cases there is a veritable regurgitation, how is such brought about? The explanation is, I think, given by the careful experiments conducted by Ludwig and Hesse at Leipzig, which have been admirably summarized by Dr. Donald Macalister.¹ The mechanism for the closure of the left auriculo-ventricular orifice does not reside in the valve curtains alone; the surrounding muscles of the ventricle have an active share, not merely in floating up the valve curtains, but in reducing the size of the aperture which these valve curtains have to close. It is not that the orifice is dilated, but that it is *insufficiently contracted*, the aid of the muscles of the wall of the ventricle which normally produce such contraction being lost.

It is important in regard to treatment to differentiate mitral regurgitation due to disease of the valves from that due to *adynamia* of ventricle, supposing a systolic apical murmur to be manifest in a markedly *anæmic* subject. The two signs I would most rely on as pointing to an *anæmic* causation of the murmur are: (1) an absence of notable cardiac dilatation; (2) a heightened tension in the systemic arteries. I have never known in these cases any marked improvement follow the administration of the usual cardiac tonics, such as digitalis and iron. In the cases attended with hæmorrhage it is, of course, of the first importance to arrest this at its source. Rest and the administration of assimilable food are no less important indications. In this connection I may call attention to the great value I have observed to attach to *supplementary alimentation by the rectum* in such cases. I have long tried the plan of using defibrinated ox blood for a nutrient enema, as advocated by my friend, Dr. A. H. Smith, of New York. In comparing results, however, with those in which artificially digested food has been employed, I felt that the balance of evidence is in favor of the latter plan. I have had prepared mixed peptone enemata—beef, milk, and farinaceous food—which have been proved to preserve a perfectly good condition for long periods. These have the advantage of being available at a moment's notice, it being only needful to render them diffident with warm water. From two to four ounces are injected slowly into the rectum, and repeated every three or four hours. In many cases I have caused to be added the dry ox blood (*sanguis bovinus exsiccatus*), in the proportion of a drachm to the ounce. I have lately, however, adopted a simpler plan with good results, using, instead of peptoned food, equal parts of warm milk and cod-liver oil as a nutritive enema.

In the treatment of cases of idiopathic *anæmia*

¹ Remarks on the Form and Mechanism of the Heart, etc., British Medical Journal, Oct. 28th, 1882, p. 825.

I have found no drug treatment so efficient as the administration of arsenic (Fowler's solution in small doses gradually increased). I have observed, as has been recorded by others, complete recovery, with the disappearance of the cardiac murmur, under such treatment, combined with rest and careful nutrition.

II. We will now assume that a systolic murmur is present in a person showing signs of a *neurosis of the cervical sympathetic*. It has been frequently noted that a murmur at the apex has existed in the subjects of exophthalmic goitre (Graves' or Basedow's disease); yet, on post-mortem examination, no disease at the mitral orifice has been discovered. In these cases anæmia may be present, but not of necessity. It is not casually related with the phenomena. Organic heart disease may co-exist, but such coincidence is rare. It is important to recognize, especially with regard to treatment, that in the subjects of Graves' disease mitral regurgitation occurs without valvular lesion. The record of fatal cases in which disease of the cervical sympathetic ganglia has been actually demonstrated in Graves' disease is now tolerably extensive. Troussseau, Cruise, and McDonnell, Keith, and Shingleton Smith have recorded cases in which some of the ganglia (usually the inferior cervical) have been enlarged, atrophied, or degenerated.

As regards treatment, in the cases which I have seen, ordinary tonics and digitalis have been of very little benefit, but great improvement has followed galvanization of the cervical sympathetic. I have employed the continuous current from twenty to forty elements (Léclanché). One pole may be placed behind the lower jaw in front of the sterno-mastoid, and the other either at a corresponding point of the opposite side, or at the nape of the neck right or left of the vertebra prominens, or above the sternum at the inner edge of the insertion of the sterno-mastoid.

III. I now turn to a third group of cases, and assume that the indications of mitral regurgitation are manifest *during the evolution of certain fevers*. In the course of typhoid fever, for example, a systolic murmur may be discovered at the apex. There is no history of its existence before the attack, but it has arisen during the course of the disease. The murmur is an evanescent one. To what is it due? The changes are, according to M. Hayem's observations, not in the endocardium nor pericardium, but in the muscle of the heart. In fatal cases the muscular fibres present a granular and fatty degeneration or a special form of vitreous degeneration, the areas of morbid change being disseminated in an irregular manner here and there throughout the cardiac muscle. There are, besides, a multiplication of the muscular nuclei and aggregation of cellular elements. In fact, the disease is a form of myocarditis. It is, I think, sufficiently proven that the murmur occasionally heard at the apex in cases of typhoid is due to regurgitation on account of imperfect apposition of the valves of left or right sides from enfeeblement by disease of the muscular fibres in certain areas of the heart wall. It does not appear that the occurrence of such murmur renders the prognosis more grave; but sudden death, in all probability from myocarditis, may occur in typhoid without any special evidence of direct cardiac impairment previously. Its occurrence, however, should make us watchful, and cases presenting any of the phenomena indicating myocarditis in typhoid should be observed and treated with a view of preventing subsequent dilatation. Analogous myocarditis has been described in variola by MM. Desnos and Huchard, and in severe forms of intermittent fever, as observed in Africa by M. Vallin.

It is obvious that a recognition of the nature of the alteration which produces a mitral regurgitant murmur in the cases we have been considering must have an important bearing on treatment. We need not fear that endocarditis has arisen as a complication, nor have we to debate as to an anti-rheumatic plan of treatment. The indication is to keep the disturbed muscle of the heart as tranquil as possible, and, of course, to promote as good a nutrition as the circumstances will permit.

IV. I now come to the fourth group, and assume that a murmur indicating mitral regurgitation is observed in the subjects of *acute or subacute rheumatism*. Attention has been frequently drawn to the fact that murmurs may arise in the course of evolution of the disease and yet disappear, and patients on convalescence may be supposed to be free from cardiac complication. I have in my former lecture deprecated this as a too hasty conclusion. It may be well to inquire, in the first place, what is the probable nature of these transitory or evanescent murmurs, which are by no means uncommon, for they occur, as the statistics of the London Hospital for 1880 and 1881 show, in about ten per cent. of the cases. Rheumatism is a disease notably attended with anæmia. Is it probable that these bruits are of the nature of those which we have considered to be casually related with anæmia? The evidence collated for me by Dr. Gabbett as to the site of such transient murmurs is, I think, against this view. It is well known that the murmurs noted in connection with anæmia, though sometimes heard at the apex and indicating mitral regurgitation, are far more frequently audible at the base over the site of the pulmonary artery or aorta. Even when heard at the apex they are usually accompanied by other murmurs at the base. In rheumatism, however, the usual site of the evanescent murmur is the apex. The totals for 1881 show as follows: Transient murmurs in mitral area, 15; at base and apex, 7; in aortic area, 5; in pulmonic area, 31. It would appear that a murmur which might suggest an anæmic causation is almost confined to a first attack of rheumatism; after two or more attacks no basic transitory murmurs are recorded. Then, as regards the transient systolic murmur in the mitral area, we may ask whether it may be due to myocarditis. If so, it does not resemble in associated phenomena the murmur observed in typhoid, etc. The peculiar perturbations of rhythm are not recorded, and it would appear probable that if there be myocarditis, it does not occur in disseminated areas, as in typhoid. May it not be that the temporary regurgitation is due to a localized myocarditis developed in the neighborhood of a swollen valve or inflamed endocardium? Thus, though the swollen valve might not be in itself incompetent, a temporary incompetence would be produced by the impairment of the force of the muscle. As the myocarditis subsided the valve would again become competent, but probably in many instances to present a renewed imperfection when the swelling in the course of time has given rise to fibrous change and consequent shrinking. I draw attention to this as a caution as to the expression of any opinion that a valve is sound after a murmur is developed during the early stages and disappearing during the later period of rheumatic fever.

Supposing that mitral regurgitation is left after rheumatic endocarditis, it is well known that compensation may be effected and the health of the patient be preserved for very long periods with no subjective symptom of cardiac unsoundness. The chief factor in inducing such compensation is a conservative hypertrophy of the right ventricle, and the sign of such compensation (supposing the amount of blood regurgitating to be not very small)

is an accentuated second sound over the pulmonary semilunar valves. Supposing that we are satisfied that there is due compensation, medicinal treatment may be entirely unnecessary. I have no doubt that a vast amount of injury has been done to patients by a shaking of the head of the auscultator over the subject of a mitral murmur, who, perhaps, was no worse at the time of examination than he was ten, twenty, or thirty years before, and who might continue uninfluenced for harm by his cardiac complication all his days. He should be cautioned against strain, against exposure, and against irregularities of diet, etc. He may be better occasionally for treatment by iron tonics, cod-liver oil, or strychnine; but any special cardiac treatment is out of place. Not so, however, if there be evidence that compensation is beginning to fail. I will pass in brief review the chief agents which are of service in such cases:—

1. *Digitalis* is *facile princeps* of drugs in the treatment of imperfect compensation. A little over a suitable dose, however, may induce nausea, vomiting, anuria, irregularity of pulse, and, instead of slowing, an enhanced rapidity of heart's action. Whilst a dose which produces favorable result is constant and discoverable in regard to a large majority of patients, in a minority such dose is inconstant, and even unattainable. As regards the preparation used we may have differences of result, and we know that, as in the case of so many vegetable products, the energy of different samples may vary. The pharmaceutical equivalents of the official drugs (P.B.) are a little awkward: one grain of the dried and powdered leaves = one-third of an ounce of the infusion = eight minims of the tincture. Practically, I consider the tincture most reliable, and that usually in small doses five minims to ten minims increased only in exceptional cases, and then occasionally reduced. Next in value I consider the powdered leaves (half a grain to two grains), the combination of which with alkalies I shall hereafter consider. In some cases, even by increasing the dose, no apparent influence appears to be exerted by the drug; then *digitaline*, especially when hypodermically injected, has been observed to give in many cases good results. The *digitaline* hitherto prepared has probably scarcely ever been the pure alkaloid; but it appears likely that by a new process it can be obtained in a state of purity. The usual dose for hypodermic administration is 1-50 grain. For a child of ten years of age with dropsy and great distress from mitral regurgitation, I found, after injection of 1-100 grain of *digitaline* hypodermically injected at intervals of four hours, the pulse-rate reduced by eight per minute after each injection. In this case recovery took place from the urgent symptoms, and the child was sent to a convalescent home. She relapsed, however, and died three months afterwards, when away from our observation. When the right ventricle has dilated so far that there is marked tricuspid regurgitation, the beneficial action of *digitalis* is by no means so decided. Nevertheless (especially when purgatives are also administered), the signs of tricuspid regurgitation may pass away. In other cases no such favorable result attends. In fact, as *a priori* considerations might suggest, any increased power of systole which the *digitalis* may bring about serves the more to force back the blood through the imperfect tricuspid orifice into the venous channels. Yet I have seen good results when the administration of *digitalis* has been combined with abstraction of blood by leeches or cupping.

2. *Belladonna* is, I think, only useful in the treatment of failure of compensation in cases of mitral regurgitation when combined with, or occasionally

substituted for, *digitalis*. *Belladonna*, like *digitalis*, increases the power of systole and raises the arterial tension. As Dr. Lauder Brunton has shown, it paralyzes the cardiac terminals of the vagus and reduces irritability by an anæsthetic effect on the sensory nerves of the heart. Very useful occasionally, it by no means compares with *digitalis* for prolonged employment. The hypodermic injection of 1-50 grain of *digitaline* with 1-80 grain of atropine I have found very satisfactory.

3. *Casca*.—A tincture made from the bark of the ordeal bark of West Africa has been employed as a substitute for *digitalis*. Dr. Lauder Brunton in his *Gulstonian Lectures* for 1877 published the results of elaborate experiments as to its physiological action. In kind this action appears much to resemble that of *digitalis*. Dr. Brunton has said: "Digitalis has hitherto been our great resort in mitral disease, but I think it probable that in *casca* we possess a drug more powerful still; at least its effect upon the arterioles appears to be greater than that of *digitalis*, and it is quite possible that it may succeed in those cases of advanced mitral disease where *digitalis* fails." I have employed the tincture of *casca*, substitutively, for *digitalis*, in a number of cases, but I have not been able to convince myself that it has any more beneficial action in mitral disease.

4. *Caffeine*.—Gubler, Shapter, Leech, Milliken, Brakenridge, Huchard, and others have recorded observations showing the beneficial action of caffeine (or its citrate) in cases of cardiac disease, especially where dropsy is a marked symptom. Some of the cases show very forcibly that a beneficial influence has been exerted by the drug. There are many apparently contradictory data as to the physiological action, but the cardinal points are: that it at first quickens, but soon after slows, the heart's action; that it increases the general arterial tension, and acts in a very pronounced manner as a diuretic in cardiac dropsy. Dr. Brakenridge advises that *digitalis* be administered previously to, or in conjunction with, the citrate of caffeine, and that small doses (three grains) should be employed. M. Huchard, however, recommends that caffeine, and not its citrate, should be used, and that in larger doses (four grains to six grains); it produces diuresis more rapidly than *digitalis*, and has none of its nauseating effect. I have employed citrate of caffeine in substitution for *digitalis* without any marked benefit being manifest; indeed, I have found that in some cases it has induced insomnia. Nevertheless, I consider that the evidence is such that I should certainly employ it in any case where, in cardiac dropsy, a rapid diuretic effect is desirable.

5. *Convallaria majalis*.—This is the well-known lily of the valley, long employed by the Russian peasantry as a remedy for dropsy. Prof. Sée has shown that it has an action much resembling that of *digitalis*. An extract of the whole plant is employed, in doses of from five to eight grains three times a day. In cases of mitral regurgitation with severe symptoms it entirely relieved the cardiac distress and, manifesting a decided diuretic action, removed the dropsy. Professor Sée considers that it may be used in all forms of heart failure, for it has none of the nauseating effects of *digitalis*; nor does it exhaust the contractility of the heart and arteries. I have employed it as a substitute for *digitalis*, and am convinced of its action in promoting a stronger ventricular contraction; but I am not yet convinced of its superiority to *digitalis*.

6. *Morphia*.—The hypodermic injection of morphia, as advocated by Dr. Clifford Allbutt is a most valuable adjunct to the treatment of failure

of compensation in cases of mitral regurgitation. I have found preparations of opium by the mouth generally disagree, but not so when the alkaloid is hypodermically injected. It is often very advantageous to combine the morphia with atropia or digitaline.

V. By no means all the cases which come before us showing mitral regurgitation are to be explained by the modes of causation we have hitherto discussed. In a considerable minority such regurgitation is secondary to continued high tension in the aorta and arteries. It is important for prognosis and treatment to discriminate the cases of *mitral regurgitation due to heightened arterial tension*. In such the apical murmur is usually *post-systolic*, the signs of hypertrophy preponderate, the patient is usually, though not always, of middle or advanced age, the advent of signs has been gradual. Often the arteries may be observed to be tortuous and hard. The most important signs, however, are the discovery either of aortic disease or of accentuation of the aortic second sound with pulse of high tension. Chronic renal disease may be also manifested. When not so complicated great improvement often follows a prolonged treatment by alkalies with iodide of potassium. A carefully regulated diet is most important, and those patients do best, I am convinced, who entirely abstain from alcohol. It is by no means infrequent to find a murmur of regurgitation brought about by such cause wholly to disappear. Their epiphenomena are often to be successfully treated by the administration of nitro-glycerine or the inhalation of nitrite of amyl.

LECTURE III.

MITRAL STENOSIS.

I propose now to consider the morbid conditions associated with a structural change at the left auriculo-ventricular aperture—a change which narrows this outlet and impedes the influx of blood into the left ventricle during the period of diastole. No disorder of function can bring about such a condition as this; the lesions are always organic. We will first glance at the *morbid anatomy* of the affection. If the mitral aperture be viewed from the auricle, it may in many cases be seen that a smooth septum presents itself between the auricle and ventricle, crossed by a narrow slit, almost straight, but inclining to be crescentic. Such a slit may be no larger than a sixpenny-piece or a shirt-button will pass through, and from its appearance the orifice has been termed the “button-hole orifice.” The natural form of the curtains may be entirely lost, their place being occupied by a thick fibrous structure welded at its circumferential attachment with the cords and fleshy columns, which may all be transformed into a dense tendinous mass. In certain cases this fibrous material, as well as the septum, is so much infiltrated with calcareous salts as to make it resemble bone.

Another but less frequent form of obstruction is that in which the mitral orifice, as seen from the auricle, resembles a hollow cone. This is known as the “funnel-mitral;” its ventricular outlet may be so small that it will scarcely admit the point of the little finger. Dr. Hilton Fagge has recorded forty-six examples of the button-hole to one of the funnel form of constriction; Dr. Hayden thirteen of the former to one of the latter; and of my own records of twenty autopsies in cases of mitral stenosis, two only were “funnel mitral.” M. Lancereaux has described a case of mitral stenosis in which, amongst the vegetations which surrounded the thickened orifice, he discovered hard granules, which were shown by chemical tests to

consist of urates. When treated with nitric acid they gave rise to a yellowish product (alloxan), and this, on the addition of ammonia and distilled water, gave the characteristic red color of murexide or purpurate of ammonia. The granules, when dissolved in acetic acid, crystallized in the characteristic rhomboids of uric acid. I draw attention to this observation because it may have an important bearing on the questions of etiology and treatment. I have myself met with a case of mitral stenosis in which there were abundant gouty deposits in the joints, some of which suppurated and gave exit to uratic deposits intermixed with the pus.

It is obvious that the great difficulty created by such alterations as these is the due filling of the ventricle from the auricle. In addition there is, however, in many cases, necessarily a reflux into the auricle at the systole of the ventricle. In proportion as the slit is narrow, the possibility of such reflux is less, and in extreme cases of stenosis it appears probable that no regurgitation is possible. In all cases the main difficulty is the obstruction; that of regurgitation is subsidiary, though frequently coexistent.

It requires only a slight consideration to be convinced that quite a different set of conditions obtains in mitral stenosis to that manifest in mitral regurgitation. Morbid anatomy teaches us that in stenosis the left ventricle is usually not dilated; it has its normal capacity, or is even smaller than natural. We should expect so, for the difficulty is not that the ventricle is habitually overfilled as in regurgitation, but that it is insufficiently supplied owing to the imposed obstruction. Upon the left auricle the consequences of mitral stenosis are very manifest. It is usually not only dilated, but hypertrophied. When dilatation preponderates, it is through an unusual failure of muscular power.

The signs by which we may recognize the lesion of mitral stenosis are as follows:—

First, the *murmur*. This is heard in the neighborhood of the apex of the heart, in the mitral area, but, according to my experience, usually rather to the right of the apex. It occupies the diastolic period—the long pause—usually the concluding portion of it, and then it terminates abruptly with the first sound. It is chiefly Dr. Fauvel, of Paris, and Professor Gairdner, of Glasgow, we have to thank for accurately describing this murmur, and making it available for the practical purposes of diagnosis. The distinction between the murmur indicating mitral stenosis and that indicating mitral regurgitation is to be made partly by the character of the sound and partly by the rhythm. The stenosis murmur is usually of a rattling and rolling character, but its chief characteristic is its abrupt termination; it ends with a sudden stop, as the murmur of regurgitation never does. Even when the murmurs of stenosis and regurgitation are combined, there is usually a spot in the neighborhood of the apex at which the former is heard to stop suddenly, and the systolic murmur to “tail off” from it. The rhythm is determinable by ascertaining the relation to the second sound, and to the impulse of the heart. In approaching the apex from the base, one may be convinced of the commencement of the murmur after the second sound. Near the apex one may hear that the termination of the murmur is with the impulse of the heart as felt upon the chest-wall, or where this cannot be determined the pulsation of the carotid in the neck. Such are very briefly, the chief characteristics of the murmur which is so commonly known as the *presystolic* murmur, that has been considered to be almost if not absolutely pathognomonic of mitral stenosis. I am able to afford the crucial proof of the view that

the causation of the presystolic murmur may be independent of the auricle: first, because in many cases I have observed that though there has been present a prolonged presystolic murmur commencing in the long pause almost immediately after the second sound, cardiographic evidence has shown the auricular systole to occupy its normal position, just anterior to the upstroke indicating the commencement of the ventricular systole; secondly, in a case under my observation, the auricle could have had no share in producing such a murmur, for post-mortem examination showed that not only was the left auricle so dilated that its wall could have exerted no appreciable muscular power, but it was lined by a closely adherent old laminated blood-clot. I consider that it is clearly proven that the so-called presystolic murmur may occur during the diastolic as well as the presystolic period, and that it may be due to the entrance of blood into the ventricle directly diastolic relaxation permits, the blood being urged through the stenosed aperture owing to the tension under which it has been retained in the elastic and distended auricle and the pulmonary veins. The contraction of the auricle may reinforce the murmur and make it loudest just before the ventricular contraction. In a few cases I have found the presystolic murmur closely simulated by the murmur of aortic regurgitation when this is conducted towards the apex, and especially, as is sometimes the case, when it is heard only in the mitral area. Cases have been recorded in which a presystolic murmur has been noted during life, and the autopsy has demonstrated, not mitral stenosis, but aortic regurgitation. Another possible source of error is the existence of pericarditis, when friction may be occasioned by the auricle and cease at the moment of systole. Again, I think most observers will agree that in some cases the presystolic murmur is extremely variable, and may be inaudible during repose, and yet very evident when the patient is made to manifest some slight exertion. Again, it may be absent for considerable periods, and then be readily discoverable. Although, therefore, I consider that in the great majority of cases the presystolic murmur declares with precision the existence of mitral stenosis, it is necessary to consider other signs before committing one's self to a positive opinion.

Another auscultatory sign of great importance in indicating the obstructive lesion is *reduplication*, or a *seeming reduplication*, of the second sound of the heart. This phenomenon is to be noted in at least a third of the cases of mitral stenosis, and only rarely in other conditions. It becomes, therefore, a valuable aid to diagnosis. I have formerly developed before the Society my views as to the mode of production of this seeming reduplication. I will only say here that I believe it to be due, not to any want of synchronism in the closure of the aortic and the pulmonary semilunar valves, but to the normal second sound, followed by another sound due to a sudden tension of the mitral valve itself. The blood, accumulated under pressure in the auricle, rushes through the stenosed aperture as soon as diastolic relaxation permits, and jerks the mitral curtains, or the thickened material which represents them on the ventricular aspect; this gives rise to a sound of tension, which, coming closely after the normal second sound, appears like a reduplication of the latter.

A third sign of importance in establishing the diagnosis of mitral constriction is *thrill*. A thrill at the apex is rarely met with in mitral regurgitation, but very commonly in mitral stenosis. Its rhythm is determinable in like manner with that of the murmur, and if it be presystolic the diagnosis of mitral constriction is assured. I have ob-

served presystolic thrill when there has been no presystolic murmur, and where the condition of stenosis has been indicated by other signs.

A fourth means of differentiation is the determination by percussion of the outline of the heart. If this be done accurately by means of a pleximeter and marked upon the chest wall, with a copying pencil a transfer may readily be taken upon paper and kept for reference. By this method I have shown in some cases (1) an abnormal bulging in the situation of the left auricle; (2) a dilatation of the right cavities and of the pulmonary artery with an absence of dilatation of the left ventricle. The concurrence of these signs has strongly suggested the diagnosis of mitral stenosis when other signs have been obscure. Lastly, a valuable aid to diagnosis may be received from the employment of the sphygmograph and cardiograph.

Very contradictory opinions have been put forth as to the pulse of mitral stenosis. My own observations point strongly to a notable irregularity of the pulse in mitral stenosis; and this in such degree as to afford valuable diagnostic evidence. In mitral regurgitation the pulse is usually regular until compensation is beginning to be imperfect and the right chambers commence to yield. In mitral stenosis, however, irregularity may be evident when compensation is perfect. It is true that many observations may be made with a record of an even and regular pulse; but with repeated observations the peculiarity of mitral stenosis becomes manifest in the trace, a double or even triple pulse is recorded before the base line of the sphygmographic trace is reached. These pulsations are due to repeated systoles, the normal correlation between auricle and ventricle being disturbed. In the later stages, when the right side of the heart commences to fail, irregularities in volume of the pulse may be observed, and in a case where there was great dilatation of the auricle I found the pulse become extremely slow, its rate falling from 80 to 56, and then to an average of 40 per minute. At one time it was 36.

The evidence afforded by the cardiograph when mitral stenosis is suspected is, in my opinion, extremely valuable. The trace enables one to judge of the relative length of systole and diastole. In free mitral regurgitation a very short interval separates the systoles, the duration of the systole, instead of being, as in the normal, less than that of the diastole, is greater. In stenosis, on the other hand, the interval between the systoles may be greatly prolonged. In stenosis the diastolic intervals may be observed to vary greatly in duration; two systoles may occur with no appreciable diastolic interval, and another interval may be abnormally protracted. Much more characteristic, however, is the appearance of a number of vibrations in the diastolic part of the trace—in fact, the vibrations which are heard by the ear as murmur, or felt by the finger as thrill, may be written on the smoked paper by the needle of the cardiograph. I show you many examples. In some it will be seen that the diastolic portion is serrated, and there is no indication of the elevation caused by the auricular systole just before the main upstroke indicating the grasp of the ventricle; in others, vibrations are seen to precede a defined systole of the auricle; in a third set, the auricular systole is well marked, and the sonorous vibrations of murmur, though murmur existed, are not recorded; so I think we have a means of determining, in some measure, the degree of constriction. If such were considerable, it is unlikely that the auricular systole would be readily transmitted and recorded; on the other hand, it is likely that the finely serrated line of vibrations would be produced by the extrusion of blood through the

narrowed aperture. Some of my tracings show in a marked manner the effect of effort in rendering evident vibrations in the diastolic portion which were not visible during repose. By a comparison, too, of the characters of the systolic and diastolic portions, I think we are enabled to obtain some indications whether in combined stenosis and regurgitation the former predominates over the latter, or otherwise, and whether or no hypertrophy preponderates over dilatation of the ventricles.

I pass on now to consider the clinical evidence as to the origin and course of the morbid changes which bring about the obstructive lesion. We are at once met by a body of evidence which shows that mitral stenosis, like mitral regurgitation, has a strong relationship with rheumatism. From the morbid anatomy standpoint, it has been supposed that, at least in some cases, the lesion might have been congenital. Many observations, however, show that the lesions of stenosis which in appearance suggest a congenital causation are met with in cases which are undoubtedly rheumatic. The association with rheumatism is an intimate one. If we inquire, however, as to the degree of such association, we find it decidedly less marked in the case of mitral stenosis than in that of mitral regurgitation. I have found, from statistical inquiries, that stenosis is far less associated with the acute forms of rheumatism than is the regurgitant lesion. Again, it is obvious that repeated attacks of acute rheumatism tend to produce the latter rather than the former. In the cases of children, I have found that it is not the more severe, but the slighter, forms of articular rheumatism which are attended with the obstructive lesion, whilst the opposite is the case as regards the regurgitant. My observations show that the proclivity to the obstructive lesion is in a very marked manner greatest where articular phenomena are not manifest at all. It might be thought that this was evidence rather against the view that rheumatism is a cause of mitral stenosis; but, as I have shown in my former lecture, the advent of endocarditis having the essential characters of that associated with rheumatism may be so insidious that no subjective sign marks its onset, and we have found in many instances that the course of the affection in the non-articular examples, and the morbid changes, as shown by post-mortem examination in the fatal cases, do not differ in any appreciable way from those which are manifest in cases having a distinct history of rheumatic causation. It would therefore appear most probable that the correct conclusion is, not that mitral stenosis is independent of rheumatism, but that it is associated with the less pronounced forms of it—with its insidious, and not (so to speak) with its *explosive*, varieties.

I bring before you examples of (1) presystolic murmur developing insidiously without signs of rheumatism; (2) systolic murmur at apex becoming changed to presystolic murmur; (3) a presystolic murmur developing insidiously, subsequently found to be accompanied by a systolic murmur. The evidence, I consider, tends to show that in a considerable number of cases the origin and course are insidious and gradual. The disease is not independent of rheumatism, but is unaccompanied by pronounced rheumatic phenomena; it is initiated by the form of endocarditis which I sketched in my first lecture as manifested by no subjective sign, accompanied by no prominent symptom, and yet differing in no essential feature from that which occurs in obvious relation with rheumatism. The endocarditis which results in mitral regurgitation is more violent, so to speak, whilst that which initiates stenosis is more protracted, giving rise to a slower formation of fibrous,

quasi-cicatricial tissue that under the even pressure of blood in the auricle tends to form the smooth septum which has erroneously suggested a possible congenital causation.

Not all the cases of mitral stenosis, however, originate in this manner. In some there has been, first, the induction, in association with the phenomena of acute rheumatism, of the lesion of mitral regurgitation; then has occurred probably a slow welding of the curtains, and in the repeated attacks of endocarditis the changes have been slower than those which result in retraction of curtains, cords, and columns to the ventricular wall. By either of these modes produced, it is probable that secondary changes take place in the diseased tissue—under the tension of blood the fibrous septum thickens, for it has to bear the chief strain of the auricular pressure, and not the ventricle, as in the case of mitral regurgitation. In some cases it undergoes calcareous degeneration, and probably in others where gouty signs are manifest it becomes infiltrated with the earthy lithates.

Compensation in cases of pulsal stenosis may be maintained, as in mitral regurgitation, for long periods. It may be even more simple in the former case than in the latter, for it is only a hypertrophy of the right ventricle, and not of both ventricles, that is needed to sustain it. So long therefore as a good nutrition maintains the muscular power of the right ventricle and left auricle, any special methods of treatment of a simple condition of mitral stenosis may be unnecessary. In course of time, however, the right ventricle or left auricle, or both, may begin to fail. Usually it is the former, but I have quoted a case in which it was markedly the latter, and in this I have no doubt the muscle failed on account of the great privations which the patient had undergone. The right chambers dilate on account of the pressure which is maintained within them if the compensating muscular power begins to fail. Then ensue the dyspnoea, the oedema, ascites, etc., which we are familiar with in analogous cases of mitral regurgitation. To restore compensation we may use for the most part similar means to those which we have considered in regard to mitral regurgitation. Even when orthopnoea and dropsy have supervened, I have in many cases found that rest, combined with the administration of nutrients and tonics, with digitalis, have restored the *status quo ut ante* often for a considerable period. Coincidentally with the use of means for increasing muscular power, I consider that small and repeated abstractions of blood are even more valuable in mitral stenosis than in mitral regurgitation. The tension of the right heart may be sensibly relieved even by a leech or two applied over the præcordium.

As regards the special action of digitalis in restoring compensation in cases of mitral stenosis, I am not convinced that this is as markedly proved to be beneficial as in the cases of mitral regurgitation. I have found that in some instances, as shown by the sphygmograph, digitalis has restored regularity, whilst in others it has increased irregularity of pulse. I believe it to be most valuable where stenosis and regurgitation are combined. Where the right ventricle is chiefly at fault, I do not think its good effect is so manifest; where it can induce an efficient systole of both ventricles and coördinate them, then I think it is the more valuable. In failure of the right heart, therefore, in extreme mitral stenosis I look more hopefully to caffeine and to convallaria majalis. M. Sée has recorded instances showing the good effects of the latter in mitral stenosis.

Though the production of the obstructive lesion

is more gradual, I do not think that the prognosis is more favorable than in the case of the regurgitant. We can point to many instances of mitral regurgitation where fair health has been maintained for long periods of years, where compensation is perfect, and where disease of the valves does not progress. Such instances are, I think, less common in stenosis; there is not a like quiescence, and degenerative changes or intercurrent morbid phenomena are more likely to occur.

In mitral stenosis, as well as regurgitation, it is not alone with the simple dynamical problem of restoration of compensation that we have to deal. Certain complications are almost of the essence of the disease, and call for consideration when question arises as to treatment. Such are (1) recurrence of endocarditis, or pericarditis, or both; (2) embolism. I consider that one of the great interfering causes, spoiling the chance of compensation in children and young people, is the occurrence of pericarditis with adhesions. Embolism of some sort is a source of danger, and an element to be considered in a large proportion of cases of valvular disease, especially of mitral stenosis. Clinical examples are brought forward showing the occurrence of this complication (1) on the venous, and (2) on the arterial sides of the circulation.

Embolism of a branch or twig of the pulmonary artery is a very common cause of the bronchopneumonia observed in mitral diseases, a characteristic feature of which is hæmoptysis. The occurrence of such symptoms in a case which has hitherto been questioned tells us that compensation is disturbed, that circulation is sluggish in the right chambers, and we are called on to strengthen the ventricles by cardiac tonics as well as to maintain rest. In all such cases it is desirable to restore the tendency to coagulation of the blood by the administration of alkalies, especially ammonia.

I bring forward also examples where arterial embolism has been the first clinical sign of mitral stenosis, the embolism giving rise to hemiplegia, hemichorea, epilepsy, etc. In cases under treatment for cardiac diseases the one sign which I have found to indicate the probability of the occurrence of embolism is a sudden rise of the temperature of the body. In all such cases the most perfect rest should be enjoined. I think also that an attempt should be made to render the deposit of fibrin less likely by the administration of ammonia or other alkalies. The induced phenomena, of course, call for treatment according to the organ or situation in which infarction occurs.

Clinical Lecture

ON

EXPLORATION OF THE BLADDER BY PERINEAL SECTION OF THE URETHRA,

AS A MEANS OF DIAGNOSING OBSCURE VESICAL DISEASES, AND OF REMOVING THE CAUSE WHEN IT CONSISTS OF TUMOUR, ENCISTED CALCULUS, ETC.

Delivered at University College Hospital on Jan. 29th, 1883,

By Sir HENRY THOMPSON,

Surgeon Extraordinary to His Majesty the King of the Belgians,
Consulting Surgeon and Emeritus Professor of Clinical
Surgery to University College Hospital, etc., etc.

GENTLEMEN—I have many a time in this place discussed the ordinary affections of the urinary passages, and endeavored to illustrate before you

the best methods of dealing with them. To-day I propose to call your attention to the unusual and obscure cases which sometimes occur, and to a new mode of investigating them, which is, I believe, destined to be extremely valuable. You are to understand clearly at the outset, that the plan I propose is not to be resorted to with anything like frequency in urinary diseases, nor, indeed, is it to be thought of in any single instance until we have failed, after prolonged and intelligent inquiry, by the means generally adopted to ascertain the nature of these affections. But I suppose that all of us, including even those who have enjoyed a very large experience, must confess that now and then a case is presented, manifesting severe and obstinate symptoms of urinary disease, of which, although a careful examination has been made, establishing all the facts which an exhaustive inquiry can elicit, we are unable to make a rational diagnosis, or materially check the progress of the complaint. But in the great majority of cases such an investigation enables us, at all events, to decide in which of the three principal divisions of the urinary organs the disease is chiefly situated—whether in the vesical, the ante-vesical, or the post-vesical region. I say “chiefly,” because morbid changes may exert an influence or extend beyond the limits of a single division. Let me just say here, that in the “vesical division” I intend, of course, to include every pathological condition which can affect the bladder, that the post-vesical division embraces all affections of the ureters and kidneys, while the ante-vesical division denotes all diseases to which the prostate and urethra are liable.

Such a classification is a natural one, and it is from a practical point of view desirable to determine at the outset of the inquiry this question of locality.

It will be obvious to every student in regard to the last-named, or ante-vesical, group, that the ability to make a physical examination of the urethra and prostate without difficulty, should leave little ground for doubt as to the diagnosis or the treatment of any affection of that region, although we may not be able always to affirm or deny the presence of some post-vesical affection also, in addition to the more obvious disease.

By way of indicating a typical example of the cases which are presented for careful investigation, because the affection is obscure, let me suppose a patient before us, who may belong to either sex, and who may be an adult of any age, and of whom the following particulars are affirmed.

He or she is the subject of unduly frequent micturition, both by day and night; the act itself is almost always painful, while pain, or at least uneasiness, more or less constant, is felt about the loins or pelvis. Then hæmaturia occurs with frequency, and is more considerable on some days than on others; but besides blood, the urine contains also pus and mucus. The signs and symptoms named have existed for a considerable period of time, and, although varying in intensity from week to week, have notably increased during the last few months. It is manifest also that the condition is not the mere sequel of an attack of acute cystitis, or to local poisoning as by gonorrhœa or the like; nor is it the result of any mechanical injury.

The method of inquiry best calculated to elicit ascertainable facts in such a case, consists in solving the following questions, and these are placed in the order in which it is generally best to determine them.

1. Has the urethra a sufficient calibre? To be ascertained by means of the bougie.

2. Does the patient empty the bladder by his natural efforts? To be ascertained by passing a catheter immediately after the patient's natural act of micturition.

3. Is any enlargement of the parts, either prostatic or vesical, notable on making rectal examination? seeking, of course, either the full, rounded contour of the hypertrophied prostate, or the hard irregular nodules of a cancerous growth.

4. Can the presence of foreign body in the bladder be demonstrated by the sound, or can any other abnormal condition be thus detected?

5. Are the signs of renal disease present in the form of constitutional albuminuria, habitual exfoliation of casts, of tubes, etc., or are there grounds for suspecting the presence of a calculus in the kidney, or possibly in the ureter, or of an abscess or tumour there?

Now, the whole of these queries may be answered in a sense favorable to the patient; in other words, no evidence of the presence of organic disease may be elicited by any one of these inquiries, nothing, indeed, discovered beyond the simple facts which constitute the group of signs and symptoms complained of, and which are of themselves insufficient to determine the nature or the locality of the disease. Let me, however, remark here that observation of the urine from time to time sometimes reveals a sign of great importance not yet mentioned—viz., the presence in it of small fragments of tissue which, under the microscope, show structure resembling that of the fibromatous or villous growths which occasionally spring from the internal coat of the bladder. There is another sign of great importance, second only in that regard to the presence of débris. The stream of urine issuing as usual of the normal tint sometimes changes to a florid red before ceasing to flow. Such an occurrence ought to be verified as fact by more than one observation. When it does occur the bleeding is always vesical or prostatic; when the blood is not only florid but rather plentiful, tumour of some kind is almost always present. Such evidence is highly significant when associated with the history and symptoms just described.

The conditions thus sketched, however, are not those of a common case. In the great majority of our patients a moderately careful and intelligent examination places beyond doubt by adequate demonstration the nature of the disease which produces the symptom in question. Now, it is for the few exceptional cases, and these are always very important ones, with a history of hæmaturia manifestly not renal, already referred to, with a history of treatment, too, by internal remedies reputed to be styptic, and beyond this chiefly watched for the development of more advanced symptoms, but with no purpose of surgical interference—it is for these cases, I say, that I propose to take a new and decided action. And I desire very strongly to submit also that such action ought not to be postponed until a stage has arrived when the operation of diagnosing and efficiently treating the disease may probably be accompanied by serious danger to life. And on this ground especially, that if the cause of the hæmaturia be tumour or growth of any kind the issue will certainly be fatal, unless the disease can be removed by operation.

The first and the essential step in the method I propose consists in examining the entire internal surface of the bladder with the finger, by which means we can easily recognize the presence of any tumour, large or small, or even of an irregularity or roughness in the surface of the lining membrane, or the existence of any calculus lodged

in a sac or sinus, or otherwise hidden from the researches of an ordinary sound passed by the usual route through the urethra. Of course it must be sufficiently obvious to everyone that the ability to do this easily, effectively, and safely, offers a valuable addition to the means ordinarily employed, for the most difficult and hitherto intractable cases of urinary disease which come before us.

But you naturally ask me, Is it possible that such an examination can be effected on the terms just named, that is, with ease, efficiency, and safety? I have no hesitation in answering you in the affirmative.

I am, however, quite free to confess that a few years ago I should have been unable to make such a reply, and that it has only been after some unusual experiences which have fallen to my lot during the last few years, that I have satisfied myself that we can, without difficulty, examine the entire surface of the bladder with the tip of the finger.

Certainly before the discovery of anæsthesia the proceeding would have been impossible. But mere anæsthesia is insufficient: it is essential, in the first place, that the influence of the anæsthetic agent should be carried far enough to ensure complete relaxation of the voluntary muscles, so that their tension should not impede any action of the operator. This condition being fulfilled, it is, in the second place, necessary that the tip of the index finger should be placed just within the internal meatus at the neck of the bladder. Next, it is to be remembered that when the bladder is empty—that is, not distended by urine or by a calculus—the cavity presented for exploration is a small flaccid bag, sometimes merely a cul-de-sac, every portion of which is situate at a short distance from the finger placed in the position just described. Lastly, if the finger of the operator's left hand be maintained in that position, while he makes firm suprapubic pressure with his right hand, I maintain that there is no difficulty in bringing every portion of the internal surface of the bladder, successively, into close contact with the tip of the left index-finger; a contact which enables him at once to estimate correctly the condition of the interior, in relation to every important particular necessary to be ascertained.

Before considering the best mode of performing the simple operation which enables this exploration to be effected, I will anticipate an objection which may very naturally arise in some minds—viz., that we are not always able to reach the neck of the bladder with the tip of the finger when the incisions for removing a stone by the lateral operation have been completed. Hence it is notorious that a long and flexible index-finger is regarded as an important element in the making of an able lithotomist; yet, although possessed of it, he may still be unable to reach the point in question, in a few exceptional cases.

To this I reply, that there are few bladders indeed into the neck of which, even when the prostate is large, a finger of ordinary length may not be introduced, if carried straight in from the centre of the perineum, which is the shortest route from the surface. But, in addition to this, I refer to the fact which I have verified by experience—viz., that firm suprapubic pressure made by the right hand of the operator, or aided by an assistant if necessary, will accomplish the object, even in an exceptionally deep perineum, if the index-finger is firmly pressed up from the perineum to meet the other hand. Of course, when large outgrowth of the prostate is present, occupying the neck and cavity of the bladder, it may be impossible to carry the finger to the point desired; but then it is to be

remembered that in such circumstances there is no need to make incisions in order to explore the internal surface of the bladder, the case not being an obscure one, but, on the contrary, quite unmistakable.

Let us now consider the manner of operating, so as to place the tip of the left index within the neck of the bladder. The first object to be attained is the opening of the urethra at or about the membranous portion, by the simplest and shortest route from the surface of the perineum, making a passage only sufficing to admit with ease the entry of the forefinger and no more. There can be no doubt that a vertical median incision—that is, one made in the line of the raphe—will fulfil this indication better than any other. In this situation the prominence which is formed by the bended knuckles of the operator, when introducing as far as possible the index-finger, lies in the hollow equidistant between the two nates, and presses directly towards the centre of the bladder. Any incision made right or left of the median line must of necessity lead obliquely to the centre, and be therefore a longer line, because it commences at a point on the external surface more distant from the neck of the bladder than is the raphe of the perineum. Accordingly I prefer, and always employ, a vertical incision in the centre of the perineum, carried straight to the urethra, aiming at the point close behind the bulb, a procedure which as far as the incisions are concerned has been practiced by surgeons for centuries to relieve stricture, retention, etc., objects, however, altogether differing from that for which I have employed it, and which is the subject of our consideration here.

The patient then is to be placed in the ordinary position for lithotomy, a rather short, well-curved staff, with deep median groove is passed into the bladder. The operator enters the point of a long, straight bistoury about three-quarters of an inch above the anus, and makes a vertical incision upwards of the skin, not more than an inch or an inch and a quarter in length. He then carries inward the knife deeply, nearly parallel with the rectum, in which the left index should be placed, to inform the operator of the relative positions of the blade and the bowel, until the point reaches the groove of the staff about the membranous portion of the urethra. He is next to incise the tissues covering the groove for about half an inch; the left index is then to be introduced into the wound, the nail insinuated into the groove, then slowly into the urethra beyond, gradually dilating it. When the finger is fairly lodged in the prostatic urethra, the staff is withdrawn, and the finger is pressed firmly onwards until it enters the neck of the bladder; and it should now be felt to fill, or nearly so, the entire wound, and it does so if the incisions have been made as directed. As a rule very little bleeding results. The operator now, maintaining his finger in the situation described, should rise from his seat to the standing position, place his right hand on the patient's abdomen, directly above the pubic symphysis, and make firm pressure into the pelvic cavity. He will soon recognize the end of the left index-finger, and by concerted movements of the two hands he may, as I have already said, examine with ease the upper surface of the bladder, and explore the lateral walls, the fundus, and trigone; the latter more completely, if necessary, by placing the other index-finger in the rectum.

You will observe that the procedure thus described is simply a limited external urethrotomy, not "cystotomy," as when incision of the neck of the bladder has also been made; much less is it "lithotomy" in any form. The incision involves

only a small portion of the urethra anterior to the prostate and neck of the bladder, which are left perfect and intact throughout. Hence its result is to enable the male bladder to be examined almost as readily as that of the female in its natural condition, an approximation to which is attained by the operation; and in the female, as you know, dilatation of the urethra alone suffices to permit the finger to enter the viscous and explore it.

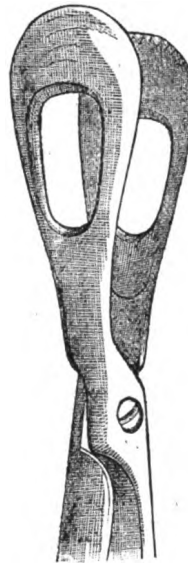


Fig. 1.
The forceps for removing
tumours (No. 1).

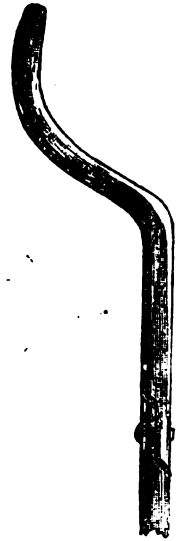


Fig. 2.
Curved forceps (No. 2), for
tumours springing from
the side of the bladder.

We will now suppose the result of such an exploration to have been that the operator's finger recognizes the presence of a soft protruding mass or flocculent growth springing from some part of the bladder. If brought within reach of the finger by supra-pubic pressure, it is easy to verify the nature of the peduncle, whether it be narrow or broad, together with any other physical characters which are obvious to the touch. The operator will next introduce a forceps, the extremities of which meet by broad roughened edges, so that they nip off, without cutting, the greater part of the salient portions of the tumour. Those that I have designed for the purpose are shown at Fig. 1. The extremity of each blade meets its fellow by a margin of about an inch long and about one-sixteenth of an inch broad, and these are indented so as to effect a separation of the morbid tissue, with as little chance of producing hæmorrhage as possible. With this instrument the greater portion of almost all growths can be removed. But I soon met with a case in which a small growth protruded close to the neck of the bladder, and although with the forceps described I took away the protruding portions from the other aspects of the bladder, I failed with this instrument to seize the small one close to the neck. For this I designed another forceps (No. 2, Fig. 2). It will be readily seen that by means of this instrument it is easy to remove any growth in the situation described, and both forms should be at hand when making exploration of the bladder. Since the occurrence referred to I have operated in three other cases of large vesical



Fig. 3.

The same forceps, or No. 2. Front view, showing divergence of blades by joint, to prevent nipping of the soft parts at neck of the bladder when closed.

tumour in the male, springing from the left side of the bladder not far from the neck. These I removed chiefly with the curved forceps (No. 2), the other forceps being almost inapplicable (see Figs. 2, 3). Perhaps there are circumstances in which an *écraseur* may be a more efficient instrument than the forceps for removing a growth; this, however, I venture to doubt. In order to adjust the cord or wire, more room is necessary for manipulation than the incisions described will furnish. It is better to keep these within narrow limits when it is possible, and such have sufficed me for the complete removal by the forceps of a very large tumour. The forceps and the finger are of course to be employed alternately, the one to define clearly what the other is to lay hold of; for I have never found it necessary to make a wound large enough for both finger and forceps to pass in company. But the *écraseur* would require an accompanying finger, and more space must accordingly be secured for their joint action, which I object to because it is certainly undesirable to make extensive incisions. In the female the *écraseur* can be more easily managed because room is

more readily acquired without section. After the chief portions of tumour have been removed from the bladder, it should be washed out with a current of cool water, by means of a syringe and tube through the wound, after which a large vulcanized catheter is to be introduced, so that about half an inch lies within the bladder, and in this position tied by stout bobbin to a bandage round the patient's waist. The other end protrudes some five or six inches, and is placed within a bottle, adjusted to receive the contents of the bladder. Hemorrhage is usually free during twenty-four to forty-eight hours, and then slowly ceases; pain is sometimes but not always severe, and should be controlled when necessary by a morphia injection. The tube should remain from five to eight days and then be removed, when the wound rapidly heals and all the urine soon passes by the natural channel.

A brief *résumé* of some fifteen or sixteen cases, six of which are those of vesical tumour removed in the manner described, will be given on another page.

Hunterian Oration

DELIVERED AT THE

ROYAL COLLEGE OF SURGEONS OF
ENGLAND

On February 14th, 1883,

By T. SPENCER WELLS,
President of the College.

MR. VICE-PRESIDENT, MY LORDS, AND GENTLEMEN—
Just seventy years ago, Matthew Baillie and Everard Home, being, to use their own words, "desirous of showing a lasting mark of respect to

the memory of the late Mr. John Hunter, which shall at the same time express the very high sense they entertain of the very liberal conduct of the Royal College of Surgeons in supporting and preserving the Hunterian Collection," agreed with Sir William Blizard and Mr. Cline to endow "an annual oration, to be called the Hunterian Oration, which shall be read or delivered in the theatre of the said College on the 14th day of February in each and every year (being the birthday of John Hunter)." They devised that such oration "shall be expressive of the merits in comparative anatomy, physiology, and surgery, not only of the said Mr. Hunter, but also of all such persons as are or shall be from time to time deceased, whose labors have contributed to the improvement or extension of chirurgical science. After the first oration in 1814, one was delivered every year until 1849. Since that year it has been biennial, and the indefinite phrase "from time to time deceased" has been interpreted as applicable to the Fellows and Members and other distinguished men who have died since the delivery of the previous oration. This custom I shall follow; and before alluding to any other subject, I will endeavor to bring before you some account, necessarily very brief, of a few of the men who have died since February, 1881, "whose labors have contributed to the improvement or extension of chirurgical science."

Were I to attempt to do more than make a passing allusion to such men as Schwann and Bischoff and Darwin and Rolleston, and include comparative anatomy and physiology in the term "chirurgical science"—which in the home of the Hunterian Museum I should almost be bound to do—the short space of one hour would be so fully taken up as to exclude any other subject. And even if I were to include some of our countrymen who have rather advanced the medical department of chirurgical science, and allude to such veterans as Christison and Billing, or Alderson, or Watson, whose loss is so recent, and to whom personally I shall always be grateful for kind encouragement in the earlier years of my practice in London; or to our Scotch brethren, as Pirrie and Spence; or Thompson, of Lisburn, who did the first ovariectomy in Ireland; or McClintock, a leader among our Dublin brethren—any notice must be so brief as to be useless. Still more so were I to include those of our brethren abroad or in America, like Pirogoff, Busch, Hueter, Davaine, Atlee, who now "rest from their labors," and whose "works follow them." I am compelled therefore—not from want of respect or appreciation of such men, but simply from want of time—to limit my remarks to those Fellows and Members of this College who have died since Mr. Holden's eloquent oration was delivered here two years ago.

Three hundred and sixty-seven Members and Fellows are included in this death-roll of only two years. A hundred years ago, in 1783, when Hunter had just bought the house in Leicester-square, which in its altered form of Alhambra was burnt down last year, the Members of this College numbered 835. In a hundred years we have increased in number more than twenty-fold, for we have now 16,093 Members and 1,186 Fellows—a total of 17,279 men associated in our work. In the two years which have passed since the last Hunterian Oration, 367 of the Associates have died. The average age of the Fellows was about sixty-six years, and of the Members fifty-seven years. One Fellow and four Members attained the age of ninety years and upwards, and the other thirteen Fellows and twenty Members eighty years and upwards. A few Members died within five years of obtaining their diplomas, and we lament the loss of one Fellow who was only admitted last year.

Two of our deceased Fellows—Luke and South—had attained the highest position in our College. Both were members of Council, both examiners, both had been President twice, and both had been teachers of surgery in large metropolitan hospitals.

Mr. Luke was twice President of this College—in 1853 and 1862. He delivered the Hunterian Oration in 1852. For many years he was one of the examiners, and he was connected with the London Hospital from 1816, as a pupil, till his death at the age of eighty-two, when, after having long retired from private practice, he held the office of consulting surgeon. He attended the lectures of Abernethy and Astley Cooper, and was one of the personal links connecting these great masters of our art with the surgeons of our time. Luke's work as hospital surgeon and as teacher certainly contributed to the advance of surgery in his time. In his operation for femoral hernia, by small incision and division of the stricture without opening the sac, his success was very remarkable. In his Hunterian Oration Mr. Luke refers to a letter of Hunter's urging upon this College the establishment of a library, which he "would consider one of the happiest wants of his life," as a proof that he regretted his own deficient early education; and Mr. Luke strongly insisted upon the necessity of a good general education for all medical men, and upon the study, specially of French and German, and he spoke with great satisfaction of the examinations in the classics recently instituted by the Council of this College. Turning to the study of Hunter's character as an example to ourselves, he noted the "perfect honesty and integrity of all his scientific and professional acts," his indifference to money—except as enabling him to promote his favorite objects—his beneficence, his wonderful industry, and his careful subjection of all his doctrines to the test of fact or experiment.

South was one of the last surviving relics of the staff of the then united hospitals of Guy's and St. Thomas's; apprenticed to the younger Cline of St. Thomas's, and after very many years' service as assistant-surgeon there, succeeding too late in life to the full surgeoncy. He was a member of our Council from 1841 to 1871; was an examiner for many years; was Arris and Gale Professor; delivered the Hunterian Oration in 1844; and twice, in 1851 and 1860, was honored by the highest distinction his colleagues on the Council could bestow. His works are translations of Otto's well-known Compendium of Anatomy and of Chelius's Surgery, which he greatly enriched by his own notes. His text-book on the Bones and his Household Surgery have both done useful service. When Frank Buckland discovered the coffin of John Hunter in St. Martin's vault, it was owing to the exertions of South that the body was removed to Westminster Abbey, and the inscription on the tablet which has been placed over the grave in the Abbey was written by South. For many years he had been engaged on a history of this College and of the Barber-Surgeons. His widow has permitted me to read the manuscript volumes—most beautiful specimens of neat and distinct hand writing, and very extraordinary evidence of industrious research. One extract from these volumes I may now use as illustrating the advancement of the College since Hunter's time.

A former President—then styled Master of the Corporation, Mr. Gunning—wrote as follows, on retiring in July, 1790, from the office of Master. John Hunter was one those present when these remarks of the Master were read. After some complaints of the imperfect way in which the College books were kept, and the unnecessary expenditure

on dinners, he said:—"Your theatre is without lectures; your library room, without books, is converted into an office for your clerk; and your committee-room has become an eating parlor. . . . If, gentlemen, you make no better use of the hall than what you have already done, you had better sell it. . . . I am sorry to observe that you have instituted lectures neither in Surgery, nor indeed in Anatomy of any degree of importance, nor have you held out any gratification or reward for rising merit."

Now our library contains about 39,000 volumes, and every year becomes a more complete library of medicine and the auxiliary sciences. Our museum is our chief possession, the most complete of its kind in the world, and the offices of assistant-conservator are valued as rewards to rising merit. Our hall is not only used for the lectures of Flower and Parker, Power and Eve, and of a succession of our leading practitioners, but for the examinations of the young men who will become the surgeons of the future. The Council has already taken the first step for providing additional accommodation for the examinations by securing the services of one of the greatest architects of our time—Mr. Waterhouse—to report upon different plans, which will have to be carefully considered. I am also hopeful that, by a judicious outlay of part of our accumulated funds—assisted, perhaps, by contributions or legacies—we may supply what is now felt to be a great want—I mean such a complete central pathological laboratory as may assist the men who are leading the advance of experimental physiology and pathology. Dr. Ogston's work at Aberdeen, on micrococci poisoning, has already proved how very useful such a laboratory may be, and more than justifies the most sanguine hopes of the good to be expected from the endowment of a chair of Pathology in the Northern University by the munificence of my predecessor in the Presidency of this College, Sir Erasmus Wilson.

George Gulliver, who died last year in his seventy-eighth year, was a pupil of Abernethy, dresser to Lawrence, surgeon in the Guards, one of the first Fellows of the College under the new charter—elected "in recognition purely of scientific merit"—for twelve years a member of our Council, and Hunterian Professor of Comparative Anatomy and Physiology. In 1863 he delivered the Hunterian Oration in this place, warmly criticising some who had said that the material for these orations is "nearly exhausted." He maintained that "there is perennial interest and instruction in reviewing the works of a man of genius, in the now steady and now fitful lights and shadows of advancing science, and he warmly upheld, against what he believed to be unfounded claims of French and German physiologists, the just merits of the British school of physiology, instancing the labors of Hunter and his disciples, especially of Hewson, who "fairly entering that prolific field of cells and endosmosis which was left utterly forgotten and barren for upwards of half a century afterwards, until new minds, with the aid of better instruments, found in it such a variety of rich fruits, and confirmed so many of his long-neglected conclusions." In one of Gulliver's lectures he asserted that a moderate quantity of beer may promote the formation of a chief product of digestion—the chyle. His illustrations of the molecular base of the chyle, of the intimate structure of tubercle, of the softening of fibrine, and his investigations into fatty degeneration of tissues and their relation with arterial changes and apoplexy, were all in advance of the pathology of his day. He argued that the modern "protoplasm" is but a synonym of the old "coagulable lymph," and that a delicate shut sac

might be formed by coagulation of fibrine without any cell agency. His demonstrations that the red blood-corpuscles in the mammalia are non-nucleated, while in the oviparous vertebrates they are nucleated, was a distinct addition to the knowledge of the age; and his experiments upon the conditions under which fractures of the patella are united by bone or only by ligament, as well as his observations upon shortening of the neck of the thigh bone in young persons, were important additions to surgical diagnosis and pathology. Gulliver's life affords another proof that the career of an army surgeon is far from being unfavorable to the cultivation of science. His son, now assistant-physician at St. Thomas's, has already shown that he is worthily following in the path which earned honor for his father.

The name of George Critchett recalls to many who hear me meetings for several years at our Council table, and his pleasant companionship at many less serious gatherings; and it would be difficult to name one whose loss has been more sincerely regretted. His life and work are remarkably illustrative of the recent extraordinary progress of ophthalmology in this country. It has been said of him that his career commenced in the "pre-scientific period of ophthalmology," but it must not be forgotten that the foundations for the most important of the advances of the German school were laid in England by Hunter, in ground prepared by Isaac Newton and Thomas Young. The anatomy of the eye was well known before Hunter's time; and Haller and Hunter, with Newton and Young, had done much to increase our knowledge of the physiology of vision. Daviel's extraction of cataract, Cheselden's iridotomy, and the treatment of diseases of the lacrymal sac were already proofs of great progress. But it was not until after the beginning of this century that well-educated surgeons in any country devoted themselves to the study of diseases of the eye. Hunter's papers on the use of the oblique muscles, on the color of the pigmentum of the eye in different animals, and his investigations into the structure of the crystalline lens are proofs of his interest in the subject. The foundation of special hospitals in London in 1808 and 1810, followed soon after in other large towns and in Scotland and Ireland, and the works of such great surgeons as Travers, Lawrence, Guthrie, and Tyrrell—of such an anatomist as Jacob, and such an oculist as Mackenzie—did much to increase the general knowledge of diseases of the eye. In Germany, until about thirty years ago, the school of Vienna occupied the most important position. Then the school of Berlin entered upon the path which has led to as great, as rapid, as extraordinary a progress as ever has been recorded in the history of any other branch of medicine, equalled only by the advance gained during a still more recent period in abdominal surgery, surgical gynecology, and the use of antiseptics. It was in 1851 that the great physiologist, Helmholtz, invented the ophthalmoscope, and thus enabled us to investigate some diseases of the eye which before were completely hidden in darkness. Just at this time Albrecht von Graefe began his brilliant but short career, and in twenty years he worked out all the most difficult and complicated questions in ophthalmology for the aid of the practical surgeon. Graefe called to his side many able men to assist in his great work. Heinrich Müller worked out the microscopical and pathological anatomy of the eye; Donders the affections of refraction and accommodation; and one distinguished German, who joined this College after a brilliant career in Berlin and Paris—Liebreich—devoted himself mainly to the study and teaching of the ophthalmoscope. I well remember,

when in 1853 I brought from Berlin almost the first ophthalmoscope which was tried in this country, with what delight Critchett watched its earliest trials. When some called it a "toy," and others feared its possible dangers to a sensitive retina, Critchett eagerly tested its utility. He, and a fellow-workman happily still among us, beloved by many and honored by all, who had done much to increase knowledge of the "parts concerned in the operations on the eye," and whose microscopical researches had greatly increased our knowledge of ocular histology (even to our visitors I need not name Bowman), side by side with generous rivalry and throughout a long and useful career, either by improvements in practice or by clinical teaching and additions to our literature, greatly assisted in the recent progress of the science and art of ophthalmic surgery. How much of this progress is due to the teaching and example of Critchett, at Moorfields and the Middlesex Hospital, it is perhaps difficult to say; but it is certain that no one could see him operate without admiration or without some desire to be able to imitate his perfect coolness, his delicate touch, and his exact precision; while all might learn how a successful operator, by attention to every detail which can influence the result, deserves and obtains his success and his reputation. A junior colleague, Soelberg Wells, had studied in Berlin under Graefe, and his Handbook became a valuable guide for our students. His faithful and fertile work at Moorfields and King's College will not be forgotten in the annals of those institutions. Liebreich will be remembered by his enthusiastic and successful work for ten years at St. Thomas's, and the translation of his "Atlas of Ophthalmology" (equally distinguished by artistic skill as by a faithful and trustworthy interpretation of intra-ocular changes) will always be valued as a notable contribution to the literature of modern ophthalmology. Our public schoolrooms have also been greatly improved by the seats and desks suggested by his endeavor to remove some prevalent causes of defective vision. He now enjoys artistic leisure in a sunnier clime. George Critchett's labors are over, but his son remains, and we may rejoice in the continued accession of able workers in this special field. And while we have so many special hospitals, and eye departments in so many general hospitals, and such men as work in all, there is no fear for the future of ophthalmic surgery in the country where its foundations were laid, in optics by Newton, and in physiology by Hunter.

Probably no man in the whole world, during the last twenty or thirty years, has done so much with his own hands to prevent or relieve severe pain as Joseph Clover. As an administrator of chloroform, or of some other anæsthetic, his services were in almost constant demand. For many years resident in University College Hospital, then extensively occupied in general practice, he became so well known for his careful and precise mode of administering narcotic vapors or gas, that little time was left him for other pursuits. In some respects, although he supplied a real want in daily practice, this limitation of his work is to be regretted; for the valuable improvements he made in several surgical instruments, especially in the double-current exhausting syringe, so useful in lithotripsy, afterwards improved by Bigelow, prove that with less delicate health and more leisure, his many friends would have been able to record more numerous and enduring memorials of the life-work of a singularly industrious man. Now they must be content with thinking

On that best portion of a good man's life,
His little, nameless, unremembered acts
Of kindness and of love.

I should hardly do more than mention the name of Dr. Peacock, though one of our members, as he was so purely devoted to the practice of a physician, if he had not been one of our examiners. And now I can do little more, for want of time, than allude to his valuable gift to our museum, in recognition of which, in 1876, he received the honorary gold medal of the College. He died when visiting St. Thomas's Hospital, in a ward which had been under his own charge during his years of active work and teaching.

Few men were better known in our Medical Societies, from ten to thirty or forty years ago, than Edwards Crisp. His Jacksonian Prize Essay on the Structure, Diseases, and Injuries of the Blood-vessels remains a sufficient proof of the industry and attainments of a very active man. In his later years he spent much time in investigating diseases of the lower animals, and the natural history of parasites. He obtained the Astley Cooper Prize for his essay on the Structure and Use of the Thyroid Gland; a second time the Jacksonian Prize, on Intestinal Obstructions—besides others on Croup and Diphtheria, and Disease in Lambs. He first demonstrated the existence of valves in the splenic vein. He is said to have accumulated a museum of comparative and pathological anatomy exceeding 5,000 specimens. He was a remarkable instance of a man who, busily employed in the daily work of a large general practice, also took an active part in medical politics, while assisting usefully in the advance of zoological science and human and comparative pathology.

Still, without passing from our London brethren, I have to record the loss of five veterans:—Griffith, of Gower-street, died at the age of ninety, after having honorably carried on a very large general practice for more than sixty years.

George Macilwain, so well known at the Medical Societies and the Royal Institution for so many years, who wrote the Life of Abernethy, and a thoughtful book entitled "Medicine and Surgery one Inductive Science," reached the age of eighty-five.

Francis Godrich, after practicing at Brompton for sixty years, died at the age of eighty-five. He was one of the founders of the Medical Benevolent College, and he took a leading part in all the improvements and charities of the districts in which he practiced. He greatly assisted Mr. Wakley in his successful conduct of the Medical Witnesses Bill through the House of Commons.

Another octogenarian, John Merriman, was one of a very old medical family. Samuel Merriman the elder attended the lectures of William Hunter, and practiced in London all through John Hunter's career. Having attended 12,000 cases of labour, he took for his motto, "Terar dura prosum," which the family have retained ever since. He died in 1818, aged eighty-six. His nephew, the second Samuel Merriman, author of "Difficult Parturition," died in 1852. These two were uncle and cousin of John Merriman, who began practice in Kensington the year after the death of John Hunter. He was the father of the second John Merriman, whose death I have just referred to. He was attached to the household of the Duchess of Kent, and of our Queen, attended the Princess Sophia, was consulted by the Prince Consort, and received many proofs of the gratitude of these royal persons. He carried with him into pleasant retirement the good wishes of all classes in the "old Court suburb," and he is succeeded by a son and grandson who worthily maintain the traditions of the name they bear.

Frederick Toulmin died in his eighty-fifth year only ten days ago. He had practiced for nearly fifty years in Clapton, where he and his brother

succeeded their father. He was a kindly, genial man, a charming companion, and his anecdotes of the leaders of the profession in his early days were many and very interesting. Mr. Toulmin's great-grandfather was a surgeon. His brother and his nephew are the fourth and fifth in direct family succession in the profession during a period of more than 150 years. He was a dresser under Sir Astley Cooper, and the testimonial which Sir Astley gave him, when a candidate for a dispensary surgeoncy, was so gratifying to him, and is so characteristic of the great surgeon, that I venture to read it here. Sir Astley wrote: "When I look around me and observe the number that I have had a share in educating, I find no individual to whom I am more sincerely attached than to Frederick Toulmin. If I be asked the reason of this, my answer will be that his knowledge in all the branches of his profession is most extensive, and his character as a man the most amiable. My best wishes will ever accompany him. His prosperity will always be next my heart. Astley Cooper."

Among the general practitioners around London I may mention Stephen Alford, of Hampstead, who took an active and useful part in the attempts made for several years past to protect and reform habitual drunkards; Hemming, who worked hard at diseases of the ear; and Duke, of Clapham, who after more than forty years' work in very varied and large practice, and continual struggles with parochial authorities when fighting the cause of the sick poor, has left the best of all legacies to the many sons who follow their fathers' profession—the "good name" which is "better than riches." It is to such men as these that Johnson's portrait of his friend Levett would apply:—

When fainting Nature called for aid,
And how'ring Death prepared the blow,
His vigorous remedy display'd
The power of art without the show.

No summons mock'd by cold delay,
No petty gains disclaim'd by pride;
The modest wants of every day
The toil of every day supplied.

Donald Napier was a surgeon who inherited mechanical genius, and though he devoted himself specially to dental surgery, he constructed and improved many ingenious surgical instruments. The Association of Surgeons who practice dental surgery owe a great deal to Napier's zeal, and he did very much, although he died at fifty, to improve the position of dental surgeons.

Although he lived a little beyond the metropolitan district, the noble figure and grand head of Heckstall Smith were almost as well known to us in London as in Kent, where he practiced for more than fifty years. He was a general favorite; did much useful sanitary work; and has left a church, which was built and endowed almost entirely by his exertions, to perpetuate his memory.

Nor should we forget Hardwicke, who left practice on being elected Coroner for Central Middlesex, and died at his post.

Turning from London to the provinces, I again speak first of men who reached old age.

Thomas Radford, who attained the age of eighty-eight, and for sixty-three years had been associated with St. Mary's Hospital for Women in Manchester, enriched that institution by presenting to it a library said to be one of the most complete of its kind in Europe, and by founding a museum. His work on the Cæsarean section is too well known to call for more than mention here.

Stephens, of Shields, was an octogenarian whose services to the town he served were gratefully acknowledged. Greenhow, of Newcastle, was one of the original Fellows of the College. At his death,

at the age of ninety, there was only one senior Fellow on the list. He was a bold, skilful, and successful operator. He had unusual success in lithotomy, and repeatedly excised the os calcis for caries. He had a very large experience in ophthalmic surgery; and invented a very useful fracture bed. During the cholera epidemic in 1832 he labored incessantly, and, twenty years afterwards, foretold the second epidemic, which arrived as he predicted. And he pointed out how, by overcrowding, by burial of the dead within the town, by bad drainage, bad water, and impure air, his townsmen were prepared to fall victims to the pestilence.

Gore, of Bath, also an octogenarian, was of great service to that town in the improvements he obtained in its water-supply and general sanitary administration. Green, Superintendent of the Birmingham Lunatic Asylum, died at eighty-one. Williams, of Swansea, who died at the age of seventy-nine, was the son of a surgeon who practiced nearly a century ago, and was at that time the only member of this College in South Wales. Two surgeons of provincial hospitals—Symonds, of Oxford, and Nunn, of Colchester—were old friends of mine. In many anxious cases they have shared with me serious responsibility, and I am indebted to both for much assistance. Symonds was one of a representative medical family—son of an Oxford surgeon—brother to the eminent physician of Clifton—and father to the present able and active surgeon to the Radcliffe Infirmary. He well maintained the social position of our profession in the university and the county where he was so popular. Nunn thoroughly deserved the place he held for so many years as the most fully employed surgeon in his town and district—a trusted consultant by his brethren, and a warm supporter of the hospital, where he earned the gratitude of the poor.

Drewry Ottley, who died last month, aged eighty, joined this College thirty-six years ago. He was the author of the best Life of John Hunter—that published with Palmer's edition of Hunter's works. After many years' practice in London he settled at Pau, where he remained for more than twenty years, but for several years past has lived in retirement near London. His loss is regretted by many old friends. His son, Walter, one of our Fellows, died only a few days after his father.

John Postgate was a most successful teacher in Birmingham, and did much to prevent adulteration of food, drinks, and drugs. Several bills were introduced into Parliament by the members for Birmingham, influenced by Mr. Postgate, and the amended Acts of 1872 and 1875 are mainly due to his exertions.

Time alone prevents me from alluding to many other of our deceased brethren whose average age at death represents for each about thirty-five years of professional work. Pray consider for a moment what that work is. Walter Scott wrote, "I have heard the celebrated traveller, Mungo Park, who had experienced both courses of life, rather give the preference to travelling as a discoverer in Africa, than to wandering by night and by day the wilds of his native land in the capacity of a country medical practitioner." Only a small proportion of our brethren have acted purely as consultants or operating surgeons. By far the larger number, some without, but more with, some medical qualification in addition to our diploma, have been the general practitioners, or "family doctors" of the people—the trusted medical attendants of at least nine-tenths of the population. Wherever their lot may be cast, in town or country, they instruct both rich and poor how to preserve health, and remove or avoid known causes of disease. And although

little may be recorded of many, we do know that the nation is as much indebted to them as to any other class of public servants. By night and by day, at the service of anyone who may require help in sickness, at the opening or the close of natural life, in mental aberration or in bodily suffering, injured by wound or accident, at almost any distance, in any weather, sometimes suffering themselves from illness or over-fatigue, the members of this College, often without expectation of reward, perhaps bestowing money hard earned and ill spared, as well as affording surgical aid to the needy, ungrudgingly, cheerfully, gladly do their duty day after day and year after year, until, "unknown, unhonored, and unsung," they rest in peace. But no—not *unhonored*. There may be no monumental epitaph, no biography nor memoir, nothing beyond the erasure of a name from the College Calendar, and yet the nation has lost a good and faithful servant, whose place must be filled by others, who in their turn pass through our portals and enter upon the work which is prepared for them.

And it is the most important duty of this College, while maintaining the scientific value and character of its diplomas, to guarantee to the public useful and skilful practitioners, really fitted for the daily practice of the healing art. In order to ensure the value of the diploma as a proof of education and knowledge and skill, the Council and the examiners, recognizing the necessity that the surgeons of the future must be well-educated gentlemen, and that their scientific and practical knowledge shall fit them for their daily work, have been earnestly endeavoring to fill up our ranks by attracting, as far as possible, young men who, before they begin professional studies, have had the advantage of as high general culture as can be obtained in our best schools. In this desire we have the hearty concurrence of the Medical Council and of the College of Physicians; and I trust the day is not far distant when, without either aid or interference from the State, the two Royal Colleges will correct mistakes in the working of the Medical Act, prescribe a common course of study for students, and agree upon a mode of examination which shall secure for the country a body of well-educated medical men, who, either as teachers or as students in the metropolis or the provinces—as army or navy surgeons or as civilians; at home or abroad—by observation, by research, by experiment, by improvements in the practice of our art, by additions to our literature, by daily attempts to relieve the sufferings of others, may emulate the best of their predecessors, and, like them, while living be honored and loved, and when dead, not forgotten.

So far I have spoken of deaths among our brethren at home. In India, in our Colonies, at sea in our Navy, or in our mercantile marine, other losses might be deplored. But I must pass on to speak of some of the army surgeons, who in India, at the Cape, and in Egypt, have done honor to their country and their calling. Brigade-Surgeon Martin, who died in India last March, was mentioned in despatches as "attending to the wounded under heavy fire."

Forty years ago, one of our oldest Fellows, whom we all congratulate upon continued vigorous health and continued interest in the progress of modern surgery—a teacher of many who are now themselves teachers—Mr. Arnott—when delivering the Hunterian Oration, spoke of the great French army surgeon, Larrey, who had recently died, as "the first military surgeon who dressed the wounded under the very fire of the batteries," and said that to him we "owe our place of honor on the field of battle." The army surgeons of our

day well maintain their reputation, not only for gallantry, but for self-sacrifice to duty. What can be finer than the conduct of Shepherd, who, riding away from the bloody field of Isandhlwana, with a good chance of escape, dismounted to assist a wounded man, and was killed by the assegais of the Zulus; or of McCrea, who, severely wounded in the chest himself in the first charge, continued to attend the other wounded, as he was the only doctor on the field.

In the military operations on the Transvaal frontier against the Boers, the courageous devotion of army-surgeons to their duty was conspicuous. At Lang's Neck, "As the 58th Regiment advanced, and the men were falling rapidly, Surgeons King and McGann moved up behind the advancing column, and, on its retirement, remained, amidst a hail of bullets, attending to the wounded. At the final disaster of Majuba Hill, the officers of the medical service remained faithful to their duties even unto death. Dr. Cornish was shot as, with a piper of the 92nd Highlanders, he was carrying a wounded man on a stretcher. Landon, always keen for duty in the field, and taking a special pride in his Army Hospital Corps, met his fate at the final rush of the Boers. The ruling passion strong in death, he called Dr. Babington's attention, shortly before he expired, to the meritorious conduct of his men." I have copied this from a colonial newspaper, the *Natal Witness*. Let me say something more about Landon. He was kneeling, attending to a wounded soldier, when a bullet wounded him in the loin, and Longmore writes: "He at once fell forward. The lower half of his body became completely paralyzed, and Landon told Corporal Farmer he must die. Farmer was almost immediately struck by a bullet in both his forearms, and was suffering excessive pain from injuries to the ulnar nerves. Landon had a field case with him containing morphia and syringes, and he had the upper part of his body propped up against a boulder of rock, and in that position administered the morphia injection in both Farmer's arms in succession. The corporal was so relieved that he fell asleep, and remained so for several hours." Well may Longmore write: "It is difficult to imagine a more perfect example of professional heroism than was afforded by the conduct of Surgeon Landon, from the time when the Majnba fight commenced to that when death put an end to his own sufferings." And well have the men of St. Bartholomew's done by placing a tablet in their chapel, to keep in memory his bright example, by a record of his last words—"I am dying; do what you can for the wounded." And not Bartholomew's men only—not only this College—not army surgeons only, but the whole profession, the whole nation, will rejoice with me when it is made known that her Majesty the Queen was so much impressed by the story which I have just read to you of Landon's noble conduct, that the report has been preserved among her private records—another proof of the Queen's interest in her soldiers, and in the men who are devoted to them.

The last Egyptian campaign has added another to the list of Army Surgeons killed in action while attending to the wounded. George Shaw had served in cholera camps in India, in the field at Afghanistan, and in the advance through the Khyber. He was a very gentle, amiable man, most devoted to the soldiers. He went to Egypt with the Bearer Company, and at Kassassin, while dressing the wounded under fire, was shot through the head.

It is gratifying also to be assured that in Egypt, as in South Africa, the men of the Army Hospital Corps worked as bravely and as well as the ex-

amples of the medical officers led them to do. My old comrades, the Naval Surgeons, also deserve full credit for the way they did their work during the Egyptian campaign—on board ship at the attack on the forts of Alexandria, or on shore with blue jackets and marines, alike under fire with the fighting line, or in the armored train, or combating disease in camp, or on the march. We have been assured by everyone in a position to know—from the Commander-in-Chief downwards—that the naval surgeons were always ready, willing, and cheerful. And while we speak with pride and satisfaction of the manner in which our brethren, both in army and navy, who served at the seat of war acquitted themselves, we must not forget those who labored at home: the heads of both the medical departments and those under them have well-merited a generous recognition of their forethought and good service.

And what a change for the better has taken place in the practice of army surgeons since Hunter's time! Military surgery, before the publication in 1794 of his last work, so far as the treatment of gunshot wounds is concerned, was influenced by the false doctrine of the poisonous nature of the wound—the necessity for the escape of the poison—and therefore for the dilatation of the wound and the keeping up of suppurative discharge. Hunter served as Staff Surgeon in the army in the expedition against Belleisle in 1760, and in Portugal in 1763. In 1776 he was appointed Surgeon Extraordinary in the Army, in 1786 Deputy Surgeon-General, and in 1791 Surgeon-General—as Longmore says, "a laborious office, corresponding with that of the Director-General under existing arrangements." He held this office during the early part of the war with France which preceded the peace of Amiens. After Hunter's death the simpler treatment of gunshot wounds which he taught has been generally followed, and other great improvements in military surgery have been accomplished. Secondary amputations have been shown to be more fatal than those performed soon after the wound. Amputations have been often avoided by excision of joints or of injured portions of bone. The use of anæsthetics, and latterly of antiseptics, in spite of the much larger number of wounded after modern battles, have greatly lowered the death-rate; while, thanks to our experience in the Crimea, and the perfection of the system of ambulance transport in our Indian army (all admirably worked out by the indefatigable perseverance of one of our Fellows, the Professor of Military Surgery at Netley), the transport of our sick and wounded in time of war is so perfect as to have been copied by other armies; while all the administrative arrangements for the care and treatment of sick and wounded, the organization of military hospitals in time both of peace and of war, and the service in the field, were proved in the late Egyptian expedition, under all the disadvantages of a rapid and unexpected change of base, to have been most creditable to the Army Medical Department. If this department obtains such a control over its own affairs as other branches of the army, we need not fear for its future efficiency. To ensure this efficiency the medical officers and the Army Hospital Corps should be made one Royal Corps, placed on a perfect equality with other corps, and receive a fair share of honorary distinctions. The Director-General and the principal medical officer of a division should be secured rank and pay proportionate to their arduous and responsible duties, and be provided with a subordinate for secretary's duty. A field hospital fully equipped for the field should be maintained at Aldershot or elsewhere, and the whole corps be frequently exercised dur-

ing peace in all the duties they may be called upon to perform in war. Let us trust that this may be the result of the Commission which has been sitting under the presidency of Lord Morley, and of which one of our Fellows, Sir William Mac Cormac, is a member. Under their own head, a united body, having entire control over and command of their own Department, subject only to the general officers commanding, our army surgeons will cheerfully accept the responsibility of collecting, removing from the field of battle, and attending to the first wants of the wounded, and for their subsequent care and treatment, as well as for the equally important duties of sanitary officers in preventing disease and maintaining the physical condition of our army. And if the corps desire a motto, let me suggest one, well-deserved by their conduct in the past, and encouraging to good service in the future—"FAITHFUL UNTO DEATH."

I must now obey the other direction in the trust deed, and endeavor to express something as to the "merits in comparative anatomy, physiology, and surgery" of John Hunter. The direction seems a happy one, for Hunter based his surgery upon physiology, and his physiology upon comparative anatomy. What can more strikingly illustrate this than his greatest improvement in practical surgery, the abolition of amputation for popliteal aneurism, and the practice of tying the artery in a sound part at a distance from the seat of disease? This has already saved thousands of human lives; and it has been well said that if Hunter had done nothing else, "on this account alone he would have a right to be classed among the principal benefactors of mankind."

One who perhaps more than any other of our contemporaries resembles Hunter in completing the union of thought with action—the wisdom of the philosopher with the skill of the surgeon—Sir James Paget—says, "It was really a splendid achievement, and its utility is not half told by counting the thousands of lives that it has saved. Its higher value is that it still abides as a great testimony of the power of the scientific mind in surgery. I think it has done more than any other of Hunter's works to make, not only surgeons, but surgery, scientific." And observe how comparative anatomy and physiology led to surgery—how thought and experiment prepared the way for action. It was probably without any idea of surgery that Hunter was first led to investigate the phenomena of the annual growth and shedding of the antlers of the stag or buck. But he did so, and tied the artery which supplies the growing antler and the soft covering called the "velvet," which conveys the vessels supplying the material of growth. Pulsation in the vessels in the velvet ceased, and the antler soon became colder. A week afterwards the vessels were again pulsating, the velvet was warm, and the antler growing. The buck was killed, the tied artery found to be obliterated, but the circulation was carried on by vessels above and below the ligature, ordinarily very small, but enlarged under the new conditions.

Now I am well aware that some modern misanthropical zoophilists have said that Hunter had no right to make this experiment—that human morbid anatomy had taught him that when the current of blood ceased to flow into an aneurismal sac, the blood clotted and was absorbed. But it is quite indisputable that Hunter was doubtful whether, after the supply of blood to a part had been cut off by obliterating the main arterial trunk, the circulation would be kept up by other vessels, or the part would die. And it is certain that his experiment on the deer removed his doubts, for, as Professor Owen tells us, there was a coachman

in St. George's Hospital, with popliteal aneurism, who had consented to amputation. But Hunter thought that if the anastomizing vessels in the man would carry on the circulation after obliteration of the femoral artery, as they did in the antler of the buck after obliteration of the carotid, he could cure the aneurism and save the limb. Professor Owen emphatically says that Hunter explained to his assistant and pupils the results which he believed would follow a repetition on the man of his experiment on the deer. And, just as he predicted, there was the same stopping of pulsation, the same cooling of the part from which the supply of blood was cut off, the same return of natural warmth, and in six weeks the man walked away cured. This account, Professor Owen tells me, was given to him by Mr. Clift. In this and two subsequent cases artery and vein were both tied; but in his fourth case Hunter tied the artery only, not the vein. This was in the year 1787. The patient was then thirty-seven years old. He lived until he was eighty-six, and died in 1787. At his death, Mr. Wormald obtained the limb from his widow, and found the femoral vein pervious, the artery obliterated, the tortuous anastomosing vessels as you see them in this specimen which Mr. Wormald presented to our museum, and the aneurism represented by the small calcareous body not larger than a filbert.

This association of surgery, physiology, and comparative anatomy is manifest in the leading idea or plan of Hunter's museum, which is to show each step from the most simple conditions in which life can be traced upwards to man himself. We are told, observing that in the advanced stages of successful incubation eggs did not putrefy, he was first led "to recognise LIFE as a power, and ORGANIZATION as the mechanism by which life operates." Observing some snails drowning, and noticing the effects produced upon lizards if they were brought too early in winter out of their lurking-places, he ascertained some of the facts "which guide and encourage us in our attempts to restore suspended animation." Here we see the man who both observes and thinks. "For one person who can think," says Buckle, "there are at least a hundred who can observe: an accurate observer is no doubt rare, but an accurate thinker is far rarer." Can anyone look up to this portrait of Hunter, by Reynolds, and not agree with Lavater, who, when he saw it, said, "This man thinks for himself?" Hunter used to say that "he delighted in thinking;" and the great artist who is said to have peculiarly excelled in *painting the mind* of his sitters, has caught Hunter in the attitude of meditation. In that absorbed and upward gaze "from earth to heaven," "as imagination bodies forth the forms of things unknown," we can trace the hoped-for explanation of some of the mysterious phenomena of nature by the application of some great leading principle, the elucidation of some physiological problem, the unravelling of some as yet unfolded revelation. Home and others who knew Hunter have said that this portrait gives a very faithful representation of his countenance, person, and manner. While painting the portrait, Reynolds induced Hunter to have a cast taken from his face. From this cast, which has been preserved in our museum, and is here before you, Flaxman's marble was sculptured. He and Chantrey studied both cast and portrait, for the College is fortunate in possessing two busts of our great master, as well as the full-length sitting figure in the museum by Weekes. And we have a second portrait, by Sir Nathaniel Holland, which was said by Mr. Clift, and by Sir John Dorat, Hunter's last surviving pupil, to be better as a mere likeness than the idealized portrait by Reynolds. Per-

haps Reynolds's portrait is more suggestive of the man who thought, and Flaxman's bust of the man who observed, experimented, acted.

Though Hunter loved to think, he followed Bacon in insisting on observation and experiment as the only foundations of true science. "If you check experiment you stop discovery" is one of his aphorisms. And he once wrote to a friend, "I think your solution is just. But why think? Why not try the experiment? Repeat all the experiments as soon as you receive this, and they will give you the solution." Thus in Hunter we find the mind which investigates the laws of disease, and the hand which improves the art which cures disease, not only philosopher and pathologist, but surgeon—as rare a combination as that of a profound jurist and an eloquent advocate—an agricultural chemist and a farmer—an astronomer and a pilot. We have a combination of Faraday investigating the laws of electricity and magnetism, and Swan or Edison applying the knowledge in the electric lighting of towns.

It is unnecessary to repeat now, what Mr. Wormald proved in this place twenty-five years ago, that Hunter was well aware of the possibility of curing aneurism by pressure on the artery as well as by tying it—in this, as in so many other instances, anticipating recent improvements in practice supposed to be new. Just as we find that modern views of phlebitis and pyæmia had been advanced by Hunter; and Burdon Sanderson, in his lectures on inflammation, acknowledging that "we find ourselves once more coming back to the notions, which at one time were thought obsolete, of the great father and founder of physiological pathology;" so we may be certain that Hunter foresaw much of that progress in abdominal surgery in which it has been my own pride and pleasure to assist. In 1762 William Hunter distinctly suggested that it might be advisable to expose an ovarian cyst by a small incision—"tap the bag and draw it out." In 1785 John Hunter said "I cannot see any reason why . . . we should not make an opening into the abdomen and extract the cyst itself. Why should not a woman suffer pain without danger as well as other animals do?" The influence of Hunter's teaching upon John Bell, of Bell upon McDowell, and the history of ovariotomy since McDowell's first operation, is a theme which I have treated at length in this theater and elsewhere; and however strongly tempted to enlarge upon it, and upon the more recent extensions of peritoneal surgery—the removal of uterine tumours, of the spleen, of one kidney, of hydatids, of gall-stones, of omental and mesenteric tumours, of fibro-plastic and fatty tumours of various origin from the abdomen, of the entire uterus, or of part of the uterus with the foetus of an extra-uterine foetation, of the pylorus, and of portions of diseased intestine—all operations which have been performed with increasing success—I regret very much that I have not time to do more than point to the preparations on the table, which show how our younger hospital surgeons are joining in the most recent advances of abdominal surgery. Mr. Treves's specimens show how perfectly union between two portions of intestine may be effected after the removal of an intervening diseased portion. And the three large gall-stones removed from the gall-bladder of a woman in the Samaritan Hospital by Mr. Meredith are gratifying evidences of boldness and skill. Both Mr. Treves and Mr. Meredith, at my suggestion, were desirous of experimenting on some of the lower animals as to the best mode of uniting divided edges or surfaces of peritoneum; but the trouble and delay of the present system of licensing has hitherto restricted their operations to man and woman. I

wish I could say more of this, but I am compelled to devote the very few minutes allotted to me to a hasty sketch of what we hope may be gained in the not very distant future by combined association for the advancement of medicine, in its higher sense, by research.

And first let me say with how much pleasure I can state that the Association lately founded under the auspices of all the leading men in our profession in the United Kingdom has already begun useful work. On the part of the Association, Mr. Watson Cheyne visited Dr. Koch at Berlin, and Professor Toussaint, at Toulouse, and has since carried on investigations, the results of which enable him to explain their opposite statements with regard to the micro-organisms associated with tubercle. Mr. Cheyne has also made experiments with reference to the specific nature of tubercle, which tend to confirm the view of the specific nature of tubercle first promulgated by Villemain, and so strongly supported by Koch's observations. Mr. Cheyne's further observations lead him to the conclusion that the bacilli of tubercle multiply by preference in the epithelium of the aveoli of the lungs, and lead to inflammatory exudation in the walls of the aveoli. According to the number and rapidity of growth of the bacilli in the aveoli, we have the two conditions of fibroid phthisis or caseous pneumonia, which by many have been looked on as different processes. On this view is also explained the difference in the effects produced by these organisms in man and rodents. Rodents, when inoculated subcutaneously, always develop general acute tuberculosis. That disease is extremely rare in man when compared with the frequency of pulmonary tuberculosis; because in man the bacilli are not inoculated, but are received into the bronchial tubes by inhalation, and their entrance into the circulation is prevented in the first instance by the inflammatory changes which occur around the aveoli in which the bacilli grow. If man were inoculated as we inoculate rodents, all analogy would lead to the conclusion that acute tuberculosis would probably be developed. Mr. Cheyne is carrying on these researches, the animals experimented on being kept under exceptionally favorable hygienic conditions, and it is not too much to hope that they may lead to a successful mode of treating phthisis. However strongly tempted to say more on this immensely important subject, I must leave it for a future Hunterian orator, and pass from tubercle and its bacilli to other diseases, more commonly classed as contagious or infective.

Of all the discoveries of modern times, perhaps the most important is that of the dependence of fermentation and putrefaction upon microscopic organisms; and of a number of communicable diseases upon specific microbes—a convenient word to include the micrococcus, the bacterium, the bacillus, the vibrio—microzoa or microphytes, whichever they may be.

At Cambridge, eighteen years ago, I attempted to show the relation between the work of Davaine and Pasteur, and the causes of excessive mortality after surgical operations. Allow me to read one sentence from my address in 1864, partly to allude to advances gained since that year, and partly to point out some lines of future research. I said: "Applying the knowledge for which we are indebted to Pasteur of the presence in the atmosphere of organic germs, which will grow, develop, and multiply, under favorable conditions, it is easy to understand that some germs find their most appropriate nutriment in the secretions from wounds, or in pus, and that they so modify it as to convert it into a poison when absorbed—or that the germs after development, multiplica-

tion, and death, may form a putrid infecting matter—or that they may enter the blood and develop themselves, effecting in the process deadly changes in the circulating fluid."

In the history of this discovery we find Davaine discovering bacteria in the blood of animals suffering from charbon. Then, having studied Pasteur's researches on butyric fermentation, Davaine found that he could propagate a fatal disease, not only by a purulent virus, but by a drop of infected blood. It was left for Pasteur to separate and identify the microbe, to propagate it through successive generations, and to arrive at a general rule that a whole series of contagious diseases could be produced artificially, and that the microbe which was the cause of each disease could be so modified by successive cultivation, some with, some without, access of oxygen, as to be rendered almost inert—nay, more, even to protect the recipient for a time from a second invasion, and secure immunity to the offspring of infected mothers.

I must not go back to the history of vaccination as a protective against small-pox, nor remind you that Jenner was a pupil of John Hunter, nor refer to many of the letters which passed between them; but I may notice a resolution of the Council of this College carried sixty years ago—"not to inoculate small-pox, but to pursue, and to the utmost of our power promote, the practice of vaccination." We persevere in this course. We require every candidate for our diploma to produce proof of practical knowledge of vaccination. We support the law which protects the many from the danger to which a few ignorant opponents of compulsory vaccination would expose the whole population. And as we glory in the life-saving work of our countryman, Jenner, so we welcome the teaching of the illustrious Frenchman, Pasteur, and his extension of the protective influence of vaccination to other diseases—every year adding to the list of new vaccines which protect man and animals against virulent diseases.

When I first thought of the subjects for this oration, I had a very exaggerated idea of what it might be possible to do in sixty minutes. I hoped that (in addition to what I must say of our deceased brethren, and of John Hunter himself), of recent additions to our museum, and of the new Pathological Catalogue, I might be able to indulge in a review of the progress of modern surgery, and perhaps compare the present state of medical practice in London with that in Hunter's time, or even to take a hasty review of the progress of the nation since his death, and refer to the rapid increase of population and wealth, the discovery of steam, the influence of railroads and steamships, the use of gas, of the electric telegraph, the spread of education, the effects of newspapers and cheap literature, of reforms in our laws, improvements in our habits, and many other things which tend to make a people wiser, happier, and better. I even thought it might be possible to sketch very rapidly the share which the medical art, in its larger and wider sense—not only as curing but as preventing disease—has had in assisting national progress, and to prove that neither medicine nor surgery has lagged behind the general advance. I hoped I might be able to prove beyond dispute that since active sanitary work has been undertaken in this country death rates have fallen very greatly, and fallen most in those places—the great towns—where sanitation has been most active. I was very anxious to show how the knowledge gained by the statistical work begun by Dr. Farr, and since carried on by Dr. Ogle at the General Register Office, had led to sanitary legislation, and how sanitary work has been fol-

lowed by a lower general death-rate and smaller mortality in single forms of disease, as in typhoid fever, as well as after wounds, injuries, and surgical operations. I wished also to show how statistics lead to the saving of life by throwing light on the natural history of disease, on the prevalence of various zymotic diseases at different seasons, and on the indisputable proofs that small-pox has declined considerably with the extended use of vaccination, that it is false to attribute that decline to general sanitation, exclusive of vaccination, and, what is a more novel or less generally known fact, that we have statistical proof that the preservative effects of vaccination wear out more rapidly and surely than the preservative effects of small-pox itself. I imagined also that I might be able to sketch what the nation might gain if State Medicine were really administered by a well-organized department of the Government, if politicians of both parties could be roused from their indifference to social or domestic legislation and give some small share of their attention to the health-interests of the people—to their food, drink, occupations, house accommodation, care of infants, prevention of infective diseases, local sanitary administration, and many details of sanitary reform, such as a permission or encouragement of cremation as a substitute for the present mode of burying the dead.

My intentions, sir, may have been good, but their fulfilment is impossible; and, in conclusion, I can only refer to the prospect which expands before us as we are shown that more than thirty destructive diseases, including tubercle and typhoid fever, ague and yellow fever, scarlatina, diphtheria, erysipelas, syphilis, and septicæmia, in man; in the lower animals, splenic fever, fowl-cholera, cattle-plague, glanders, hydrophobia—all depend upon specific microbes. In many of these thirty diseases, the specific microbe has been identified beyond dispute. In some, the process of attenuative culture has transformed a poisonous virus into a protective vaccine. In others, we may confidently hope that the same happy result will soon be reached; and as we have already acquired the knowledge of certain specifics, it is not illogical to infer that if we can in one instance command the good results we see with mercury, in another with sulphur, and in a third with quinine, we may before long obtain such a knowledge of the various microbes which are the cause of communicable diseases, as may teach us how to destroy these organisms, or to arrest or mitigate their morbid influence, and so check, if not stamp out, some of the diseases which are now our most formidable difficulties. We may then congratulate mankind that the science of our own time has conferred not only upon man, but on the whole animal kingdom, benefits equalling any which it owes to the lucky empiricism of past ages, or to the philosophic genius and marvellous industry of John Hunter. And we his followers may be encouraged by the conviction that we so cultivate our science and our art (devoted as they are to the public good) as to justify us in keeping our old motto, "*QUE PRO-SUNT OMNIBUS ARTES*."

—We regret to announce the death, after a short illness, of Dr. Shinkwin, of Cork, at his residence, North-mall, Cork. Deceased was a graduate in Medicine of the University of Aberdeen and of the Queen's University in Ireland, and held the post of Senior Surgeon to the North Charitable Infirmary. Dr. Shinkwin was the author of a work on Hydrophobia, and leaves a widow and two children, besides a large circle of friends, to mourn his loss.

Clinical Lecture

ON A

CASE OF CEREBRAL DISEASE,

PROBABLY A

GROSS LESION OF THE BRAIN.

LOSS OF SIGHT, HEARING, SMELL, TASTE, AND FEELING;
DOUBLE OPTIC NEURITIS; UNILATERAL CONVULSIONS;
HEMIPLEGIA, ETC.; ENDING IN COMPLETE RECOVERY.

By A. HUGHES BENNETT, M.D.

Physician to the Hospital for Epilepsy and Paralysis, Regent's Park, and Assistant-Physician to the Westminster Hospital.

THIS case is of great interest on account of the grave and important symptoms which were developed, and from the fact that these ended in complete recovery. The following account is abstracted from voluminous notes:—

A. D., age one year; male.

Antecedent history.—The parents of the patients state that they are both in perfect health, never having suffered from any illness. The father, who is a very intelligent man, says that there is no history of syphilis in the family. All the other children are in robust health; but two of them are said to have had "fits" when teething, but have since been quite well. The patient himself was in good condition till he was six months of age, when, without obvious cause, he had his first "fit." These attacks have continued since, and he has had 170 up to the present date. At first they were only occasional, but of late he has been having a dozen or more during the twenty-four hours. They occur for the most part during sleep, but also occasionally while the child is awake. The convulsions are almost always confined to the left side, but the mother says that sometimes all the limbs are affected.

Present condition.—June 23rd, 1879: The child is well nourished, its general health is good, and its functions appear normally performed. It lies with a dull, vacant look, and although it is stated to have been formerly very intelligent and even-tempered, it is now fretful, cries, and "takes no notice of anything." The right side of the forehead is markedly more prominent than the left, and projects forward in a rounded swelling, about two inches and a half in diameter. The bones forming the anterior fontanelle are at their edges raised and thickened. The child is unable to hold up its head, which falls about in all directions unless supported. There is external strabismus of both eyes. It is difficult to ascertain the exact movements of the eyeballs owing to the youth and condition of the patient. The pupils are equal and normal. The face is straight. All four limbs are of normal appearance; but it is impossible to ascertain their precise condition, although it is evident that they are weak, especially on the left side. The patient is stated to have ten or twelve attacks every day. One of these I saw during a visit. Suddenly, after a cry, the face began to twitch, and was drawn towards the left side; then the head was inclined to the left, and both eyeballs turned in the same direction. The left arm and leg were convulsed and contracted, and became rigid; but it was difficult to say which of them was first affected. The entire right side remained immovable. The child during the paroxysm, which appeared to last about ten seconds, was apparently insensible. After the attack he was drowsy, and slept for nearly an hour, when he regained his ordinary condition. This,

the mother says, was "an ordinary fit," but sometimes it is more severe, lasting longer, with biting of tongue, and accompanied with more violent and general convulsions.

Progress of the case.—June 30th.—During the past week the patient has had about one hundred attacks, but otherwise he remains much the same as before.

July 7th.—The attacks continue with equal frequency. To-day on examination the patient is found in a semi-comatose condition; he lies in his mother's arms, limp and helpless, the head and limbs dangling about unless supported. The mother says he is always in this partially unconscious condition. The mental state, owing to the youth of the child, is difficult to analyze, but is peculiar. The consciousness is not completely lost, as the child is restless and fretful when irritated; it knows when food is given to it, but yet evinces very few signs of real intelligence. All the reflex and automatic movements seem as in health; nourishment is taken well, and the functions are normally performed. The eyelids are closed, the conjunctivæ are not sensitive to touch, and the eyeballs diverge, both looking outwards. The left arm and leg are completely paralyzed, but the other limbs move apparently by volition. The mother says the child is both blind and deaf, and indeed, the functions of all the senses seem abolished, as far as can be determined by experiment.

21st.—During the past fortnight there have been no attacks. The general condition has fluctuated, the patient sometimes remaining comatose for several days, at others recovering to a certain extent. At the visit the child was in one of his more lucid intervals. He lay still, with the eyelids widely open, the pupils both dilated; he was still apparently sightless and deaf; the conjunctivæ were insensitive to touch; the mouth remained open, and the saliva constantly trickled down the neck; the tongue lolled out with a continuous vibratile movement. The face was drawn slightly to the right side. The left arm and leg were rigid, and the joints were partially contracted, but there were occasionally feeble voluntary movements. There was sometimes tonic spasm of the muscles of the neck, so that the head was drawn backwards and to the left. There had been occasional vomiting, and the child suffered from a constant tickling cough. On examination of the eyes, Mr. Laidlaw Purves reports, well-marked double optic neuritis, both discs being swollen and grey, with their edges ill defined.

For the next two months the patient remained in much the same condition as has just been described, so ill that he was daily expected die. He was constantly semi-soporose, cried and screamed almost without ceasing, and was very fretful and restless. The paralysis of the left side continued, but was frequently varied with twitchings and spasms. During this time no actual fits were observed. The swelling on the right side of the forehead was very prominent, as was also the thickening of the frontal and parietal bones. The eyeballs were almost always deviated towards the left side during the attacks, but when at rest there was generally external strabismus in both. The child slept very little, but continued to take its food well. It had become very much emaciated.

Oct. 6th.—The report to-day states that till about a week ago the patient remained in the above condition. About this time the mental state changed, and sight, hearing, and taste somewhat suddenly returned. The child looked about, followed movements with its eyes, etc., it started when a door was slammed, and showed by its actions that it disliked castor oil. To-day it

laughed and evidently "took notice." It now moved the left side; and when the right hand was held it grasped a penny, but awkwardly, with the other. The child weighed thirteen pounds.

13th.—The improvement continues. The face and eyes are normal. The intelligence appears natural, the child laughs, plays with its toys, and takes an interest in all going on around it. Although still much emaciated, it takes food well. It has no convulsions or attacks of any kind. There is now no rigidity or contracture of the limbs, and, although the movements on the left side have improved, they are still considerably impaired. The swelling of the frontal region appears smaller, and the thickening of the parietal bones has almost disappeared.

For several weeks the advance progressed favorably; and although the child had bronchitis and diarrhoea, it had gained nearly a pound a week in weight.

Dec. 1st.—To-day the report was: The patient is now plump, red-cheeked, and healthy looking, and weighs nineteen pounds and a quarter. It is lively, good-natured, and intelligent, sits up, and plays about like other children. The appetite, the mother says, is alarmingly voracious. There is still enlargement of the right frontal region, but the thickening of the other bones has completely subsided. The movements of the face and eyes are perfectly normal. Sight, hearing, and the other senses are intact. The actions of the limbs are vigorous, but it is evident that the power of the left arm is still somewhat impaired, and its more delicate manipulations are awkward. Both legs are apparently equal and normal.

March 23rd, 1880.—Patient has remained well and is now in perfect health. There is no trace of paralysis of any kind.

Nov. 14th, 1882.—To-day—that is, three years and a half since the patient first came under notice—I saw him. He has grown a robust, handsome boy, is perfectly intelligent and active in all his limbs. There is no trace of anything abnormal about him, except that the right frontal region is slightly fuller than the left. All the senses are normal, and Mr. Purves reports the optic discs to be perfectly healthy.

Commentary.—If this case is of little pathological value, the patient being still alive and now free from disease, it is of considerable clinical interest. It may be taken for granted that the brain was the organ affected. The next point to determine is whether the disease was of a so-called functional or of organic nature. I am of opinion that there was a gross lesion of the encephalon. This seems to be evidenced by the train of general symptoms, their grave and permanent character, the local convulsions and paralysis, the unaccountable vomiting, and by the signs of intra-cranial pressure, as indicated by abeyance of the intellectual faculties and of the special senses, and the appearance of the circulation and optic discs in the fundus of the eyes. This intra-cephalic pressure caused definite cerebral phenomena. The perceptive faculties were suspended; the child for months lay in a semi-comatose condition, the functions of the body being carried on, and the movements of the muscles being performed, in apparently an automatic manner. Food was taken and digested; the bladder and rectum were evacuated; the patient was cross when irritated; and the reflex acts were normal; but for long he showed no signs of voluntary acts or of intellectual efforts. The sight, hearing, smell, taste, and feeling seemed to be completely abolished. There was no evidence, however, that the organs of these senses were themselves directly involved in the disease, as

they subsequently completely recovered. The probability rather is that the child, owing to the intra-cranial pressure, had lost the power of receiving mental impressions of any kind, and was incapable of appreciating or responding to them. Again, in addition to the local spasms and paralysis, there was general loss of power throughout the body, and occasionally during the epileptiform attacks all the limbs were convulsed. Finally, the condition of the fundus of the eye gave ocular demonstration of this general intra-cranial pressure, as evidenced by the characteristic changes in the vessels and optic discs. These facts tend to show that what we suppose to be the gross lesion of the encephalon was of sufficient bulk to cause the symptoms and signs just enumerated.

In addition to these general conditions, there were certain special phenomena which enable us to localize the disease. There were well-marked hemiplegia and convulsions limited to the left side of the body, which permit us to place the morbid lesion on the right side of the brain. An extended consideration of this unilateral paresis and spasm, allows us further to localize the disease to the posterior frontal or parietal regions of the right cerebral lobes. Physiological experiment has demonstrated that these localities on one side are the centres for originating movements on the other, that their irritation causes convulsion and their destruction paralysis. These investigations have been further supported by pathological and clinical observations, and more especially by those of Dr. Hughlings Jackson. In this case there were attacks of universal hemipasm—namely, convulsion of the left side of the face, arm, and leg, the head and eyes being drawn in the same direction. During the intervals of these paroxysms there was paralysis of the left face, arm, and leg, with double external strabismus. These facts indicate implication of all the motor centres on the right side of the brain.

Further analysis of the symptoms enable us even more accurately to limit the existing lesion to the cortical matter of the convolutions. The attacks of convulsions point to instability of grey substance, as irritation in its motor regions gives rise to explosive discharges of movement, hence we may assume that those centres were in an excitable condition. The paralysis on the other hand, which affected the same parts as the convulsions, although permanent during the illness, subsequently completely disappeared. This is an indication that the lesion, capable of producing irritation and temporary abeyance of motor function, had not caused complete destruction of tissue. Assuming a gross lesion to be the cause of both these symptoms, it cannot be admitted that this was situated in the substance of the brain itself; as disease there of sufficient bulk to account for all the phenomena observed would have caused permanent alteration of structure, whereas we know that the patient afterwards entirely recovered without having a trace of functional deficiency. The inference therefore to be drawn from this fact is that the morbid process did not occupy the cerebral lobes themselves, but was situated outside them. The train of symptoms, I think, are best explained on the supposition that the disease was a growth probably attached to the bone or membranes over the post-frontal and parietal regions of the right cerebral hemisphere. This, by general intracranial pressure, caused the intellectual and sensory deficiencies, the universal debility, and the changes in the fundus of the eye. By special influence on the cortical motor centres it induced irritability of the grey substance without actual destruction, hence the paroxysms of convulsions in the parts deriving from them their motor

activity. The same local pressure was also sufficient to cause permanent paresis of the same, which disappeared when the foreign body was subsequently absorbed, leaving the structures, of which it for a time suspended the functional activity, unimpaired.

The nature of the morbid growth must, from absence of pathological data, remain in doubt. Careful inquiry failed to elicit any trace of syphilis in the family history, but the appearances, progress, and termination of the case seem to point to that disease as constituting the local lesion of the brain. On the right forehead of the child there was a marked prominence of the bone, and the edges of the anterior fontanelle were raised and thickened in a manner highly suggestive of syphilitic infection. The termination and result of treatment might also by many be considered corroborative of this view. The patient throughout was treated chiefly with the bromide and iodide of potassium, and recovered under their influence, but whether as a result of the drugs or not I shall not attempt to determine. It is the habit of some authors to found a diagnosis upon the result of treatment, maintaining, for example, that in doubtful cases if a certain disease improve upon an anti-syphilitic remedy, that this in itself is evidence of the correctness of the suspected diagnosis. Such reasoning appears to me to be unscientific, and likely to lead to error, as it assumes as a fact what is by no means universally admitted.

Dr. Hughlings Jackson considers that the presence of double optic neuritis accompanied with unilateral convulsions is strong evidence in favor of specific disease. Doubtless it may be the fact that these are frequently associated, as syphilitic tumours are the most common cause of such local cerebral disorders; but from such symptoms we cannot diagnose syphilis to be present, but can only assert that gross lesion of some kind in the encephalon, involving the grey matter, is probable.

The general conclusions which seem permissible in this case are as follows: 1. That all the symptoms were due to cerebral disease. 2. That the lesion of the brain was gross, and not merely functional in character, and probably consisted of a morbid growth attached to the membranes or bones of the calvaria. 3. That this was of sufficient bulk to cause symptoms of general intracranial pressure. 4. That the lesion was localized, and probably limited to the cortical portion of the right post-frontal and parietal regions. 5. That the symptoms were induced by pressure on, but not destruction of, the nervous elements. 6. That recovery was due to absorption of the morbid product, and subsequent restoration of function of the cerebral convolutions. 7. That the disease was probably syphilitic in character.

Clinical Lecture

ON

PNEUMONIA WITH PERICARDITIS.

Delivered at the Westminster Hospital.

By OCTAVIUS STURGES, M.D.,
Physician to the Hospital.

GENTLEMEN—True pneumonia, commonly, if not invariably, associated with pleurisy, is not very rarely associated with pericarditis also. This latter combination, although receiving less attention than it deserves, is a form of the disease which is interesting on many accounts, and especially as regards its treatment. For this reason I take ad-

vantage of an example of the kind lately in Burdett ward to make a few observations upon the subject this afternoon. The case, very briefly abstracted from notes of Mr. Hebbert, the medical registrar, is as follows:—

William M—, aged thirty-two, a porter, of free drinking habits, but not a drunkard, and of whom it was stated with much distinctness that "he had never been laid up in his life," was brought to hospital on Dec. 27th, with the signs of acute pneumonia of the left lung. The initial rigor had occurred five days before, after a definite exposure, but for some weeks he had not been in his usual health, complaining of cough, weakness, night sweating, and some wasting, yet without having to keep his bed till the commencement of the acute attack. Cough, rusty sputa, great thirst, and an unusual degree of prostration had been noticed during the early days of the pneumonia, and for two nights before admission he had been sleepless and delirious. The circumstances of his home being unfavorable for suitable treatment, Dr. Tobay, who first saw him, advised his being sent to hospital. On admission it was apparent that the case was one of extreme severity, and, as it happened, the man survived only four days. Yet, it may be remarked, that with a pulse of 140, respiration reaching, and sometimes exceeding, 50, dry and brown tongue, with restless delirium, but as yet no signs of actual sinking or collapse, and death four days off, the highest temperature was 102.4°. During the succeeding days it never exceeded that point. The observation may be added to many others of a similar kind, showing that temperature is of itself a fallacious guide in pneumonia. It is not necessary to enter into details of the man's daily progress. On the first day signs of consolidation of the upper lobe of the left lung were noted as well as increased area of heart dullness. On the second day a loud pericardial friction was heard at the base of the heart, a rubbing increased in intensity by pressure, the heart's apex impulse being imperceptible. Insomnia, delirium with hallucinations, breathlessness, and such weakness that on one occasion (three days before death) the patient fainted on being gently raised for examination, were so many symptoms showing clearly enough an extremity of peril which could only admit of hope in consideration of the nature of the disease, and the absence of any physical signs denoting the breaking up of the inflamed lung. Early in the morning of the fifth day, counting that of admission, the man died, mainly by asthenia. The treatment had been by means of nutrients frequently given, with brandy in varying doses, but both food and stimulants were swallowed with great difficulty; and, as in many other fatal cases, we experienced the practical difficulty—too little considered until actually encountered—of putting in force all that was meant by the late Dr. Hughes Bennett by the term "restorative treatment." The condition of the organs found after death I now show you. A consolidated upper lobe of the left lung; hepatization passing into grey, but with no sign of softening, and no disorganization of lung tissue. The rest of this lung is barely congested, and the right lung is healthy. The heart is slightly hypertrophied as to the left ventricle, and the valves natural, but over the whole anterior surface it is covered, as you see, with shaggy and coherent lymph, which can be easily stripped off, exposing old fibrous thickening of the pericardium proper, while beneath this, again, is a layer of adipose tissue. The muscle of the heart is very soft, and in places there is nuclear excess between the muscular fibres, but on the whole the tissue is fairly normal. The right ventricle is one-fifth of

an inch thick, the left three-fifths, and the weight of the heart is 11½ ounces.¹ Both the pericardial sac and the left pleural cavity contained about ten ounces each of turbid fluid. There was no disease of any other organ, and especially it must be mentioned that the kidneys were normal.

Here then is an ordinary idiopathic pneumonia, not very extensive, not purulent, and occurring in a young and active man; yet it ends fatally, owing, as we must suppose, to the pericarditis which accompanies it. This concurrence of pneumonia and pericarditis claims attention, as I have said, on many grounds; it has a special significance in relation to the pathology of pneumonia, it lessens considerably the prospect of recovery, and in so doing it raises afresh the question of treatment, inasmuch as the great law of spontaneous recovery, which makes most of us content to leave pneumonia undrugged, no longer seems to apply.

Pericarditis is not very uncommon with simple pneumonia. Out of seventeen examples illustrating the very unusual occurrence of death in the latter disease (all the instances of the kind I could gather from twenty years' post-mortem record at St. George's Hospital²), as many as five had pericarditis and two others accumulation of fluid in the pericardial sac. This pneumonic pericarditis, unlike the rheumatic, has no concurring endocarditis; it seems like a mere extension, by a sort of sympathy, of the pleural inflammation to the neighboring serous membrane. The ordinary features of the pneumonia are not thereby changed, except, indeed, as to the chances of recovery, while, in many instances, the existence of pericarditis is undiscovered, and probably undiscoverable.

Clinically speaking, it must be remembered that both the recognition of pericarditis and the determination of its age are precarious and uncertain. The lung inflammation we detect at once, and follow easily from stage to stage; but a friction-sound is not a necessary sign in pericarditis, and may indicate either the advent of the inflammation, or such decrease of its fluid as suffices to bring the inflamed surfaces together. In the case before us friction was not audible until the second day after admission; yet post-mortem examination made it quite certain that the pericarditis was of much earlier date. In a young man under my care some years ago in the same ward, a case very similar to this one, friction rub preceded the pneumonia by nearly three weeks; it then subsided; reappearing, however, shortly before death, which was due (as examination showed) to a simple pneumonia which had lasted six days. Had this patient been admitted late, like the other, it is easy to see how the second occurrence of rubbing might have been misunderstood.

You are not to think from these two cases that pneumonia with pericarditis is commonly fatal. Far from it. It is a specially evil factor, for reasons that we shall see. To what degree it diminishes the prospect of recovery I am not prepared to say; but, on the whole, I think that pericarditis along with pneumonia is more conspicuous for its tendency to lengthen out the latter disease, and so to deprive it of the quick convalescence which is one of its striking characters, than for its tendency to end fatally. Curiously enough, the very last case of pneumonia admitted under my care before this one I am speaking of was an illustration of this. A girl of seventeen (Fanny S—, Harpur ward), in the course of a most characteristic pneumonia, showed signs of pericarditis, first by increased area of cardiac dulness, and next by fric-

tion-sound; and although the proper crisis happened on the seventh day (being the fourth from admission) convalescence was not established until three weeks later. Yet the girl made a complete recovery under treatment such as I have described.

Pneumonia seen in this connection has a special interest pathologically. The occurrence seems to supply an additional argument to the many others that have been adduced to favor the belief that the affection we call by this name is something more than a mere lung inflammation; rather that it is a complex morbid condition not limited to any one organ and having elements of danger away from the part which is the chief seat of its activity. Pericarditis is a secondary, not a primary, affection; it is known to us chiefly in connection with acute rheumatism and septicæmia, yet it may be the very first sign of an inflammation which we take pains and use names to describe as primary and idiopathic, and which, moreover, puts in a distinct claim to be so regarded, not only on anatomical grounds, but also from its habit of occurring with almost unexampled suddenness to previously healthy people.

But more to the present purpose is the question of treatment. Here is a patch of lung consolidated, as you see, by recent inflammation, yet not structurally altered. The condition is not one which would of itself be fatal. From what we know of pneumonia we are justified in saying that death was due in large measure to the pericardial inflammation. The question then arises, What is the proper treatment for this form of pneumonia? We have two acute inflammations side by side; that which concerns the lung we are taught to regard nowadays as an affection which is to be nursed and fed rather than drugged; but pericarditis is an inflammation which, even according to authors who are the least in love with medicinal treatment, needs active remedies, bloodletting, counter-irritation, and opium, for its recovery. We are thus placed in a real dilemma, for by no exercise of ingenuity can we obey two opposite sets of indications. Pneumonia is to be treated in one way, pericarditis in another; as to the treatment of the two in combination, authors are mostly silent. It is legitimate, therefore, to consider the question for ourselves and by the light of nature. What the books say or imply is this: Pneumonia has a tendency to recover and exhibits that tendency most when left to itself; but pericarditis has no such tendency; it stands in need of remedies, of the very remedies, as it happens, which are now discarded as worse than useless in the case of pneumonia. If that doctrine be true; the difficulty of treatment in such a case as the present seems insuperable. But is it true?

Call to mind the course and the termination of any examples of pericarditis you may have seen. The affection is so closely connected with acute rheumatism that you will probably think of a case of that kind. And what happens there? As everyone knows it is this: first, there is a friction-sound heard at the heart's base; next, this rubbing ceases and you get instead signs, obscure or manifest, of the presence of fluid in the pericardial sac; by-and-by, with the disappearance of these signs, friction is again audible, until, this ceasing, the sounds of the heart come out once more clear and distinct, but, probably, with a systolic murmur. Such signs, as you very well know, indicate to us the ordinary course, the natural history, of rheumatic pericarditis. They tell us of the pericardium, at first inflamed, presently bathed in a fluid which both serves as a fomentation and secures the two surfaces against the pain of rubbing or the danger of sticking, and next of the absorption of that

¹ The above description is taken from the Report of the curator and pathologist, Dr. Hebb.

² Natural History of Pneumonia, Append D., p. 296.

fluid and, so far as the pericardium is concerned, the end of the inflammation. This, I say, is the common course of pericarditis; and how can we usefully interfere with it? What do you want? It is true, unfortunately, that this is not all, especially that in rheumatic pericarditis it is not all. While we are bleeding and blistering in some sort of protest against this exocardial noise, and influenced not a little by the loudness of it, there is going on within the heart, unheard, unfelt, often unthought of, a process of change almost certain to be permanent, and of which you get the first notice at the moment you are congratulating yourself on the success of your "active treatment." Rheumatic pericarditis, as the herald of mischief to the cardiac valves, is formidable enough no doubt, but as for the exocardial part of it, I am content to leave that alone; its natural course is towards recovery, and although it be true that adhesion, hydropericardium, and myocarditis are occasional consequences of pericarditis, I am not informed of any method of treatment calculated to prevent these disasters. My chief care and thought, so far as drugs are concerned, is for the non-recovering endocardium, and the more so because the noise outside prevents its speaking for itself. It is always legitimate, therefore, to ask for remedies in *rheumatic pericarditis*, not on its own account, but because of the valve inflammation, of which it gives warning, an inflammation whose natural course unchecked is the very reverse of beneficent.

But pneumonic pericarditis is unlike the rheumatic in that there is not the same sympathy on the part of the endocardium. The sanction for drugs, therefore, arising out of the jeopardy to the valves, which the rubbing implies in acute rheumatism, is absent. What then! is pneumonic pericarditis to be left to itself? I am bold enough to think so until someone will tell me explicitly what good he hopes to do—what kind of beneficial change, I mean, he thinks to produce in the inflammatory exudation—by what is called active interference. Pneumonia tends to recovery, and so does pericarditis; that tendency may be thwarted in several ways in both cases, and in the case of the last most, but it is equally apparent in both.

But, you say, pneumonia combined with pericarditis is apt to end fatally. Yes, but why? Not because of the pericarditis, but because of what pericarditis entails. Look at the specimen now before you. Here is an inflamed pericardium, not adherent (there was just fluid enough to keep its surfaces apart), not purulent, not greatly harmful in itself, but comparable in its course and origin as well as in its microscopic characters to the inflammatory exudation of simple pleurisy. But its situation makes all the difference. The chief clinical features of pericarditis, and that which constitutes its immediate danger is the cardiac weakening it produces. Hence it is that dyspnoea, faintness, and the sensation and aspect of "cardiac anxiety," are common symptoms of the disease; hence, also, it is apt to be fatal by way of syncope or asthenia, and has for its frequent consequence, where death is delayed, pulmonary oedema. This cardiac weakening is due, no doubt, in many instances, to muscular degeneration, fatty or fibroid, the sequel of a myocarditis which is itself due to the pericardial inflammation. But not seldom before this change has taken place, at the very outset, indeed, of pericarditis, its effect upon the action of the heart is apparent; and the more so when from any cause the organ is already embarrassed. Why that should be I need not discuss here; that it is so every clinical student will admit.

Well, then, if weakening of the heart, and es-

pecially of the right ventricle, be the consequence—the invariable consequence, we may say, more or less obvious, according to circumstances—of pericarditis, and its most present danger; if syncope and asthenia and pulmonary stasis are favorite modes of dying in that affection, what morbid condition is there that we should sooner avoid in such a disease as pneumonia? Consider how in pneumonia all the strain, so to speak, falls upon the right heart and the right ventricle; how its prognosis, and treatment, and varying fatality depend upon that cardinal fact. Ought we to be surprised, then, to find that pericarditis is an especially evil associate for pneumonia, inasmuch that, other things being equal, its presence or absence makes all the difference between life and death? In speaking of pneumonia, as is now the custom (and the truth under our present mode of treatment), as a disease that commonly recovers, we are not to forget that it is always perilous. It habitually recovers, it is true; but barely so—it has nothing to spare. And just as the old treatment by semi-starvation and bleeding often sufficed to kill it (as we have the strongest grounds for believing), so likewise may the untoward occurrence of pericarditis. But there is nothing in this to give sanction to blood-letting and blistering the surface of the chest. We are told, indeed, that the effect of loss of blood is to produce the very degeneration which pericarditis is apt to produce; but with our school of therapeutics, at all events, that is no indication for such treatment. That death was inevitable in the present instance it would be rash to say. But such cases will die occasionally with every advantage of early treatment and skilful nursing, and we see the reason why. Pericarditis occurring along with pneumonia makes the prognosis more grave; it may modify some of the symptoms, and even require special treatment for some of them (as, for instance, when the pain is severe or when that restless delirium occurs which was a feature in our present case), but the inflammations are similar in their course and progress; both tend to recovery, and in both, so far as we know, such recovery is best promoted by precisely similar means. There is no reason to suppose that the several dangers which beset the two morbid conditions respectively, and which need no doubt appropriate treatment as they arise, may be escaped in the one case any more than in the other by active measures, or that what are called the indications for treatment in pneumonia are at all disturbed by the concurrence of pericarditis.

And, indeed, it is difficult to understand how and why in the general revolution of belief which has finally disposed of the doctrine that blood-letting, and blistering, and other "antiphlogistic" treatment can arrest the course of inflammation, pericarditis should have escaped any more than pneumonia. For this question is no longer one of argument derived from the natural history of disease; it is matter of experience. And in this, as in other respects, the two affections stand very much on the same level. Both were selected for bleeding and mercury at the same time and for the same reasons, and with similar disastrous results. Bouillaud, who fifty years ago was "jugulating" pneumonia, was jugulating pericarditis also, and he lost six patients out of eighteen in the process. Even Sir Thomas Watson, although he bled less, was yet more emphatic in commending the "free and unsparing use of mercury, so as to get and to keep the gums sore." And if you read his lecture as he spoke it (not, I suppose, as modern editions give it), you will see that under such treatment pericarditis was a much more formidable disease than it is now.

It was the firm "conviction" of that great physician that when the to-and-fro sound had manifested itself the patient would either die outright, or else survive only for a time, and at the expense of an adherent pericardium. If that is far from being our experience now what is the inevitable inference? There are, I repeat, occasional symptoms in both pericarditis and pneumonia which may call for the lancet, for counter-irritation, for digitalis. I do not now speak of these; but for the rest, we may say with confidence that just in proportion as antiphlogistic treatment has relaxed, from the practice of Bouillaud to the shadowy thing of to-day with its exceptions and reservations, so has the complexion of acute disease altered for the better, and that this observation, applicable especially to pneumonia and pericarditis, is as true of the one as of the other.

Original Papers.

REPORT UPON AN OUTBREAK OF TYPHOID FEVER AT NEWTON-HEATH, MANCHESTER.

By HENRY TOMPKINS, M.D., B.Sc., Etc.,
Medical Officer to Monsall Fever Hospital.

TOWARDS the latter end of last year it came to the notice of the health authorities of the township of Newton-Heath, a populous suburb on the northern side of Manchester, that cases of typhoid fever were occurring in their district much in excess of what was ordinarily to be met with, and as no sufficient cause was discovered for the outbreak, and as there was also some doubt whether all the cases met with were really cases of typhoid fever, I was requested by the authorities to make an investigation thereof, and to discover if possible to what the outbreak was due. My inquiries extended from Nov. 24th to Dec. 12th, up to which time I was able to establish the existence or pre-existence of about sixty cases of undoubted typhoid fever, so that there was no doubt about the presence of what may be called a small epidemic of that disease. The next and more important step was to endeavor to ascertain the origin of this outbreak. Up to the third week in October the district had been free from typhoid, during the next six or seven weeks sixty cases had arisen. The township of Newton-Heath extends some two and a half miles from south-west to north-east, but the bulk of the cases were situate in a comparatively circumscribed area, within a radius of some two hundred and fifty to three hundred yards; the number of cases occurring beyond this in other parts of the township did not exceed what may be ordinarily looked for at this season of the year in all large centres of population, or what were occurring at the same time in other parts of Manchester and Salford. The problem therefore to be solved was, To what influence had those residing in the above area (and which for convenience may be called "the infected area") been subjected to which those distant therefrom had not been so subjected? Attention was first turned to the water-supply, but as this is supplied from the Manchester mains and was at the same time being supplied to other districts from the same main, where no typhoid had attracted attention, this could not be suspected of having played any part in the outbreak. The milk-supply was next considered, and to this especial attention was paid, as it had been thought highly probable by some residing within the district that this might be the

origin of the whole mischief. The facts ascertained in connection herewith were as follows. In the thirty-three houses in which typhoid was present the milk had been obtained from twelve different sources, one milkman upon whom suspicion fell having supplied twelve houses entirely and three partially, but some of the most severe cases were in those houses not supplied by him; and, further, among his customers outside the above area typhoid did not prevail. Inquiry also at the farm whence the milk was obtained in no wise served to show that there was any reason to suspect that the milk was contaminated. This therefore afforded no satisfactory explanation, nor gave the desired clue. The sanitary arrangements of the district in question, speaking generally, were good. The houses are comparatively new. The excreta, etc., are disposed of in the manner known in Manchester as the pail system, and, together with the ashes and other refuse, are removed weekly. In almost every instance complete disconnection between the houses and the sewers had been effected—in fact, the entire sanitary surroundings were much better than in other and older parts of the township where typhoid was not prevalent. From the officials of the local board I elicited the following facts. About the middle of September, owing to some suspected defects in a sewer running down a main street situate in this locality, known as Ten Acres-lane, an inspection was made, and it was discovered that the level of this large sewer, eighteen inches in diameter, was defective and altogether at fault, that it could not empty itself, and was found to be more than half full of stagnant decomposing sewage deposit, that it was unventilated, and was choking up and interfering with the proper flow down the branch sewers from the adjacent streets which ran into it. To remedy this it was opened throughout its whole length, taken up, and relaid at a lower level, with sufficient fall, the final closing not taking place until the first week in November, or about the time when the first cases were brought under the notice of the board, and from which time they continued for the next few weeks to increase rapidly.

From careful inquiry I was able to ascertain with tolerable precision that the first case to come under observation occurred about the second week in October. It is pretty well agreed that the average period of incubation in typhoid fever is about three weeks. Now what do we find here? We have the opening of a defective sewer and the disturbance of a large quantity of stagnant sewage matter, in a previously healthy locality, followed within two or three weeks by a series of cases of typhoid, the earliest of which broke out in the street in which the sewer was laid, some of these being among the most severe cases met with during the outbreak, and amongst which the earliest fatal cases occurred, and during the three or four weeks following the final closure of this sewer fresh cases continued to arise, and not until that period had elapsed was there any marked decrease in the number of cases met with. Another point noted was that a larger number of cases lay to the north-east of this sewer than in any other direction; the smaller side streets running off from the main street (Ten Acres-lane) on either side in a north-easterly direction on the one-hand and south-west on the other. It was shown by meteorological observations taken in the township that in the fifty-seven days during which the sewer was open the direction of the wind was, in forty-four of those days, from the west or south-west; this would carry the infected air in that direction where the greater number of cases were found. Not that I consider it necessary to lay much stress upon this point, but we know so little as to the properties or

powers of life of the contagium of this disease, that we are not justified in saying that air laden with the poison cannot be carried even greater distances than would appear probable in this case without having its infective properties destroyed.

In *THE LANCET* a short time since notice was made of a report of an outbreak of diphtheria in the Holbeach Rural district, where the possibility of conveyance of infection by wind currents was considered. Other epidemic diseases have long been thought to travel considerable distances by the medium of wind and air currents. But no doubt most of the patients who suffered during this outbreak, living in the immediate neighborhood, would have come into close proximity to this open sewer some time during the eight weeks it was under repair, so that the wind theory is not necessary to account for them. In four houses, containing six cases, situate some considerable distance beyond the limits of the "infected area," the patients had all been for a greater or less length of time in the immediate neighborhood of the open sewer. Two of these had lived in the street in which the sewer was open, two had attended school for several hours daily within the infected area, one had visited at the house of a friend there who lay ill with typhoid, and another had passed daily to and fro by the open sewer.

Taking into consideration the whole of the above evidence there appears to be every justification for connecting the outbreak with the disturbance of this stagnant, unventilated sewer, at a period of the year too when typhoid is most prone to prevail; and although there is nothing new in this conclusion, other outbreaks of a precisely similar nature having been met with by other observers, it yet serves once more to show the danger to be apprehended, and guarded against, when defective drains, especially if containing stagnant decomposing matter, are to be opened up and disturbed.

Manchester.

CASE OF TRIPLE BIRTH FOLLOWED BY PUERPERAL ECLAMPSIA.

By PERCY BOULTON, M.D., M.R.C.P. Lond.,

Physician to the Samaritan Free and Queen Charlotte's Hospitals.

On Sept. 21st I was asked to see A. O—, who had been delivered the day previously of triplets, and was in strong convulsions. Excepting its plurality, the labour had been normal. The large single placenta had come away naturally, and the uterus contracted well without any excessive hæmorrhage. The patient was with difficulty kept in bed during the fits by two women in attendance, and in spite of a clothes-peg, which had been used as a gag, she had bitten her tongue badly. She was pale, unconscious, foaming at the mouth, the pupils were dilated, the skin cool, and the legs much swollen. I was told that before the fits she had complained of severe headache, and that she had passed very little urine. In addition to the increased arterial tension during pregnancy, the enormous size of the uterus during triple pregnancy causes pressure on the large abdominal vessels, on the bladder, thereby diminishing its capacity, and to some extent on the ureters, preventing free escape of urine into the bladder—all tending to renal congestion and uræmic eclampsia.

This patient, however, had no symptoms of convulsions till after confinement, when the pre-existing pressure had been removed, and therefore it was a question whether the fits were uræmic or not. The swollen extremities showed that although

direct pressure had been removed, the circulation had not recovered itself, and it is probable that the immediate result of delivery is to add to the troubles of renal incompetence, since diminished centrifugal flow towards the uterus would increase pressure on the renal arteries, and the products of involution charge the circulation with matter which would cause irritation and contraction of arterioles, and so further increase arterial tension. The cold pale surface and dilated pupils pointed to superficial and cerebral anæmia from this cause, while the kidneys were in a state of active hyperæmia and the urine highly albuminous.

The treatment which I ordered was that the loins should be constantly poulticed, and that she should take directly a strong jalap purge, and twenty grains of bromide of potassium every three hours, the diet being restricted to milk. When I next saw her I was prepared to give a hypodermic injection of pilocarpine, which is a valuable remedy in such cases, causing profuse perspiration, with excessive excretion of urea. The girl, however, was so much better that she continued the former treatment with the very best results, and is now quite convalescent. Theoretically nitro-glycerine, or amyl nitrite, so valuable in exalted reflexes, should be of service in such a case. In my experience they cause dilatation of the contracted arterioles, and have decidedly a temporary, but no permanent, good effect.

Seymour-street, W.

ON RETRACTION OF THE FLAP AFTER SYME'S AMPUTATION.

By BENNETT MAX, B.S.

AMONG the morbid conditions of stumps there is one incidentally alluded to by Mr. Savory in his "Notes on Surgery," which appeared in *THE LANCET* last month. It is that of retraction of the heel flap after Syme's amputation. Although not generally recognized or looked for, it is as he points out, a contingency to be provided against in certain cases, of which an example is now under my care at the Queen's Hospital. The patient is a young man on whom I performed a double amputation for a railway smash eighteen months ago, removing one limb below the knee and the other at the ankle. He made a very quick recovery, and for some time was very comfortable, but a few weeks ago he came to show me his Syme's stump, on which he was no longer able to bear any weight owing to the pain this gave him. I found that he was walking on the cicatrix, where two large painful corns had developed, and that the heel flap, instead of receiving all the pressure, was retracted quite to the back of the leg, the integuments above it being thrown into several transverse folds from the laxity. It had evidently been drawn into this position by the muscles of the calf. Fortunately a division of the tendo Achillis has completely liberated the flap, and has enabled me to readjust it and replace it in normal position with complete relief to his troubles. I explain the occurrence in this case—1st, by the fact, that the operation being a primary one, the muscles of the calf were caught in a state of full development and activity, and not attenuated by long disuse; and 2nd, that owing to the rapid recovery which took place the tendo Achillis at a very early period attached itself to the heel flap—obviously a disadvantage, and one which I should endeavor to prevent in a future primary amputation by severing the tendon some distance above its insertion into the os calcis, or by removing an inch of it after division. The operation was origin-

ally performed almost precisely on the lines recommended by Mr. Savory, at least in the one particular of carrying the incision right across the sole and not backwards.

Birmingham.

ON A PROLONGED CASE OF TETANUS.

UNDER THE CARE OF

Dr. J. ROBINSON and Mr. STENSON HOOKER

Reported by the latter.

W. H.—, aged fourteen, on May 31st last, whilst bathing, received an incised wound on the ball of the great toe by treading on a piece of broken bottle; all went well until June 9th, when he complained of a "cold in the jaw," with stiffness of the muscles of the neck and between the shoulders; the wound was now healing nicely.—June 10th: The jaw is all but closed, and the muscles of the abdomen, back, and limbs contract still more strongly when touched. The urine is loaded with lithates; bowels rather confined. He takes liquid nourishment well, this being accomplished by suction, the teat of an infant's feeding bottle being squeezed between the teeth. Temperature 101° 6'; pulse regular, 100. Given twenty grains of bromide of potassium every four hours.—11th: There is general clonic spasm of all the voluntary muscles with intense pain; at times the condition is that known as opisthotonos. Given a scruple of chloral hydrate. Temperature 102° 2'; pulse 160.—12th: Pain and muscular contraction still intense. Chloroform was administered, which relaxed the muscles and gave him sleep, but immediately on awakening the rigidity recurred. This extreme state continued, Chloroform being administered each day until the 23rd, there being no cessation from spasm except when under the influence either of this drug or of opiates.—20th: Continues to take nourishment well; this consisted of milk, soup, and beef-tea. Temperature 100° 2'; pulse 100. The bromide was evidently useless, and was therefore discontinued.—23rd: Five drops of tincture of Calabar bean were given every two hours; the dose was increased gradually day by day. Wound healed. Pulse 116; temperature 100° 2'.—26th: There is some loss of vision, which is hazy; he cannot distinguish objects further than a yard off. Pulse 124; temperature 102° 4'. Is now taking twenty drops of the drug every four hours.—27th: There is complete loss of vision; pupils are normal. He is slightly delirious, and complains of tingling in both feet. There is no natural relaxation of the muscles. Pulse rather smaller, regular, 120; temperature 102°.—30th: The spasms are a little less violent and less frequent in the muscles of the trunk. He is now taking thirty drops for each dose. The vision has returned to some extent. Urine copious; bowels rather relaxed. Takes nourishment well. Pulse 94; temperature 100°.

July 3rd: The spasms are not so violent, and are confined to the lower extremities. He is now taking sixty-five drops every four hours.—4th: The masseters relax slightly, and there is a constant desire to yawn.—9th: Patient can now flex both arms, also the leg upon the thigh. Temperature 98° 8'; pulse 96.

There was a slow improvement from this time, the intervals between the spasms becoming more and more prolonged. On the 12th he could eat solid food for the first time since the attack; and on the 31st he could eat and talk fairly well; there was no spasm, but the legs were still somewhat rigid. On Aug. 5th all rigidity had disap-

peared, and the Calabar bean was omitted. The patient was up on the 7th and complained only of general stiffness and debility, and from this date he gradually recovered and now enjoys perfect health.

Remarks.—The interest in this case lies in its exceptional prolongation. Twenty days passed before the slightest cessation of spasm took place, twenty-four before the muscles even commenced to relax, while fifty days passed before there was absolute freedom from spasm and rigidity. This I believe to be the longest case on record, and the question which suggests itself is, Did the drug, Calabar bean, exert any influence for good in this case? It will be seen that it produced, at least, physiological effects which are unusual, if not unique, the patient being for three days totally blind.

Midhurst.

ON A CASE OF SIMPLE FRACTURE OF THE STERNAL END OF THE CLAVICLE INTERNAL TO THE RHOMBOID LIGAMENT.

By G. OWEN WILLIS, L.R.C.P., L.R.C.S. Ed.,

Senior Surgeon to the Monmouth Hospital.

J. E.—, aged fifty-four, a laboring man, was admitted into the Monmouth Hospital on July 18th, 1881. He stated that two hours previously he slipped off a hayrick, fell heavily on his outstretched right hand, and also struck his right shoulder. On examination a simple fracture of the sternal end of the right clavicle was discovered within a quarter of an inch of the sternal head of the bone. The direction of the fracture was obliquely downwards and outwards. The outer fragment rode high in the neck from the action of the clavicular fibres of the sterno-clavicular mastoid muscle and the weight of the arm. The fractured end of the outer portion was very sharp, and threatened to lacerate the skin. The inner fragment presented no marked sign of displacement, was freely movable, easily depressed, and on pressure the sensation was conveyed to the finger of its being loose and rolling. He had fractured the sixth and seventh ribs in front of and close to their angles. My efforts to adapt the broken ends of the clavicle were but partially successful. Apposition of the ends was gained when the right arm was raised and the fingers of the right hand touched the left ear, the point of the elbow being slightly tilted forwards by a pillow. Any attempt to fix the limb in this position was not tolerated for long. I had to content myself with slinging the arm and placing a pad of cotton-wool on the shaft of the clavicle; this last kept in position by strips of plaster crossing the chest from back to front. He had a sharp attack of pleurisy, and was very restless, often getting in and out of bed, but recovered and was discharged convalescent on August 29th, 1881. I saw him again on August 30th, 1882, when a photograph and cast were taken. The broken end of the outer fragment was rounded off and lessened by absorption, and he had fibrous union permitting of some movement. That morning he had done a bit of stiff digging, and considered his recovery a good one.

I have been influenced to publish this case at such length because fracture of the sternal end of the clavicle is rare, whilst fracture internal to the rhomboid ligament is very rare. Holmes, in his "Principles and Practice of Surgery," 1875, says, "it has not as yet been proved." Bryant makes no mention of the injury, and I am indebted to

the kindness and courtesy of my old teacher, Mr. Henry Morris, of the Middlesex, for the following references:—Hamilton refers to three cases (in a record of 105 fractures of the clavicle) in which the fracture was within one inch of the sternum, and he says that in such fractures, which are, of course, within the fibres of the rhomboid ligament, there is but little displacement. Lonsdale mentions a case in a child three years old, which came

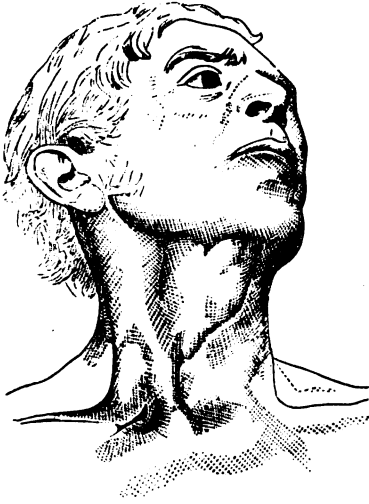


Fig. 1.

under his care in the Middlesex Hospital, and which he regarded as a separation of the epiphysis. Malgaigne mentions two cases, in one of which the fracture was so near the sternum that it was difficult to say whether it was not a partial dislocation; the displacement was only trivial. There are two preparations in the Musée Dupuytren, in Paris, of fractures very close to the sterno-clavicular joint, and in both the displacement is considerable, and in both the outer fragment is thrown down and forwards. Hamilton, in a recent edition of his work, says he has had a case of fracture



Fig. 2.

close to the sternal end, the specimen of which he showed to the New York Pathological Society. The man from whom the specimen was taken was forty-five years old, and the fracture, occasioned by a fall upon the shoulder, extended from the sterno-clavicular articulation upwards and outwards an inch and a half. The fragments were over-lapped three-quarters of an inch, and were firmly united.

(27)

The character of the accident was not recognized until after death. The specimen is now in the Bellevue Hospital. In the case I report there can be no doubt that the rhomboid ligament was ruptured, and it was remarkable that the displacement of the outer fragment, which was very considerable, was upwards and not downwards, as in the cases collated by Mr. Morris.

Monmouth.

ON A CASE OF OVARIOTOMY AT THE AGE OF SIXTY-ONE.

MULTILOCLAR CYSTIC TUMOUR OF THE RIGHT OVARY;
REMOVAL; RECOVERY.

By A. C. BUTLER SMYTHE, M.R.C.P., F.R.C.S. Ed.
Surgeon to the Farringdon General Dispensary and Lying-in Charity.

Mrs. M—, aged sixty-one, widow, married at twenty-nine, has had six children, the youngest being twenty-one years of age. First child still-born, all other labours natural. Menses appeared at fifteen, ceased at forty. Has never been very strong. Her mother died of "cancer of the liver." About twelve months ago she noticed herself getting large and thought she was gaining flesh; later on, owing to gradual increase in her size, the swelling being uniform and painless, she believed she had "the water." Within the last six months she lost flesh rapidly, and complained of difficulty in passing water, and of pressure over the bladder, together with forcing down pains. These symptoms caused her to seek advice, and she came to me. She was very emaciated and anæmic, and her features presented that peculiar pinched expression, the "facies ovariana," described by Mr. Spencer Wells. On examination I found the abdomen much distended, with dullness over the anterior surface, and resonance in flanks. Fluctuation could be distinctly made out, and the aortic sounds and impulse were transmitted. Per vaginam the uterus was found to be retroflexed and low down in the vagina, and the base of the tumour could be felt on the right side. The diagnosis was tumour of the right ovary, multilocular, and chiefly fluid. I therefore determined to operate without delay.

The operation was performed on Sept. 13th, 1882. Chloroform being administered, I was about to commence, when the patient vomited several times, and in a few moments became pulseless. Some time elapsed before she was brought round. As it seemed dangerous to go on with the chloroform, ether was proposed, and administered without the slightest inconvenience, both pulse and respiration at once improving under its influence, and the vomiting ceasing. Carbolic spray being carefully directed over the abdomen, I made an incision about five inches in length, and opened the peritoneum on a director. The cyst was fairly movable, there being but two or three small adhesions to the abdominal wall on the right side. I punctured the larger cyst and drew it forward, and, having emptied several smaller ones, found that the lower part of the tumour was held down by some strong bands, stretching to the right side of the pelvis; these gave some trouble, and I had to enlarge the opening. Having separated them, the tumour was extracted. I then transfixed the pedicle, which was very thin and broad, and tied it in two halves, not crossing the ligatures, and put on another ligature for safety, between these and the uterus. The left ovary was enlarged to the size of a walnut, but as there were no cysts I left it alone. There was very little bleeding, and

no fluid escaped into the peritoneal cavity (thanks to Mr. Dewar, who ably assisted me). Having sponged carefully, I closed the wound with carbolized silk ligatures, and applied Lister's dressings. The tumour weighed over 19 lb., and contained a brownish-colored fluid and colloid matter.

The patient did well and had no sickness or cough whatever. On the third day she had beef-tea by the mouth, and on the fourth she was moved into another bed, this treatment being continued about every third day throughout the case. The sutures were removed on the eighth day, when the wound was found to be firmly closed. On the twelfth day she complained of headache and chilliness, when the temperature suddenly rose from 99° to 103·6°, and the pulse from 80 to 116. She had no abdominal pain, but her urine was highly concentrated and loaded with urates. On examining the wound I found a suture had been overlooked; this was removed and ten grains of quinine and twenty minims of tincture of opium ordered to be administered per rectum, and repeated in three hours. Thornton's ice cap was also put on. On the next day (the thirteenth) the temperature had fallen to 99°, pulse 84. From this date the patient's progress was most satisfactory. On the sixteenth day the bowels acted, by the twenty-fourth she was sitting up in bed, and on the twenty-eighth she was able to walk. From the first the bladder was troublesome, and the urine at times loaded with pus. I treated this condition by washing out the bladder occasionally with warm water, and gave twenty-minim doses of tincture of perchloride of iron three times a day. It was exactly one month from the date of operation before the patient had complete control over the bladder.

Remarks.—In this case I adhered strictly to the rules laid down by Mr. Spencer Wells, with the exception of the anæsthetic. I also adopted his suggestion of using two small iron bedsteads for the purpose of changing the patient occasionally. This was found to be most agreeable to the patient, who after the first removal, always reminded us if we had forgotten to change her. The sudden rise of temperature was undoubtedly caused by the suture which I had overlooked setting up some septic mischief. All ligatures used at the operation were previously boiled in a 5 per cent. solution of carbolic acid. The stimulant given was brandy, and this only in small quantities, not more than six ounces being used throughout the case.

Feb. 12th, 1883.—At the present date the patient is in perfect health, and able to attend to her household duties.

BOROGLYCERIDE IN THE TREATMENT OF PURULENT OPHTHALMIA.

By GUSTAVUS HARTIDGE, F.R.C.S. Eng. etc.,
Assistant-Surgeon to the Central Ophthalmic Hospital.

I HAVE for several weeks tried the effect of boro-glyceride in a few cases of purulent ophthalmia which have come under my care at the Central Ophthalmic Hospital, and although the number I have treated is much too small on which to form any definite opinion, still the results have been so encouraging that I am induced to publish them in the hope that others may make a trial of this antiseptic. I cannot but think that if its antiseptic properties were fully established, it would prove of great value for disinfecting instruments etc. in cataract and other operations where a non-irritating antiseptic is required. The way in which

I have employed it in purulent cases has been to evert the lids, and, after cleaning away all pus and secretion with cotton-wool, to brush the mucous membrane over with a 1 in 10 solution of the boro-glyceride, taking care to introduce it well under the upper lid. This has been repeated daily, and in the interval the mother has been instructed to bathe and clean the eyes and lids every hour with a 1 in 40 solution. No other treatment was used, and the cases began to improve at once, being usually well in from eight to ten days. Where one eye only was affected I have, after brushing over the lids, applied a piece of lint soaked in 1 in 20, covered with a pad of cotton-wool, and bandaged the eye, with the result of preventing the sound eye from becoming attacked. In all the cases the cornea was unimplicated.

Boroglyceride is an antiseptic introduced by Professor Barff, and has been used considerably in Germany in surgical cases, and also for domestic purposes, the preservation of meats, etc. It is made by the chemical combination of boracic acid and glycerine in certain proportions, whereby a new compound, boroglyceride, is formed.

The following are some of the advantages of this antiseptic: it is readily soluble in cold or hot water; it is odorless, tasteless, and unirritating; a 1 in 10 solution dropped into the eye causes scarcely any smarting; and, according to its introducer, it is innocuous.

Kensington-park-gardens, W.

THE CASE (ACUTE DIABETES) OF POLICE CONSTABLE SANSOM.

By W. WANSBROUGH JONES, M.B. Oxon, etc.,
House Physician, St. Thomas's Hospital.

THE main facts relating to the death of Police Constable Sansom have been fully recorded; I purpose here adding only the few clinical details obtained during his short stay in hospital.

It will be remembered that on the evening of Sunday, December 24th, he complained of feeling unwell for the first time during the two years he had been in the police force. He felt aching pains in his limbs, and too weak to do his eight hours' duty. He managed, however, to get through it, but broke down during the Monday night. On Tuesday night he was not allowed to go on duty, but sent to bed by the deputy divisional surgeon. On the Wednesday he was once a little delirious. On Thursday he seemed weak and ill, but Dr. Blades was unable to arrive at a diagnosis after going fully into the case. The urine he was unable to obtain for analysis. On the Friday morning he became semi-comatose and very collapsed, and in this condition was admitted into St. Thomas's Hospital under the care of Dr. Bristowe. Some simple restoratives were administered, and in about three-quarters of an hour he was seen by Dr. Bristowe. He was then sufficiently conscious to answer questions asked in a very loud tone of voice. He said he was not in pain, and though he answered questions put to him intelligently, very little could be gathered as to his condition. The policeman who had been taking care of him could give very little information about him, excepting that he had passed water frequently during the night. The result of a careful physical examination was equally unsatisfactory. The skin was dry; the tongue slightly furred and dry. He was thin, but not emaciated. The temperature was normal. The pupils of moderate size, equal, and reacting to light. The lungs in front, the heart, and abdomen seemed natural. There was no œdema of the limbs, and no sign of paralysis. Dr.

Bristowe therefore thought that the man was either suffering from uræmia or in a state of diabetic coma. As no water was voided during the first four hours after admission a catheter was passed, and four ounces of urine drawn off. The temperature rose, the breathing became quicker and the coma more profound, and in the course of the next hour he died. Half an hour before death the temperature was 103°; half an hour after death it was 105°.

A post-mortem examination was made on Saturday afternoon. All the viscera, including the nervous centres, were congested, and the brain seemed to have the sweet odor which is said to be characteristic of diabetes. The congestion was recent, and was in all probability due to the feeble action of the heart for some hours before death.

Remarks.—The great difficulty and obscurity of the case will be at once apparent when it is noticed that neither the examination made before death nor that after death afforded any satisfactory explanation of the patient's condition. In fact if the few ounces of urine mentioned above had not been obtained the case might still remain a mystery. This urine was of a high specific gravity—1040, acid reaction, and contained a large quantity of sugar and some albumen. No medical man looking at the whole of these facts could for one moment doubt the nature of Police Constable Sansom's malady. Nor is there anything peculiar in the sequence of events. The diabetes ran its usual course. But it was a most unusually rapid course. Diabetes is usually a very chronic disease, which kills the patient by gradually exhausting him until he falls into a comatose state, or dies of phthisis. Cases of so-called acute diabetes are very rare, and probably several of the cases so classified if thoroughly looked into would prove to be cases in which the disease had been existing unrecognized for some time, but in which some acute exacerbation had brought symptoms into prominence which led to a diagnosis. There are several cases on record in which death has resulted in two or three weeks from the first recognition, it may be the first onset of the disease. But a case of only five days' duration in a man apparently quite healthy before is to us at any rate quite unprecedented.

NOTES ON SURGERY.

By WILLIAM S. SAVORY,

Surgeon to St. Bartholomew's Hospital.

On the Treatment of Enlarged Prostate.

WHEN complete retention of urine from enlarged prostate occurs, it frequently happens that the introduction of an instrument is followed by temporary return of power to micturate; and in other cases of partial retention it is well known that the occasional passage of an instrument will for a while restore the ability to empty the bladder almost completely without help. The cause of the difficulty being a mechanical one, I suppose there can be little doubt that the introduction of an instrument does good in this way by pressing aside that portion of the enlarged prostate which is most immediately concerned in producing the obstruction. Now, much more good in this direction, and good, too, which will last much longer, is often gained by retaining a catheter for some time after it has been introduced—say for one or two hours or so, as the patient may be able to bear it without distress. This plan is well worth trying in most cases of the kind. When an instrument has been passed, whatever difficulty there may have been in its introduction has been overcome,

and the patient is subjected to little or no additional trouble by its retention for a short period. I may add that for this purpose a silver catheter appears to me to be of more service than a flexible one. It will be observed that this plan of repeatedly retaining an instrument for an hour or so after it has been passed is quite distinct in principle and purpose from the practice which has been advised, and is sometimes adopted, in cases of complete retention, or of very frequent micturition, or where there is unusual difficulty in the introduction of an instrument, of retaining it for many hours or even days together. The object here is either to escape a difficulty which may become insuperable or to avoid the necessity of passing an instrument so frequently as to make this a source of grave irritation and further mischief. Here, unfortunately, the proposed remedy is often worse than the evil. The plan now advocated has been suggested with the view of taking advantage of the passage of a catheter, when it is required to relieve the bladder, to retain it for its effect upon the prostatic portion of the urethra; for the good it does in this way of restoring or improving the power of micturition, or possibly by pressure promoting in some degree absorption. In speaking on this subject, I would add that in my experience, as in that of others, in cases even where the prostate is considerably enlarged, it is often easier to introduce a catheter with an ordinary curve than the instrument which is especially made for cases of this description. Surgeons know very well that sometimes when a prostatic catheter cannot easily be passed, an instrument with a much smaller curve will easily slip in. I fancy that the advantage on the side of the smaller instrument is more common than it is generally supposed to be. With me, at least, it is the rule; and so, to relieve the bladder in cases of enlarged prostate, I should take first an instrument of full size with an ordinary curve, or a curve not exceeding the quadrant of a circle two inches or so in diameter.

On the Treatment of Stricture of the Urethra.

It may be well from time to time to call attention to the still prevalent practice of treating all cases of stricture of the urethra by the introduction of instruments. I say all cases; for when a stricture has been once made out, does it ever escape bougies? How many cases occur of contraction due to spasm or to temporary thickening of the membrane from inflammation or congestion, which if left alone would speedily clear up, but which are worried into permanent stricture by such mischievous activity? Even when organic or permanent stricture is established, how very seldom does it come under the notice of the surgeon uncomplicated by inflammation or congestion and spasm? and are these conditions to be subdued by the employment of instruments? Is this in accordance with any recognized principle in surgery? Many cases of so-called stricture need no instrumental interference from first to last, and by such means are only made worse; and of those cases in which much may be done at the proper stage by the judicious use of instruments, there are very few indeed which do not require, for some time previously and simultaneously, treatment in the way of rest and other measures to subdue the active mischief, which in ordinary circumstances is almost invariably associated in some degree with passive structural contraction. The story is well known of a physician who, having in consultation discovered pericarditis, consoled his colleague who had overlooked it with the reflection, "My dear fellow, if you had found it out you would have treated it." How far the ordinary treatment would have been bad for the pericarditis

I cannot say; but I am sure that stricture of the urethra sometimes suffers very much at the hands of surgery from being found out; and, unfortunately, it has but little chance of escape in the way of being overlooked. In every case, of course, instruments must be passed, and the existing evil is not only apt to be thus aggravated when present, but too often it is nursed into existence.

FOURTEEN CASES OF DIGITAL EXPLORATION OF THE BLADDER, IN SIX OF WHICH VESICAL TUMOUR WAS REMOVED.

By Sir HENRY THOMPSON,

Surgeon Extraordinary to His Majesty the King of the Belgians,
Consulting Surgeon and Emeritus Professor of Clinical Surgery to University College Hospital, Etc., Etc.

At the meeting of the Royal Medical and Chirurgical Society of January 23rd last I stated that, for the purpose of diagnosis in exceptionally obscure cases of urinary disease, I had of late performed a limited incision of the perineum carried to the membranous urethra only, and sufficing to enable me to carry the index-finger to the neck of the bladder, after which, by supra-pubic pressure under complete anaesthesia, the whole of the interior of the bladder might be examined by the finger, and its condition be easily determined. I stated in my paper, in language the most distinct I could adopt, that the incisions in question had been frequently employed for two centuries at least for stricture, retention, etc., but that they had not been employed for the purpose of making the diagnostic examination above described, and, moreover, that such examination became possible only since we have had the power to produce at will complete relaxation of the patient's abdominal muscles by means of ether and similar agents; and I claimed this proceeding to be a new mode of diagnosing such obscure conditions, and also of treating them when, as has often happened, the incisions made have sufficed also to enable me to take away a tumour or other source of disease, not removable otherwise than by operation. In order to illustrate and support these statements I append very brief notes of every case in which I have made this exploratory incision, so as to enable the profession to judge of the proceeding and of its results. I have during the last two years and a half met with thirteen cases in the male of obscure disease in which I deemed it right to employ digital examination of the bladder. I add one case of dilatation of the urethra in the female, because tumour was present and was removed, this being a proceeding which may be regarded as analogous to that above adopted for the male; and I think it will be regarded as a very striking fact—to none has it been more unexpected than it has been to myself—that among these fourteen cases I have found and removed vesical tumour of considerable size in no less than six of them.

CASE 1.—T. R—, aged twenty-nine. I crushed an oxalate of lime calculus on Aug. 5th, 1880. Symptoms were very slightly relieved, and he became worse in the autumn. The condition being obscure, I operated on Nov. 6th by perineal urethrotomy, Mr. Ceely, of Aylesbury, and others, present. I found a fibrous polypoid growth (Fig. 1), and removed it with the forceps. He made a rapid recovery, and is perfectly well now and actively engaged in business. He was present at the lecture.

CASE 2.—A gentleman, aged forty-eight. Had been the subject of painful frequent micturition for several years, and of slight hæmaturia, without

obvious cause. On June 27th, 1881, I operated, finding no specially morbid condition. The tube was retained in the wound for a week. He was much relieved, and has been better ever since, although still troubled with the same symptoms, but notably less severe.

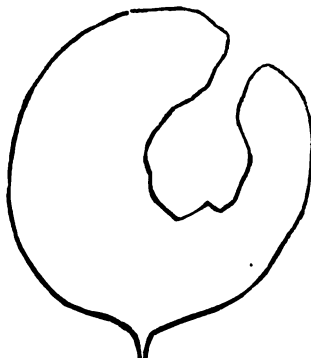


Fig. 1.

Form and situation of tumour in the bladder. (Case 1).

CASE 3.—A gentleman, aged fifty-two. I performed lateral lithotomy for a large uric-acid stone on June 1st, 1880. He made a good recovery, but was afterwards troubled with phosphatic deposits and bleeding. Nothing was found by careful search except a small concretion on two occasions; hence I operated on June 17th, 1881, removing some phosphatic deposit closely adhering to the inner coat, retained the tube a week, and then withdrew it. The wound rapidly healed, and he has been better since, but not altogether free from alkaline phosphatic urine.

CASE 4.—A gentleman, aged sixty-eight. I crushed a uric-acid calculus on March 18th, 1881. He became unable to empty his bladder from prostatic hypertrophy, and used the catheter habitually. A year after he began to lose blood daily, not from the catheter, which he used with great ease. Careful sounding failed to detect a cause. He was now very feeble, and I had the advantage of consultation with Sir W. Jenner, who agreed that exploration would be desirable. On Feb. 10th, 1882, I did this, and found closely adhering to the coat of the bladder a scale of phosphatic deposit, which I removed with the finger-nail, tying in a tube for seven days. The bleeding soon ceased, and has never reappeared. He is now enjoying better health and more activity than for a long time past.

CASE 5.—A gentleman, aged sixty, with hypertrophied prostate, who passed all urine by catheter, at the rate of sixteen times in the twenty-four hours. I operated on March 20th, 1882, retaining a tube in the wound, by which all the urine passed for seven days. The relief was remarkable. Soon after the wound healed, and the catheter was employed only six times in the twenty-four hours, while the patient's health and strength greatly improved, and has continued so. Seen with Dr. Chepmell and others.

CASE 6.—A lady, aged thirty, the subject of severe cystitis and hæmaturia at intervals for five years. I dilated the urethra and explored the bladder with the finger, discovering a polypoid tumour of considerable size (Fig. 2), and removing it with the forceps. She made an excellent recovery, the pain, frequent micturition, and bleeding, all disappearing before the end of the month. Seen with Dr. Philson, of Cheltenham. She was

reported in good health, free from symptoms, in October.

CASE 7.—A gentleman, aged seventy-two. I crushed a phosphatic stone in Feb., 1878. He passed most of his urine by catheter, and had small deposits removed subsequently. In the winter of 1881-82 his symptoms became severe and distressing, and were controlled only by morphia. Sounding detected no adequate cause. He became very feeble, and was seen by Sir W. Jenner, who assented to the operation as the best chance of relieving his sufferings. I performed the operation

very free, and continued to be so next day, and he sank before night.

CASE 10.—A gentleman, aged fifty-two, had suffered from hæmaturia about five years, with long intervals of freedom, particularly after the injection of perchloride of iron. On Nov. 13th, 1882, he reported the return of severe bleeding in July last, and more or less continuous since, with painful and frequent micturition, loss of strength, etc. On Nov. 20th I operated in the presence of Dr. George Johnson and Mr. Erichsen, finding a considerable polypoid growth springing from the left

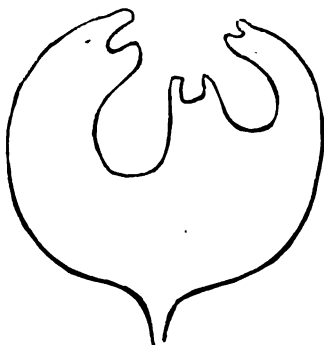


Fig. 2.

Form and situation of tumour in the bladder. (Case 6).

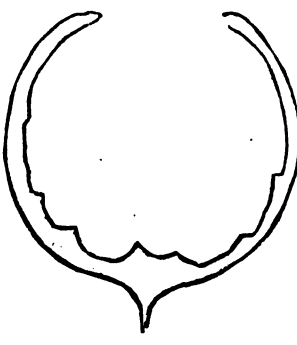


Fig. 3.

Form and situation of tumour in the bladder (Case 9).

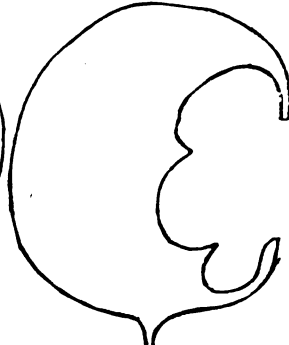


Fig. 4.

Form and situation of tumour in the bladder (Case 10).

on June 21st, 1882, and found a sac near the neck of the bladder containing a calculus the size of a large bean, which I turned out with my finger. His sufferings were completely relieved and all necessity for catheterism was avoided, but he sank soon after from exhaustion.

CASE 8.—A gentleman, aged eighty-three. Has long suffered from unusually painful and frequent micturition, the interval rarely reaching forty minutes either by day or night. He almost emptied the bladder naturally, and required his catheter once a day only; but he took morphia freely. No calculus or organic change in the urinary organs could be detected. General health excellent for his age. On Jan. 30th, 1882, I operated, finding no morbid condition, except hypertrophy of the vesical coats, placed the tube in position to withdraw the urine by, and kept it there twelve days; its presence relieved him so greatly that he was unwilling to part with it, not having been so comfortable for a year, and discontinuing the morphia altogether. The wound rapidly healed, and he held his urine from two to three hours. He continues greatly improved at the present time.

CASE 9.—A gentleman, aged forty-six. In the spring of 1881 micturition was extremely frequent. Blood appeared first in November, subsequently abundant and mixed with phosphates. In May, 1882, he came to me with Dr. Davies, of Swansea. No calculus was found, but the interior of the bladder felt thick and soft on moving the sound. Small masses of semi-translucent material, chiefly composed of nucleated cells are passed in the urine. Returned to the country; to try styptic injections. On Nov. 1st he came up with symptoms considerably increased in severity. Having no doubt that the cause was tumour, I operated on the 3rd, finding a large mass filling the bladder, springing from a wideish base at the upper part. I removed the greater part by means of the forceps, half filling an ordinary tumbler with the debris (Fig. 3). A tube was tied in. The bleeding was

side of the bladder (Fig. 4). This I removed with the lateral curved forceps. Bleeding was rather free for thirty-six hours; no pain. He made a steady recovery, and left town perfectly well in a month's time. Urine healthy, retained five hours.—Jan. 23rd, 1883: Has recently seen a trace of blood after a seven-mile walk, which he felt was too much for him.

CASE 11.—A gentleman, aged twenty-four, first seen in April, 1882, who for about two years has suffered severely from pain, frequent micturition, and bleeding. The stream often commences of the natural color and becomes bloody before ceasing. Has been sounded and treated but without benefit. After using various remedies I advised exploration. On Dec. 15th, 1882, I performed in the usual manner. There was no tumour, but the whole of the mucous membrane of the bladder was much thickened and rugose. The tube was retained about five days. Hæmorrhage continues as before, and disappears only when a catheter is tied in and retained, the urine then continuing clear and healthy. No benefit appears at present to have resulted from the proceeding.

CASE 12.—A gentleman, aged sixty-seven, saw blood in his urine six years ago, and often passed uric acid calculi. June 2nd, 1882: Lithotripsy at one sitting, removing 200 grains, Dr. Burnet present; much bleeding afterwards. The relief was slight; frequent bleeding, during autumn, and much phosphatic deposit; nothing found by sounding. He is very stout and heavy.—January 17th, 1883: Perineal incision as usual; perineum very deep; found rather firm and broad tumour, left side (patient's) of bladder. Removed by forceps with some trouble; bleeding free for two days and pain severe. Resembles Fig. 4, but less pedunculated and nearer to the neck of the bladder. Tube was removed on eighth day.—Feb. 1: No pain whatever or blood; micturition frequent.—5th: Improving; holds water longer; walks out for the first time to-day.

CASE 13.—A gentleman, aged fifty-two, from Cape of Good Hope. Painful micturition for a year past and great frequency; no cause discoverable by any examination I could make. Urine purulent, no blood. Health excellent. Much treatment before coming over without result. No relief from medicine here.—Jan. 22nd, 1883: The usual incision enabling me to explore entire surface of the bladder and finding nothing. Tied in tube, which remained eight days, during which all pain ceased, and he slept as he had not done for months; symptoms gradually improving.—31st: Took out tube; no pain.—Feb. 5th: Some pain, not severe; urine much improved; wound healed.

CASE 14.—A gentleman, aged sixty-seven (sent by Dr. W. Anderson, of Richmond), saw blood first three years ago; last four months constant hæmaturia, increasing in amount. Stream often begins clear and leaves off deep florid-red, seen by myself. Shreds in urine show tissue containing spindle-shaped cells and fibres.—Jan. 30th, 1883: Operated as usual, Dr. George Johnson and Dr. B. Sewell present, removing tumour broadly pedunculated and sessile from left side (patient's) of bladder. With some trouble extracted a large mass. Pain and bleeding not considerable. Resembles Fig. 4, but larger and broader at the base, and approaching the neck of the bladder.—Feb. 2nd: Bleeding ceased; pain slight; little feverish; pulse 96.—5th: Urine almost clear; patient doing well.

Wimpole-street.

A GROUP OF EIGHT CASES OF CANCER OF THE RECTUM.

SUCCESSFUL COLOTOMY IN FIVE; SUCCESSFUL PARTIAL EXCISION OF THE RECTUM IN ONE; TWO NOT OPERATED ON; REMARKS.

By ARTHUR E. BARKER, F.R.C.S. Eng.,

Assistant Professor of Clinical Surgery at University College, and Assistant Surgeon to University College Hospital.

THESE eight cases occurring in my own practice comparatively recently appear not unworthy of brief record as a completed group, illustrating, as they do, when contrasted, many points of interest in regard to this formidable disease, as well to pathology as to clinical history and treatment. Colotomy having been performed on four of them during the month of August last, and having operated on two others not very long before, many details connected with the procedures employed have been brought more forcibly under my notice than if the cases had occurred sporadically and the impressions regarding them as contrasted are still fresh in the memory. Besides this, it has been possible here to keep five out of the six cases operated on under almost weekly observation up to within the last month (Jan. 1883), and the condition of each has been carefully noted.

Pathologically considered, the disease in seven out of the eight cases appeared, from careful manual examination and clinical history, to be of the usual form of cancer met with in the rectum, sometimes spoken of inappropriately as adenoid, but better as columnar epithelioma. In one instance (Case 2) where excision was performed this structure was proved by the microscope. But in another (Case 5) I am inclined to think, from the history before and after operation, that the growth was probably encephaloid. In all but one the growth was seated fully three inches from the anus when first examined, and involved the whole cir-

cumference of the bowel; in one (male) it was limited to the postero-lateral aspect of the gut; in all the anus was free, and in none was there any trace of glandular or other secondary deposit discoverable; only two were females. In all there was no history of causation, and in seven the family history plainly negated heredity.

Clinically the cases differed considerably owing to the different stages of growth. Thus six were operated on respectively at twelve, five, twenty, eighteen, five, and twelve months after the first appearance of symptoms indicating the presence of cancer; the last two unoperated on were examined at two and eighteen months respectively after the same time. Blood in the motions was in four cases the first thing noticed, and was present sooner or later in all. Irregularity of the bowels, either difficulty in defecation (in two) or diarrhœa (in four), was the next earliest symptom, and "bearing-down" pain the next after this; but three patients suffered comparatively slightly from continuous pain, only complaining of a little during motions. Pain down the thighs was a notable symptom in two cases. Finally, diarrhœa, amounting to as much as twenty motions daily, became the most prominent feature in three out of five of the advanced cases. Only once (Case 1) did the growth invade neighboring organs—i.e., the vagina. The clinical factors determining or contra-indicating operation were as follows. In Case 1 the growth had opened up the vagina, and the resulting incontinence of fæces of the most revolting kind, together with the distress from the passage of the motions over the ulcerated surfaces of the cancer, fully justified the hope that an artificial anus in the loin would give relief. In Case 2 excision was justified by the malignancy of the growth, the suffering it gave rise to at each motion, and, besides, by its limitation and accessibility. In Cases 3 and 4 the growth was very chronic and bulky, and was causing obstruction alternating with profuse and most painful diarrhœa. Ulceration of the bowel above the stricture and perforation were therefore to be feared, if a free exit for the motions above were not immediately provided; this would also spare the cancerous surface the contact and straining of the frequent motions. Cases 5 and 6 were operated on almost entirely on account of severe pain, with diarrhœa, other troubles being less prominent. Morphia produced constipation, which aggravated the distress with each motion of the bowels. Finally, it was hoped that relief of the new growths from the irritation of defecation might retard their advance. In Case 7 the condition does not produce enough suffering to justify operation yet. In Cases 8, too, there is but little distress as yet, and as the patient can command the best private advice and any diet, the fæces can be kept in a condition to pass readily through the narrowed bowel, so that the patient, even at seventy-seven years of age, enjoys very good health still.

Operation.—In five cases colotomy in the left flank was performed by Amussat's incision, in one excision. The wounds were in every case guarded against septic contamination during operation by frequent sponging with carbolic solution, especially after opening the gut. The subsequent dressing consisted of carbolic oil on lint, covered with a pad of salicylated wool. All the colotomy wounds healed rapidly, almost completely by first intention, except in one case, where, as the healing was rather too rapid, I broke down some of the fresh union to allow of a little wider opening to the gut. Inflation of the latter from the rectum was practiced in every case, and the finding of the bowel was thereby much facilitated. In only one instance was the peritoneum wounded (Case 6).

But not one bad symptom followed, the wound being kept aseptic, as indicated, and the opening of the bowel having been deferred until the fifth day after the latter had been stitched by its muscular coat only to the skin. Stout silk cleansed in carbolic solution was used for the four primary stitches of the bowel, supplemented by a few finer threads between. Those cases, especially the last two, did best in which the mucous membrane was most carefully sewn to the cut surface of the skin. Without antiseptic precautions this would be undesirable, as tending to confine any pus formed in the deeper parts of the wound.

The eight cases briefly noted are as follows:—

CASE 1.—Mrs. C—, aged forty-five, was admitted into University College Hospital in April, 1880, and passed into my hands through the kindness of my colleague, Mr. Heath. Her previous and family history were very good, but one sister died of phthisis. "Bearing-down" pains were first noticed twelve months ago; then diagnosed elsewhere as due to "piles." Two months later cancer was found in the rectum here. Three months ago feces first passed per vaginam. Severe pain from the first as of labour. Patient is much emaciated and anæmic, and has phthisical consolidation of right apex; suffering acute. A hard mass of cancer involves the whole circumference of the rectum as far as can be reached with the finger, and even presents at the anus. It is most extensive anteriorly, where it has opened up the vagina and feces pass freely. There are great abdominal pain and rigidity of recti muscles. On April 21st I performed colotomy in the usual way, much helped by inflation of the bowel. Only one vessel required twisting. The wound was treated and dressed as described above. On the 28th the patient is noted as improved in every way; stitches removed (one on 26th) and a little pus pressed out of the posterior angle of the wound; feces commencing to pass by latter. From this onwards there was a steady improvement, only a little feces passing per vaginam; appetite, pulse, and strength much better, but phthisical state as before. Sometimes the pain in the rectum came on as before operation, but not as a rule. On May 24th the colotomy wound having healed and looking well, the patient left the hospital, still, however, very feeble.

CASE 2.—*Operation by Partial Excision.*

CASE 3.—W. N—, aged sixty-seven, admitted under my care July 28th, 1882. When first seen by me in February, 1881, he only complained of loss of blood with his motions for some months past. He had little or no pain, no constipation, and his health did not suffer. His family history was very good, and distinctly negated cancerous taint. There was at this time a mass of cancer in the rectum, about two inches and a half from the anus, and all round the bowel; it was lumpy and irregular, but did not appear much indurated; columnar epithelioma was diagnosed. Under the prolonged use of Chian turpentine pills the bleeding appeared to decrease, and he professed himself more comfortable. He remained thus until eight weeks before admission, when severe diarrhoea and pain in the fundament began; motions fifteen to eighteen per diem. The growth was now felt to be greatly enlarged, and to encroach upon the anus, though still not much ulcerated apparently; no glandular infiltration or generalization. He was much blanched and worn out by suffering (though naturally a very hale man) and was anxious for operation. This I performed on August 2nd, 1882, as described above, with every precaution against sepsis except the spray, both during and after and in the dressings already described. The wound healed almost entirely by first inten-

tion, and the patient looked and felt extremely well throughout. The motions passed by the new anus on and after the third day. The stitches were removed on the sixth day, and he was out of bed on the sixteenth, leaving for the Convalescent Home soon after, the artificial anus working regularly. Some slight mucous discharge still came away per anum.

CASE 4.—W. H—, aged sixty-nine, admitted under my care July 27th, 1882. He has a large and healthy family and good family history, which distinctly negatives cancerous taint; he is healthy but of very nervous temperament, and suffers from "winter cough." Eighteen months ago melæna and diarrhoea, alternating with constipation, were first noticed; much aggravated for the last three weeks, and accompanied by distension of belly and narrowed motions, but no blood now; suffering, emaciation, and weakness now much marked; no glandular or other generalization. "In the rectum is a firm broad mass, encircling the bowel and attached to the sacrum, its position not being altered by straining. It gives all the characters of columnar epithelioma. The patient's condition being very miserable, I performed colotomy also on August 2nd, 1882, precisely as in the last case, having only to search a little deeper for the gut in the subperitoneal fat. On the sixth day the wound was almost perfectly healed by first intention, but as the opening appeared a little small, I broke down some of the fresh union for about an inch forwards. This of course retarded definitive healing, and was followed by considerable suppuration. On the seventh day it was noticed that the pulse was very peculiar; it was 140 to 170 usually, but at one time reached 196. It was counted several times daily by many observers, and was generally the same; in sleep it was about 120. Some sphygmographic tracings are preserved in the hospital register. I was unable to account for this condition as long as it lasted, as the patient seemed and felt remarkably well and in good spirits. His temperature was below 100° for almost the whole week during which this rapid pulse was noticed. Abundant stimulation and bromide of potassium produced no change. The enlargement of the wound had the desired effect, the feces from this time onwards passing almost entirely from the side, except when violently purged, when some made its way into the rectum. With the exception of oedema of the left leg, attributable, I think, to debility, there is nothing further to note, except that the patient improved steadily, and left the hospital for his own home at the end of September, the new anus working satisfactorily.

CASE 5.—R. M—, aged thirty-four, admitted under my care on July 28th, 1882. He had been a very strong man, but when first seen, five weeks before admission, he had an expression of much suffering, standing with his back bowed down and his hands resting on his knees, the latter slightly flexed, complaining of intense gnawing pain down his legs as low as the ankles. His face was pale and haggard from want of sleep for a long time. His family history was good, both parents being alive and aged seventy-two, and hereditary cancer distinctively negated. About five months before melæna and pain on defecation were noticed; his motions, which often reached twenty a day, consisting of almost pure blood at times. When first seen before admission, I found a new growth encircling the bowel just within reach of the finger, its upper margin being only accessible during anaesthesia; it appeared about an inch deep, was rugged, ulcerated, bled slightly, and was extremely painful to the touch. The mass seemed generally movable, but much less so behind, where it ap-

peared more or less fixed to the sacrum. Other efforts to give relief having failed, the patient became anxious for any operation which would afford him relief from his intolerable suffering. As he was young, generally healthy, and the growth had only appeared comparatively recently, and was still limited, I hoped to be able to excise it completely as in Case 2.¹ But there was some doubt in my mind whether it could be reached as easily, and also whether it was not to some extent extending towards the sacrum, and fixed there. I determined then to attempt excision, at all events as far as the preliminary incision in the middle line of the anus to the coccyx, and if the growth could be reached remove it. This was done on Aug. 10th, and in the wide opening secured by the first incision, it was found that the growth was too much fixed behind, and could therefore be drawn so little within reach that it would not be safe to go farther. No serious trouble followed this exploration, and on Aug. 23rd I performed colotomy precisely as in the other cases, except that more care was taken to unite the mucous membrane all round the skin wound with extra stitches of fine silk, in order to secure more complete union by first intention. All went well from this onwards. On the fifth day the stitches were removed, three from the skin and seven from the mucous membrane. The whole wound, except about a quarter of an inch at the posterior angle next the colon, healed by first intention. On and after the sixth day motions passed by the new anus. With the exception of a little diarrhoea there is nothing to note until the patient left for the Convalescent Home, except that a little faeces still passed occasionally per anum. He was greatly relieved by the operation, and looked well.

CASE 6.—Mrs. J.—, aged sixty-two, admitted under my care August 17th, 1882, a fairly healthy woman, with a good family history distinctly negating hereditary cancerous taint. About two years ago melæna and frequent action of the bowels were first noticed, but there was no pain or discomfort. One year ago she began to suffer from "aching" pain in the rectum. The bowels were moved at that time at least eight times a day, and never without blood. For the last six months the discomfort has much increased, especially after each motion, but also on sitting down, when the pain is most severe both at the anus and down the thighs. In the rectum there is now a large mass of new growth round the gut, about two inches from the anus, extending beyond the reach of the finger; it is nodular and only slightly ulcerated. The vagina is only separated from the mass by a very thin layer of healthy tissue. On August 23rd I performed colotomy as in the last case. On passing the needles through the colon, and making a cautious cut between the stitches for about half an inch I found that one of the latter had wounded the peritoneum and allowed the inflated air to pass into the abdomen, and also that my incision in the wall of the bowel had wounded the peritoneum without opening the latter. I therefore sponged the stitches and wound afresh with carbolic solution and united the peritoneal edges with a fine continuous carbolized silk suture. Then drawing out the first stitches I passed fresh ones across the wall of the gut, but this time only through its muscular coat so as not to enter the bowel. These were now secured to the skin, and the operation wound was united in the usual way. Everything was thus left until the sixth day without opening the gut. By this time the peritoneal surfaces were soundly united; the rest of the operation wound

had healed by first intention without a drop of pus, and I found the muscular wall of the gut glued firmly in the opening by semi-solid lymph. The gut was now opened with a scalpel and the mucous membrane stitched to the skin in the usual way. Nothing could have been more satisfactory than the whole course of this convalescence in spite of the wound of the peritoneum. There was not a bad symptom and no suppuration, and I regard it as the best of the series. From the seventh day onward the new anus acted well, a trace of faeces passing occasionally per anum still. Before the patient left for the Convalescent Home a bougie was passed into the wound a few times, as it inclined to shrink.

CASES 7 and 8.—Of these I need say little in addition to the general notes of the group given above. They were males aged sixty-eight and seventy-seven respectively, and their condition so far should not justify the performance of colotomy. The last, a private case, I still hear about frequently.

A few notes as to the subsequent history of the cases operated on will serve to complete the series up to date. Case 1 I cannot trace after her discharge from the hospital. Case 2 was alive and in excellent health when I last saw him, sixteen months after the operation, without a trace of recurrence. Case 3 began to improve at once after operation, and on his return from Eastbourne looked strong and healthy. He has since had occasional trouble in regulating his bowels, as he is inclined to constipation. The flank opening is inclined to shrink, and I have been obliged twice to dilate after incision of the edge, the last occasion being about a week ago, or just six months after operation. This was necessary, as without a very free lumbar opening in his case some of the faeces tended to work into the rectum, and set up the old pain. The patient had, however, been able to return to his work as College porter before this, and got about without great discomfort for a time, until this shrinking, combined with constipation from other causes, gave rise to trouble. I have no doubt that this difficulty will shortly be overcome.² Case 4 was much relieved by operation. He returned for examination from time to time and professed himself greatly improved, and he had manifestly grown stronger and gained flesh as he got about out of doors. In this instance there was a tendency to prolapse of the colon for a couple of inches, but it was easily kept up by Mr. Bryant's rubber-pad, modified slightly by the author to meet this particular case. When last seen by the writer in December he had the appearance of a fairly healthy old man, and was able to get about in the fresh air without discomfort. Within the last few days I have learned from his son that just before Christmas last he had a severe attack of his usual "winter cough," and died on Dec. 26th, 1882. The diagnosis made by his medical attendant as to the cause of death was "primary bronchitis." I regret that as I was out of town at Christmas an autopsy was not obtained, which would have shown the state of the bowel and the new growth. Case 5 suffered much and almost constant pain in the rectum after the first couple of months, though his general health and appearance were much improved. It seemed from the first as though in this case some of the lumbar nerves might be implicated in this growth from the character of the pain. Later, although the new anus acted most satisfactorily according to his own account, and the rubber plug and pad saved him from any unpleasantness during the day, still the

¹ Vide Brit. Med. Journ., Jan. 6th, 1883.

² Since writing the above all his trouble from constipation, etc., has been relieved by the last dilatation, and he is now comfortable.

old pain in the back and thighs came on again and again with much severity, and required morphia. But, as contrasted with his state beforehand, he was much improved for some months by operation. But before leaving town for a short time at Christmas I went to see him at his home and found that generalization of the new growth had plainly commenced. He had a nodule as big as a pigeon's egg in the middle of his forehead, and probably deposits in his lungs. When I last saw him, a month ago, the frontal nodule was much enlarged, and his liver was enormously increased in size also. He had then marked cancerous marasmus, and died two days later (Jan. 29th). The colotomy wound had acted well up to the end. Case 6 is, perhaps, the best result of the five colotomies. For four months after operation she had only a trace of dull pain in the rectum on sitting down. Her bowels acted, she stated, regularly through the loin once or twice a day, and in the intervals the side remained quite clean and comfortable. Every time she called at the hospital it was thus. She was cheerful and contented, and said she had gained flesh; and, indeed, she looked remarkably well, and not in the least troubled by the lumbar opening. Within the last week or so she has again come up to be examined, and she tells me that quite lately the gnawing pain in the rectum has increased much, and has called for the use of morphia. The consequent constipation has caused some difficulty in evacuation by the lumbar opening, which is of moderate size, and some motions have therefore found their way into the rectum. This, I have no doubt, will be easily rectified. In the meantime she goes about with no discomfort from her side, and looks still fairly well. Cases 7 and 8 have not been seen lately; but of the latter I have learned that he has commenced to pass blood from the rectum in considerable quantity. All of the last four colotomy cases wore Mr. Bryant's rubber plug and pad for a time. In Cases 3 and 5 it acted well when modified; in Cases 2 and 6 it was discarded after a time although altered many times to make it fit.

This group of cases appears to me to offer data for help in the selection of cases for operation, and then for the choice of the particular method of operation. Only one out of eight, it will be seen, was suitable for excision, and only five for colotomy. It will be noted that all the operations were followed by relief, the excision by permanent cure, it may now be hoped. Case 1 I could not trace. Case 2 was alive and well, with no recurrence, sixteen months after excision. Case 3 is alive and in very good general health still, six months after colotomy. Case 4 lived for five months after operation in fair health and able to go about, and then died of bronchitis. Case 5 was relieved of much suffering for at least two or three months, and his general health was very much improved until generalization set in. He lived over five months after operation. Case 6 is still alive and well, nearly six months after the lumbar anus was made. She goes about still without discomfort from the latter, and though she is now beginning again to have pain in the growth in the rectum, her condition generally is good.

I cannot help thinking that, though there are undoubtedly many cases of cancer of the rectum for which colotomy is not called for at any time, still there are many cases in which it would give great relief in which it is too long deferred, and its full benefits are therefore not enjoyed by the patient. Finally, there must be many cases suitable for excision if placed in our hands *early enough*.

Harley-street, W.

THE BLUE-GUM STEAM TREATMENT OF INFECTIOUS DISEASES.¹

By J. MURRAY GIBBES, M.B., C.M., etc.,

Coroner, New Plymouth, N.Z.

My object in this paper is, first, to bring forward a treatment of diphtheria I have found very successful; and, secondly, to suggest that a similar treatment might possibly prove equally successful in other infectious diseases. The treatment is that of keeping the patient in an atmosphere of blue-gum (*Eucalyptus globulus*) steam. It is an acknowledged fact that in blue-gum we have a most perfect disinfectant; not an artificial one, but one of nature's own; one always at hand, for it will grow in temperate climates. The green leaves hung in a bedroom keep it sweet; leaves placed on a wound, steam inhaled from it, or its infusion drank, or injected into wounds, all answer equally well. Professor Lister speaks highly of the eucalyptus oil for wounds, and it is also spoken highly of in rheumatism. It has not an unpleasant smell, and is tolerated by nearly all. By infectious diseases, I mean those which are caused by micro-organisms. I think it is an established fact that typhoid fever, measles, small-pox, whooping cough, tuberculosis, scarlatina, etc., are caused by fungoid growths. We know that they are introduced into the body by means of dust floating in the air, by milk, water, and food of all descriptions. After they have obtained entrance into the system, they multiply until they produce their specific effects. They pass out of the body in myriads, by means of the breath, perspiration, and discharges. Infection means the air being poisoned by these germs, and the incubation of a disease is the time required for their propagation into sufficient numbers to interfere with health, and that time seems to be lengthened or shortened according to the quantity introduced, the peculiarity of the different germs, or the state of the system at the time. That a specific germ can alone produce a specific disease is an established maxim. It having been proved that certain germs produce certain diseases, the question arises, How can they be destroyed? Not only how we can cure the disease, but how can we prevent it spreading? Say, for instance, we have a case of scarlatina in a town which had been free from that disease. How can we prevent its spreading through the town? The answer, of course, would be isolation and disinfectants, and it would be perfectly correct, disinfectants having the power of destroying these germs. It is on this point I ask to draw attention—viz., the best and most effectual method of using disinfectants, so that the germs can be destroyed before they can do mischief. I stated that the breath, perspiration, and discharges coming from a patient suffering from an infectious disease are laden with germs all ready to do mischief. At the present time disinfectant lotions, gargles, sprays, and internal remedies are used, and disinfectants poured on the various discharges; so far, so good, but the breath is laden with disease, and the evaporation of the perspiration also assists in poisoning the atmosphere of the room. Ventilation is then carried out to purify the room, but what becomes of the germs? They are dispersed into the external atmosphere to carry disease to others in all directions, and here we come to the root of the matter. If we wish to stay epidemics from spreading, not only must we disinfect the discharges, but we must destroy every germ which comes from the body, either by the breath or

¹ Read before the Taranaki Medical Association, October 4th, 1882.

otherwise, and to do this effectually we must keep the patient in a disinfected atmosphere. This must be done in every disease which is caused by micro-organisms, and until it is done we shall never be able to stay epidemics. It is the only true scientific method of dealing with disease. How is this best to be done? The discoveries made during the last few years and months revealed to me the cause of our many failures in curing these diseases, and the unscientific methods generally recommended. We gave remedies without having any idea how or why they cured disease; but now science has made vast strides and a great deal that was before obscure is being made plain; we have arrived at the root of the matter, and although perhaps, we do not as yet know how they cause disease, yet we have a solid foundation to start from. Professor Lister revolutionized the treatment of wounds when he brought forward his grand treatment of operating in a disinfected atmosphere. "The germs cause disease, therefore keep them away" he said, and the world bowed before his dictum feeling that he had hit the right nail on the head. If this answers in wounds, why should it not answer in infectious diseases?

After perusing the papers read before the International Congress, 1881, I felt convinced that the only efficient treatment of infectious diseases was to keep the patient in a disinfected atmosphere for several days, and I had an opportunity of trying my treatment sooner than I expected, for in October of the same year an epidemic of diphtheria broke out in a township sixteen miles from here (New Plymouth, Taranaki).² I had made for some years experiments with *Eucalyptus globulus* in various diseases with most satisfactory results—namely, in leucorrhoea and other discharges, gonorrhoea, and so-called laryngeal phthisis, croup, bronchitis, etc. My experience with disinfected steam has only been in the above epidemic, and the results have been most encouraging. Thirty-seven cases in which the treatment was carried out recovered without a bad symptom, such as paralysis, without any medicine except castor-oil, and without stimulants, which disproves the statement that diphtheria requires a large quantity of alcohol. The disinfectant I used was made by pouring boiling water on blue-gum leaves. The patients were kept in the moist atmosphere for some days. I mopped the throat with dilute solution of perchloride of iron and glycerine every eight hours, and then covered the pharynx with powdered sulphur. This I did in most cases, but the others recovered equally well. Two young ladies, aged seventeen and nineteen, coughed up complete casts of the large bronchi. An old lady, after I had mopped her throat once, refused to have it done; she had a very dense patch behind and on the right tonsil, the glands of her neck were very swollen and tender, the neck enlarged, and the breath was most offensive. On the third day half of the membrane had come away in small pieces, like grains of rice, the breath was sweet, and the swelling of the neck had nearly disappeared, and she made a perfect recovery. The epidemic was an unusually severe one, judged by the number of deaths of those who were treated by other means. The last cases which occurred took place in two families closely allied, five children and their nurse being attacked. I attended two of the children (the first and last attacked) and the nurse. They recovered, whilst the other three, who were attended by a colleague, died. Local remedies are very good, but they are only a part of the treatment. We cannot perpetually keep spray applied to the throat,

the children moving about from side to side of the bed. We must take the cure to them, and we can only do this by means of steam. My mode of procedure is very simple. I pour boiling water on blue-gum leaves, in a tub, jug, or chamber, which I place beside the bed, and change it every half hour. If only one child is ill in the room I improvise a tent over the bed, either by means of an open umbrella with a sheet above it, or by placing a sheet over the sides or ends of the bed, and enclose the patient. It is wonderful to see how soon the pain in the throat and the swelling disappear, and the fever also. Pain in the stomach is the first symptom most patients suffering from the malady experience, even before the throat is affected. At first I used a simple fever mixture; but I found it was not needed, as the skin acted more or less according to the amount of steam used. The patients were able to eat bread-and-butter, the throat not being sore because I had not burnt it, as is the barbarous treatment recommended by some. In diphtheria the throat is never very sore unless caustics are applied. In simple cases of it many remedies will answer; but if it once gets to the larynx and below it no remedy can touch it except steam. The laryngoscope showed patches on the vocal cords, and the breathing that it had extended lower; and in some cases where suffocation seemed imminent the distressing symptoms would be suddenly relieved by the membrane being coughed up. One young lady remarked, "The steam saved my life."

Although blue-gum steam has answered so well with me, it is not the remedy alone that I wish to bring before the profession, but the principle of the treatment, feeling sure that when a thorough trial has been given to it no other treatment would be found to give such satisfactory results; and if it answers in diphtheria it would answer equally well in other infectious diseases. In typhoid fever the heat would be lessened, the skin kept moist, and the bowels would not have to do double duty. In pertussis it would allay the irritation of the bronchial mucous membrane in the same way that it does in bronchitis, croup, and asthma. In scarlatina the congestion of the pharynx and the skin would be relieved. In so-called laryngeal phthisis it has given most satisfactory results. In influenza the infusion of *Eucalyptus globulus* is a very popular remedy, and it is one of the most infectious diseases. If blue-gum steam were adopted as a disinfectant, or any other drug, in the ward of a hospital, I should have a boiler outside, with pipes leading into the ward along the floor, with small holes in them to allow the steam to pass through, and have a stopcock at the commencement to regulate the amount of steam. A pipe could also be placed along the wall, with mouth-pieces attached, for those patients who suffered from throat affections. The boiler could be placed in a sand bath, so as to regulate the heat of the water, or a gas stove used. The leaves could be placed in a net in the water, and changed as often as required. The advantages of the blue-gum steam treatment are that it can be used by ordinary attendants; in fact, a farmer at Tikorangi treated seven cases and cured them. In one of these cases, he informed me, the membrane returned again and again for three weeks. He trusted entirely to the blue-gum steam. No internal remedies are required.

New Plymouth, Taranaki, N. Z.

—DR. O'FARRELL, medical officer, reported to the guardians of the Boyle Union on January 20th, the outbreak of famine fever in the union, and the admission of four virulent cases into the hospital.

² Published in the Australian Medical Gazette, Feb., 1882.

LATERAL CURVATURE OF THE SPINE.¹

By E. NOBLE SMITH, F.R.C.S. Ed.,

Senior Surgeon and Surgeon to the Orthopædic Department of the Farringdon Dispensary.

THE following paper contains a short account of the nature, causes, and treatment of lateral curvature of the spine. From the great variety of views which have been expressed upon this subject I have selected those which have seemed to me from observation and from practical experience to be most worthy of acceptance. I believe that the views which I have adopted cannot be considered in any sense extreme, and that the plan of treatment which I shall describe is based upon sound surgical principles, and is free from the objections which have been justly raised against many other methods.

In lateral curvature of the spine there are usually two curves, because when one is produced from some special cause in one direction; another, as a rule, forms in the opposite direction to allow the equilibrium of the body to be maintained. The manner of formation of the secondary or compensatory curve is shown in the following diagrams, which represent a case in which obliquity of the pelvis acts as the cause of the primary curve.

Fig. 1 shows the position of the spine when the pelvis is oblique. Fig. 2 indicates the position the spine would assume (if the lumbar curve remained fixed) when the pelvis was restored to a horizontal position. Fig. 3 shows a compensatory

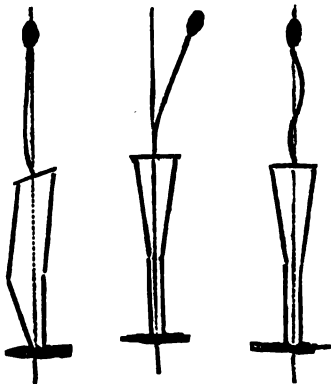


Fig. 1.

Fig. 2.

Fig. 3.

dorsal curve formed by the efforts of the patient to maintain the equilibrium of the body. The changes represented by Figs. 2 and 3 necessarily take place very gradually and almost simultaneously. Several alternate curves may thus be produced, but the primary curve may be either lumbar, dorsal, or cervical, according to the cause. Obliquity of the pelvis produces a lumbar curve first, wry-neck will give rise to cervical curve, and frequent obliquity of the shoulders will cause the primary curve to appear in the dorsal region.

The most remarkable feature of the deformity under consideration is the rotation of those vertebrae which are involved in the curves. The vertebrae rotate upon their vertical axes, so that their bodies turn in the direction of the convexity of the curve and their spinous processes in the direction of the concavity. This very important part of the deformity is shown in Fig. 4. It is probable that this twisting of the vertebrae is due to the fact

that the posterior portion of the spine is a part of the parietes, and is thus to a great extent confined to the median line; whereas the bodies of the vertebrae project into the cavities of the chest and abdomen, and are free to move to the right and left. Dr. Judson, of New York, has illustrated this theory by a mechanically arranged spinal column. In some cases the apices of the spinous processes are found removed but slightly from their central vertical normal position, while the anterior surfaces of the bodies of the vertebrae form a considerable curve. The diagram (Fig. 5) represents such a case, the black central line indicating the position of the spinous processes, and the dotted line indicating the extent to which the bodies of the vertebrae project laterally. The appearance of this rotation is therefore deceptive if we judge of the curves entirely by the position of the apices of the spinous processes. The nature of the case has occasionally even been mistaken, because the spinous processes have been nearly in a straight line, while the protruding ribs have been taken for some morbid growth. I lately had such a case in which the mistake had been made under my care. But as a rule the symptoms are less obscure, the deformity being well marked. The whole trunk is rotated, and the protrusion of the ribs in the dorsal region and the transverse processes in the lumbar are characteristic features, these projections occurring in proportion to the amount of twisting of the vertebrae. The scapula upon the side of the convexity is pushed backwards by the ribs and upon the opposite side the scapula drops with the shoulder, and other alterations occur of which I need not now speak.

Some of the chief alterations of form produced by rotation are well shown in the diagram (Fig. 6), which represents a supposed transverse section of the thorax about its middle. The dorsal curve is to the right, consequently the ribs upon the right side project backwards and the left breast forwards. The space for the right lung is much compressed. As the deformity increases (and its tendency naturally is to increase), pressure upon the nerves and viscera occurs to a serious extent, and the bodily health of the patient suffers. Functions become disturbed, and pain may occur in various localities. It does not seem to me a matter for surprise that a great variety of symptoms may thus be produced. In the early part of last year I had a case in which the symptoms were of such a character. A gentleman with severe lateral curvature was sent to me who had been incapacitated for work by severe functional disorders of the liver and stomach and by persistent sciatica. These complaints might, of course, have arisen independently of the curvature, but as they resisted all ordinary treatment for several months, and rapidly disappeared when the curved spine was supported mechanically, I presumed that they were caused by the deformity in the manner which I have alluded to.

Causes of Lateral Curvature.—These may be divided into *predisposing* and *exciting* causes. The exciting causes may give rise to the affection when the predisposing causes do not exist, and the predisposing, if severe, will allow the formation of curvature although the exciting causes are so slight that they are scarcely if at all distinguishable, or possibly do not occur. The *predisposing* causes are probably all circumstances which give rise to debility. This debility may act generally, or it may affect the dorsal muscles, and disenable them to retain the spine in an upright position for long periods. The condition of the bones may predispose to the formation of curves. In rickets, the vertebrae, if affected, readily give way to lateral pressure. In general debility, and especially

¹ A paper read before the Harveian Society, January 4th, 1883.

when the scrofulous diathesis is present, the bones are more readily influenced than they are in health. If a child grows rapidly curves are sooner formed than when growth is slow. With regard to the general health, I may add that all habits and circumstances which depress the bodily health may act as predisposing causes, and especially those in which the muscles of the back are overtaxed, or in which their development is retarded. We all know how much more frequently

growing spine; and a slight curve once commenced is very easily increased. Much standing, and the use of forms and straight-backed chairs, have a great influence in producing lateral curvature in this manner. We know how much the poor suffer from these influences; and lateral curvature of the spine occurs more frequently among the working classes than is generally stated. Among the rich the spines of young girls are equally or more severely overtaxed. With the object of making



Fig. 4.
After Bouvier.

girls suffer than boys from lateral curvature, and it is very common to find some retardation of sexual development or some derangement of the commencing menstruation. The natural delicacy of formation of girls may possibly be one reason for their greater liability to the affection; but their sedentary occupations obliging them to try to rest their backs, by allowing the spine to subside laterally, is probably a more potent cause. If the back is not rested directly the muscles become tired, the spine subsides to one or other side, and is supported in that position chiefly by the articular processes. The frequent pressure in one direction (for the subsidence generally takes place repeatedly upon the same side) soon causes inequality of growth and alters the position of the soft

girls "refined in their manners," an unnatural restraint is placed upon their movements, and they are not allowed to follow the dictates of nature, which would lead them to take a sufficient amount of exercise in an unconstrained manner to ensure the maintenance of their health and form. Children require recreation, not merely exercise. Young people are not benefited by long stately walks; they require freedom, ease, and play; and when they are deprived of such occupation, the health always suffers and the spine frequently becomes deformed.

Exciting causes.—Conditions which disturb mechanically the equilibrium of the spinal column continuously or for long periods act as exciting causes. The chief of these I will now enumerate.

ate:—1. Inequality in length of the lower extremities, causing obliquity of the pelvis. 2. Inequality of weight of the two sides of the body, as, for instance, when an arm has been lost. 3. Disease or injury, producing contraction of one side of the thorax or abdomen. 4. Alteration in the position of the head—wryneck, for instance. 5. Bad habits of position, sometimes the result of the predisposing causes.

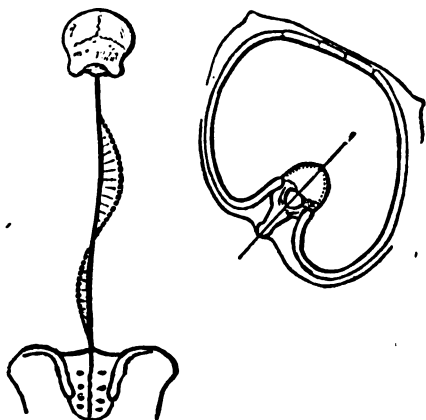


Fig. 5. After A. Shaw in "Holmes's System of Surgery." Fig. 6.

The following are some of these bad habits of position—1. Standing frequently upon one leg, 2. Bending the body for writing, etc., at a low table. 3. Bad positions at other work. 4. Carrying heavy weights always upon one side. 5. Standing at school or sitting upon stools or forms without backs, or with unsuitable backs.

1. *Stimulating Liniments* used to the back are applicable in the majority of cases when there is loss of muscular tone.

2. *Rest*.—When no instrument is used the patient should rest in a chair which fits into the natural lumbar curve of the back, or in the prone position upon a couch. The latter plan prevents the subsidence of the spine and the formation of round shoulders, and tends to bring the dorsal muscles into play beneficially.

3. *Mechanical extension and pressure*.—I will not attempt to describe the various machines which have been devised for extending the spine and at the same time forcing in the curves. The result of such treatment has seldom if ever been satisfactory, and some of the apparatus which have been used may justly be called barbarous.

4. *Muscular exercises* are employed for two purposes: (1) To strengthen weak muscles; (2) to act directly upon the curves. The former, which are highly beneficial in suitable cases, I need not describe, but the latter demand further attention.

The exercises which have hitherto been recommended for acting directly upon the curves have been devised with the object of drawing out the concave side of the curve, by employing the arm of that side, the patient exercising upon a trapeze with that arm higher than the other. Now, the muscles which extend from the arm to the spine in the concavity of a dorsal curve are the trapezius, the rhomboidei, and the upper part of the latissimus dorsi, and these are attached to the spinous processes of the vertebræ. We have already seen that the spinous processes are directed, in consequence of rotation of the vertebræ, towards the side of the concavity, and that the rotation is the most important part of the distortion, and the part which may produce the chief amount of deformity. The effect of this exercise is obviously to draw the spinous processes further in the direction of the concavity, and consequently increase the rotation of the vertebræ. The arrow proceeding from the

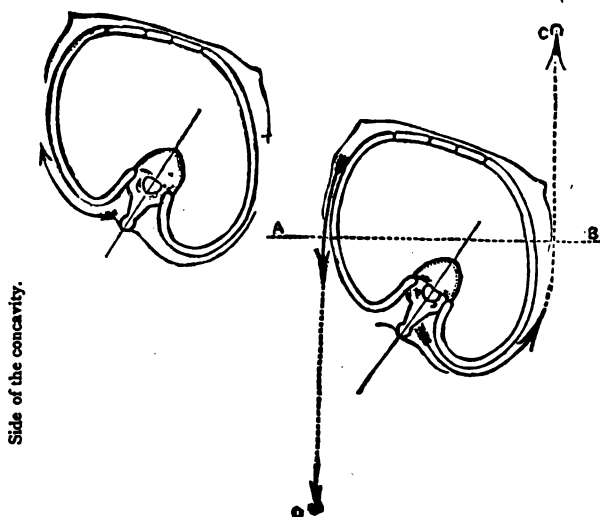


Fig. 7.

Fig. 8.

Treatment.—In the first place the causes must be removed if possible. A short leg, for instance, must be raised to its proper height. The general health must be treated, and this is a very important matter. The special means of treatment to be considered are—1. Local stimulants. 2. Rest. 3. Mechanical extension and pressure. 4. Muscular exercises. 5. Mechanical support and pressure.

spinous process in Fig. 7 will show the direction in which the muscles already referred to will act, for it must be observed that although both arms are to be used in the exercise, yet the muscles which attach the arm to the spine upon the side of the concavity are brought into greater action than are the same muscles upon the opposite side. The position of the body necessitated by this ex-

ercise would be a good one if it were not brought about by the action of the muscles enumerated above.

The plan of special exercises which I have devised for cases in which there is much rotation consists in the use, upon the convex side of the curve, of the muscles above referred to, with the object of drawing the vertebræ round towards their proper position; and upon the concave side of the curve the patient has to exercise the muscles which extend from the arm to the front of the body, with the object of drawing backwards that prominent side of the thorax. The arrows in Fig. 8 showed the direction of the force used. A weight is raised towards the pulley, c, by the patient drawing a cord towards the body with the right hand (presuming there is a dorsal curve to the right), and the left arm is worked in the opposite direction, as indicated in the figure. The pelvis must be fixed in a suitable chair during these exercises. Although this plan of exercise acts directly only upon the dorsal curve, yet the resistance of the pelvis to the action of the arms tends to twist the lumbar part of the spine in the opposite direction, and thus produces the exact action that is wanted. If more direct action is required for a lumbar curve, the quadratus lumborum may be brought into use upon the convex side of the curve. The rationale of this system is to shorten the curves upon their convexities and to rotate the vertebræ back to their normal position. Slight variations in these exercises must be made to suit the peculiarities of individual cases, and general exercise of the erector spinæ muscles of both sides should always be carried out in addition to the special exercises now described.

5. *Mechanical support and pressure.*—If improvement does not soon take place as a result of the plan of treatment already described, recourse should be had to some mechanical appliance, which, however, should be as light and simple as possible, and which should *not interfere with due use of the muscles* during ordinary occupations. The mechanical instrument should always be adapted by the surgeon himself. Moreover, the construction of so important an apparatus ought not to be left entirely to the instrument maker; the special knowledge of a medical man is required to fully understand the nature of the deformity, and to properly determine the places where and the manner in which any pressure or support is necessary or justifiable.

I have elsewhere described fully the necessary mechanical treatment of these cases, but I may observe here that the spinal instrument should *not* interfere with the use of the muscles of the back, but should act chiefly as a support ready to rest the spine in an upright position directly the muscles are unable, from fatigue, to keep the column upright. By such means the spine is prevented from subsiding into a position of lateral curvature, and time is gained during which the muscles may be strengthened, and the general health of the patient improved. If the instrument is constructed upon these principles none of the objections which have been so often justly raised against mechanical treatment can be applied to it, and we shall be enabled by its help to treat our patients much more effectually and rapidly than if we depended upon non-mechanical treatment by itself.

Queen Anne-street, W.

—THE English Committee of the Darwin Memorial Fund, which has its head-quarters at the Royal Society, London, has now received (inclusive of subscriptions from abroad) £4,000.

REMARKS ON THE RELATION OF THE TUBERCLE BACILLUS TO PHTHISIS.¹

By C. THEODORE WILLIAMS, M.D., F.R.C.P.,

Physician to the Hospital for Consumption, Brompton.

SINCE the announcement of Koch's celebrated discovery of the tubercle bacillus, attention has been closely directed to its detection in the sputum of phthisis, and subsequent observations have confirmed its intimate connection with the disease, though the exact part it plays in its pathology and causation will require much further research to elucidate. The first question of importance which meets us is, Are the bacilli always present in the sputum of phthisis, and absent in that of other diseases? Important evidence has been given on these points by Drs. Balmer and Fraenkel, D'Espine, and Drs. Heron, Whipham, and Dreschfeld, and now I propose to give the results of the examinations which have been carried on in the Brompton Hospital for some months with a view to test Koch's conclusions. The number of patients whose sputum has been tried is one hundred and thirty. Some earlier examinations were made, but as they were few in number, and not systematically carried out, I have omitted them. The method used was that of Dr. Heneage Gibbs, the staining being accomplished by his magenta aniline solution and chrysoidin; in some later slides methylene blue was substituted for the chrysoidin. The specimens tested were either taken from the sputum collected during the twenty-four hours or from that expectorated in the early morning, and the rule adopted has been in the case of a negative result to repeat the examinations two, three, or four times so as to ensure accuracy. Forty-five of the patients were under my care, and eighty-five under the care of my colleagues, Drs. Douglas Powell, Tetham, Reginald Thompson, and Roberts, who kindly allowed me to make use of the examinations and records made in their wards. In one hundred and three cases the slides were prepared and examined by my clinical assistant, Mr. G. Perez, and in twenty-seven by my other clinical assistant, Mr. Waugh. Dr. Powell's thirty cases have been carefully checked by him, and I have myself gone through all the others with a good Zeiss microscope with an F objective and a No. 4 eyepiece, giving a magnifying power of 1020. Twenty-one patients were examples of various lung affections other than phthisis; two were cases of asthma, five of emphysema, two of bronchitis and emphysema, three of bronchitis, one of pleurisy, three of bronchiectasis, one of pneumonia, one of empyema, two of pulmonary congestion (the result of heart disease), and one was an obscure case of lung induration. In no one of these did the sputum contain bacilli. The one hundred and nine phthisical cases consisted of acute and chronic forms, and included instances of tuberculo-pneumonic phthisis, of scrofulous pneumonia, of fibroid, catarrhal phthisis, and a large number of cases of chronic tubercular phthisis. Cavities were detected in one or both lungs in eighty-one of these patients, nine were in the stage of early consolidation, the rest were undergoing softening or were cases of old tubercular induration with emphysema and fibrosis. In the 109 phthisical cases we detected bacilli in 106—that is, in all but three; and even of these three, in one it could not be affirmed with certainty that they were absent. There was a difference of opinion between the two observers, and unfor-

¹ Made at the meeting of the Medical Society of London, Feb. 12th, 1883.

tunately the patient left the hospital before we obtained a further specimen. In another, a case of contracted cavity, under my charge, the sputum was so scanty that it was very difficult to obtain any, and I have my suspicions that the secretion, owing to the blocking of the cavity bronchus, was entirely bronchial. In the other case the slides were not very successfully mounted and circumstances prevented our obtaining more sputum, but I thought it just to include it in the list.

So far our results agree with those of previous observers as regards the specific character of the bacilli, and the fact that none were found in the cases of bronchiectasis, in which the expectoration was extremely fetid and abundant, separates the tubercle bacillus from any of the numerous organisms connected with fermentation and decomposition.

Most of our consumptive patients had cavities, but it will be observed that nine were cases of early consolidation. These were all cases in which both the history and the physical signs forbade any suspicion of a cavity, and I offer them as a proof that the bacilli are found in connection with tubercle formation, and not only with softening and excavation. It will be remembered that in some of Koch's specimens they were seen together with miliary granulations. Dr. Heneage Gibbes' distinction of two kinds of tubercle, one containing bacilli and another devoid of it, is most important.

The second question seems to be as to the relation between the numbers of the bacilli and the progress of the disease. Is their abundance coincident with great activity, and does their disappearance indicate quiescence? In dealing with this point we must bear in mind the different expectorating powers of patients, some of whom, especially in the later stages, have great difficulty in ejecting the secretion, large accumulations of which are often found in cavities after death. Then, again, we must remember Dr. Gibbes' caution as to ensuring that the material comes from the lungs and not from the throat. A third consideration is, What do we understand by activity of disease? I take it as signifying either extending tuberculization or softening and excavation, or a combination of both processes. The occurrence or pyrexia, and specially of prolonged pyrexia, indicates some form of activity, though it is possible, as I have shown elsewhere, the disease can progress and extend without this concomitant. Where, however, it is present, we may be quite certain that active tuberculous processes are going on.

Temperature observations were carefully taken in all the 109 cases, and in 51 pyrexia, ranging from 100° to 105° F., was present at the time of the examinations. In some of these pyrexial cases the bacilli were very abundant, but in others, though the sputum was abundant, bacilli were few, and this in spite of numerous careful observations. In one patient under my care, a case of acute tuberculo-pneumonic phthisis, which terminated fatally in ten weeks, the temperature ranged from 100° to 103° F. Cavities formed in both lungs, and the expectoration was fairly abundant. Bacilli were present, but always in small numbers. In another case of somewhat acute disease, where a cavity existed in one lung and a second one was forming in the opposite lung, the temperature ranging from 99° to 103° F., it was only after four trials that any bacilli whatever were detected. In some chronic and quiescent cavity cases the bacilli have been found in fair number, and even abundantly. In two cases of hæmoptysis, under the care of Dr. Tatham, bacilli were detected in the blood expectorated. With regard to the proportion present

during periods of quiescence or arrest of the disease, I should regard their total disappearance as an eminently favorable sign. Out of four cases of contracting cavities where very favorable changes were progressing, bacilli were detected in three, but in small numbers; in the fourth case, above mentioned, none were found. Therefore we are hardly justified in concluding that there is any definite ratio between activity of disease and number of bacilli, though as a rule they are few in cases where the disease is quiescent.

Now, what bearing has the bacillus on the question of the contagion of phthisis? And to answer this question we must ascertain whether they exist in the air exhaled by consumptive patients, as well as in their sputum. Dr. Ransom has found them in the air of a room containing several advanced cases of phthisis, and they have also been detected in a respirator worn by a patient by Dr. Sharnley Smith. I have suspended glass plates covered with glycerine in the extracting flues of the Brompton Hospital, and thus subjected them to a stream of air with a velocity of 300 to 400 feet a minute issuing from numerous wards containing consumptive patients. In this way I sought to obtain a concentration of the exhalations, and on testing the plates they were found to contain abundant bacilli. Of course this was bringing the material to a focus, but still we may fairly conclude that the breath of one consumptive patient contains some bacilli, and remembering the number of respirations performed during the day, each must distribute a large number of these in the atmosphere, especially of crowded cities, where so large a proportion of the mortality is from consumptive diseases.

Taking into consideration the sputum, which, when dried, may be disintegrated and inhaled in our streets, we must admit that if the bacillus is the agent of infection it is a very widely spread one. How are we therefore to account for the comparatively few instances of infection? The evidence of the Brompton Hospital distinctly negatives any idea of its contagion, in the ordinary sense of the word, the number of cases of phthisis occurring among the resident staff being fewer than even at some general hospitals. Also intimate life with a consumptive patient, such as the relations between husband and wife, mother and daughter, to sisters, and members of the same family living together, ought to ensure *certain* contagion; whereas we know this is not so. Some cases are contracted in this way, but they are few in number. I would offer as an explanation that the bacillus requires in every instance a congenial soil to enable it to multiply and to carry on its work. Such soil is to be found in individuals who have been subjected to one or more of the well-known predisposing causes of consumption, such as heredity, bad food, bad ventilation, overwork of mind or body, unhealthy occupations, damp soil, which bring about that blood crisis, or weakness of constitution, which shows itself in various low inflammatory processes, in the exudation of leucocytes, the formation of giant cells, in adenoid hyperplasia, in the tendency to form and exude cells which grow and do not develop into tissue, but die and caseate. The bacillus penetrating to the lungs of such subjects probably sets up centres of inflammation, giving rise to adenoid hyperplasia and the formation of miliary tubercle, and then spreading through the lymphatics it assists in the work of consolidation and destruction. In the walls of cavities it probably finds the best conditions for growth and development—viz., warmth and moisture. People in good health, with sound organs, in full physiological activity, may defy these organisms, and it is probable do inhale them

with impunity. While, therefore, the bacillus must be duly considered in the origin of phthisis, it may be regarded as a more or less exciting cause of the disease, requiring a previous weakening of the constitution to enable it to act. It is, however, possible, if in great numbers and under specially favorable opportunities for multiplication and development, such as are to be found in the hot climates of the South Pacific Islands, that even individuals not predisposed may be attacked, and that the disease may run a particularly short and virulent course.

As to prevention and treatment, the points to be aimed at are: first, the disinfection and removal of the sputum, a measure which was carried out at the Brompton Hospital long before Koch's discovery of the bacillus; the next is the dilution of the bacillus by good ventilation, and its destruction, if possible, by local antiseptic treatment in the form of inhalants, sprays, etc., and to carry this out a number of respirators of different shapes and sizes containing a great variety of antiseptics have been strongly recommended. After prolonged trial of nearly all of these, I have been greatly disappointed with the results. When the antiseptics are combined with some sedative, such as chloroform or conium, the patient often experiences some relief to the cough from wearing such respirators; but by careful physical examinations I have thoroughly satisfied myself that the use of antiseptics in this form exercises no influence on the progress of the disease, while, by a certain extent muzzling the patient, they interfere with the freedom of the respiratory movements which is so essential in the treatment of phthisis. Warm antiseptic inhalations or steam sprays impregnated with these substances, or the fumigating of rooms by dry antiseptic vapors, are not accompanied by this latter objection, and are therefore preferable. Measures directed to the fortifying and strengthening of the constitution, and thus enabling it to withstand the attacks of the bacillus, will be found most effective in the long run, though I would not exclude antiseptic treatment, especially in the form of pure air, pure food, and abundant exercise in mountain climates, which induce more complete development of the organs of respiration.

ON CASES OF BACILLI IN SCARLET FEVER.¹

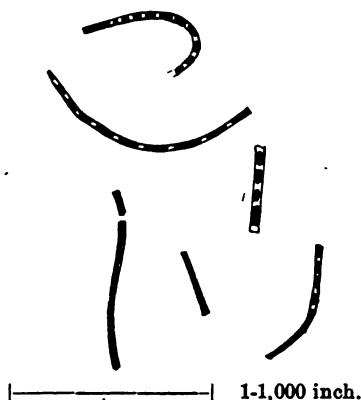
By GEORGE F. CROOKE, M.B. Ed.,

Resident Medical Officer, Leeds Fever Hospital.

THE bacilli figured in the accompanying woodcut were found in the nasal discharge and in the sero-purulent exudation from the inflammatory lymphatic tissue of the neck in certain cases of scarlet fever.

CASE 1, which I will relate because it represents fairly well the type of the subsequent ones in which bacilli were also found, was that of a previously healthy child, four years of age, admitted last autumn on the third, and dying on the fourteenth day of the fever. From its commencement the attack was very severe, and the following are some of the chief symptoms that were observed up to its fatal termination:—A persistent high temperature, which underwent a further elevation just before death, reaching 106° F.; great restlessness and delirium; rash characteristic and well out, but of rather darker hue than usual; injection and swelling of fauces, uvula, and tonsils, the latter ulcerated on their inner aspects; much naso-pharyngeal catarrh, with profuse sero-purulent discharge of a

rather offensive odor—indeed, there seemed to be a general offensive smell emanating from the patient; the cervical lymphatic glands were considerably involved even at this early stage, both sides of the neck being lumpy, but the right more than the left; vomiting was more or less frequent, there was severe diarrhoea, and the urine was



slightly albuminous. One point of clinical interest in the case was the inflammatory condition of the lymphatic glands and tissues of the neck. The swelling gradually increased until it reached that peculiar brawny condition by no means rare in severe cases of scarlet fever. The skin over it was tense and shining, its consistence boggy and semi-elastic, but no fluctuation indicating abscess formation could be felt. I incised the swelling a few days before death, and was struck with the character of the exudation from the wound. It was a turbid, dirty-reddish serum, of offensive odor, and the swelling was seen to be due to an extensive gelatinous infiltration of the tissues of the neck. I at once took some of the exudation on the point of the knife, spread it between two cover-glasses, which I afterwards dried and stained according to Koch's method with gentian violet, mounting them in balsam. My examination of the slides was, I regret to say, only a cursory one, for my attention was occupied with numerous cases of fever in the hospital. But I labelled the slides, and put them away for future examination, which I have made only within the last month or two. On examining the slides with high powers, I found numerous bacilli, as represented in the woodcut; but I will defer their description, and proceed to relate a few other recent cases in which I have found apparently the same organism. For convenience sake I will number them 2, 3, 4, and 5. Clinically all suffered severely from throat symptoms, much nasal catarrh and discharge, considerable swelling of the neck, and constitutional disturbance of a more or less severe form.

CASE 2 died on the thirteenth day of the fever, and the internal condition of the throat, together with the external inflammatory swelling of the neck, necessitated the operation of tracheotomy. She was one whose nasal discharge I examined the day after her admission (third day of disease), and found the bacillus—the long, transverse, curved, and segmented one figured in the woodcut. An offensive odor was noticed about her a day or two after admission; and it was further observed that when the constitutional symptoms ran high the nasal discharge was more profuse, more watery and offensive. I examined some of this fresh watery secretion, and found the bacillus in abundance, but apparently quiescent. I also

¹ Being the substance of a communication to the Leeds and West Riding Medico-Chirurgical Society, read Feb. 2nd, 1883.

examined the blood in this case taken from the puncture of a minute venule, and prepared dried specimens of it according to Koch's method. Bacteria are to be seen—viz., isolated cocci (spores?), the bacterium termo, and small short rods (bacilli); but I could not find anything like the fully developed bacillus seen in the nasal discharge. Immediately after death I examined the swelling of the neck, and found the lymphatic glands and the tissue round about welded into a greyish-red succulent-looking mass, but I could find no traces of purulent infiltration or softening. There were red vascular spots which looked as if they might have broken down had the disease gone on longer. I prepared slides of scrapings from this tissue, placing other portions into alcohol for section-cutting. In all the slides I found bacilli, but they were not so abundantly distributed as in the slides prepared from the first case. In one very good slide it was quite numerous in certain foci. I hope shortly to proceed with the more detailed examination of the organs and inflamed glands of this patient.

Case 3 (sister to Case 2), at present in the hospital, but in a critical condition, gave the bacillus from the nasal discharge, which has been rather profuse the last three or four days.

Cases 4 and 5 are sisters who have had a severe attack with profuse nasal discharge in which the bacillus was found.

In case 5 the inflammation of the neck went on to abscess, which I opened, evacuating bloody and thick curdy pus. I examined this, and found the chain micrococcus in abundance but no bacilli.

The bacillus may be described as leptothrix-like filaments, some straight, some curved, and others bent at an angle, varying in length from 1-1,000 in. to 1-10,000 in., breadth about 1-40,000 in.; some show rod segmentation very distinctly, in others small spore-like bodies are visible, and scattered all about the field are numbers of these spores or cocci. I have never yet found a well-marked zoogloea formation peculiar to the micrococcus; but these cocci, or, I think, spores, are scattered mostly singly or in very small groups all over the field. I have not been able to determine whether there is a distinct sheath. What I took, with dry objectives, to be a sheath, I believe now to be due to diffraction lines. With an excellent Zeiss $\frac{1}{2}$ oil immersion, and, still better, with an equally good 1-16 oil immersion recently forwarded to me by M. Prazmowski, of Paris, I was able, in a few of the bacilli, to make out a faintly stained basis substance of a mucoid character, in which the darkly stained rods and cubical spores were seen to lie. I am not yet prepared, however, to undertake to distinguish this bacillus by its microscopical appearances from every other bacillus, for we know that the various bacilli which of late have been figured and written about—viz., the anthrax bacillus, the bacillus subtilis, leptothrix, the bacillus of pneumo-enteritis of the pig—all resemble each other in general characters, their differences being mainly as to size and character of spores. The bacillus I have described and figured is certainly remarkable for its minuteness, the woodcuts of which were copied from drawings with the camera under a magnifying power of 1,100 diameters. As regards length, they are quite correct, but are, if anything, a shade broader than they actually appeared under that magnifying power.

What I do lay stress upon is the apparent microscopical identity of the bacillus found in the nasal discharge of the patients with that found in the lymph from the inflamed glands and tissues of the necks of two of them. It is sufficient to encourage further researches in this direction, and I hope other workers with similar opportunities in

the same field will before long be able to record the result of their observations. The only check observations I have as yet been able to make are in connection with enteric fever and coryza. In the sputum of the former I found a few filaments of leptothrix, which resembles very much the bacillus from the scarlet fever cases, but is certainly larger; in the nasal secretion from typhoid I could get nothing but the ubiquitous micrococcus in zoogloea formation. In coryza I found cocci in the nasal discharge (of the acute stage), but no trace of bacillus. I myself had a pretty acute coryza, and as I am constantly moving about in an atmosphere of germs, I thought I should most likely find the bacillus, and perhaps I ought to feel comforted with the result of my investigations—namely, that my nasal cavity did not appear to be a suitable nidus for the organism to settle in, notwithstanding the inflammatory condition of the mucous membrane, which is generally supposed to be a condition favorable for the implantation of germs.

I may be asked whether I have examined the urine of scarlet fever patients for the organism lately described as being found there; and in answer to that query I should have to reply practically in the negative. Such observations on the urine of fever patients in a fever hospital must be conducted with great precautions, but in future investigations I shall include the examination of the urine, though feeling a little sceptical as to the results to be obtained. I remember a short time ago examining microscopically a specimen of slightly sanguinous and albuminous urine an hour after it was passed by a scarlet fever patient, and I found it literally swarming with active rod-shaped bacteria, much larger, as far as I can remember, than the ones in the drawing, for they were easily discernible with a power of 250 diameters. The only explanation that I could think of was that the urine had been passed into a utensil containing a residuum of stale urine. The nurse, however, assured me it was passed direct into a urine glass which had just previously been scalded out with boiling water and dried. I should state that I had found organisms in the same urine four hours after it was passed, and in this next observation told the nurse to be careful to get a perfectly clean utensil to receive it and I have no doubt my instructions were carried out. This, then, is the only time I found organisms in the urine of a scarlet fever patient, in the third week, at a time when the pyrexia and constitutional disturbance had subsided; and the explanation of their presence still remains to me a mystery.

Lately, M. L. Bel announced his discovery of the bacillus of measles in the urine of patients suffering from that disease, and about the same time Dr. C. Burger, of Bonn, found in pertussis its special bacillus in the sputum. I have had no opportunity of searching for these organisms as yet, but from the description given of them, while there may be some semblance of the measles bacillus with those I have obtained from scarlet fever, yet the elliptical shape of the whooping-cough bacillus is sufficient to distinguish it. With regard to the nasal discharge in scarlet fever patients, it seems, from a clinical note upon a case communicated to the *British Medical Journal* of Feb. 3rd, by Dr. Tinley, of Whitby, to possess considerable infective properties. It appears from his very interesting communication that a boy suffering from scarlet fever, and treated in a fever hospital, was discharged apparently quite well and free from infectiousness after eight weeks' isolation. About a week after returning home, he appeared to have a distinct relapse, and it was noticed that, in addition to a fresh sore-throat, ulcera-

tion was going on in the nose. Within three days a brother and a sister sickened and developed the fever, and the source of their infection admits of no other explanation than from their brother, who was discharged as convalescent from the hospital, but evidently with mischief still going on in the nasal cavities. It would indeed have been interesting to have examined the nasal discharge from this lad for the bacilli I have described.

I have to thank Dr. Jacob, the visiting physician to the hospital, for his courtesy in placing his cases at my disposal, and also my friend Mr. James Abbott, of this town, whose practical knowledge of microscopy was of great assistance to me when looking over the slides with higher powers.

P.S.—I should mention that the staining fluid used was quite fresh and carefully examined for organisms with negative results, and that similar precautions were taken in using clean slides and cover-glasses.

Leeds.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

GUYS' HOSPITAL.

LARGE CERVICAL LYMPHADENOMA; [EXCISION; RAPID RECOVERY.

(Under the care of Mr. R. CLEMENT LUCAS.)

For the report of this case we are indebted to Mr. J. D. Hughes.

C. C—, a woman, aged thirty-eight, was admitted into Martha ward on Jan. 8th, 1883, when the following notes were taken:—Her parents are healthy, and both over sixty years of age. She is married, and has five children. There is no tendency to hereditary disease. She has generally had fair health; but during the last seven years she has been subject to rheumatic attacks of short duration, which have not necessitated her lying in bed. These were chiefly rheumatic pains in the shoulders and head, accompanied by nervous headaches.

About fifteen months before admission she first noticed a lump about the size of a walnut, below the left ear and in front of the sterno-mastoid muscle. It was movable and not tender on pressure. It caused her little inconvenience or pain. She applied iodine without benefit and some other applications. Internally she took medicines and cod-liver oil, but without reducing the swelling. She then, finding the swelling gradually increasing, sought advice at the Charing-cross Hospital, with a view of operation, where she remained three weeks, at the end of which time she was discharged, and, it is stated, was told nothing more could be done for her. This was last autumn, since which time the tumour has doubled in size. The patient is a somewhat delicate-looking person of fair complexion, but not very anæmic or emaciated. Her teeth are much decayed, appetite bad, and breath offensive. There is a large mass projecting from beneath and behind the left sterno-mastoid, extending from the lobule of the ear

rather more than half way down the muscle. The tumour measured from above downwards five inches, and from before backwards four inches. It is distinctly lobulated, firm, almost hard, and somewhat tender. There is a lobule in front of the sterno-mastoid, beneath the jaw, about one inch by one inch, and a larger one behind about two inches by an inch and a half. The different lobules are joined together with the exception of one about the size of a walnut situated in the posterior triangle above the left clavicle. The tumour does not swell more one day than another, but of late has been increasing rapidly. There is no enlargement of the lymphatic glands in the axillæ or groins, and the spleen and liver are not enlarged. An examination of the blood was made under the microscope, and some increase of white corpuscles was observed, fourteen white corpuscles being found in a field which with normal blood only showed ten. Mr. Lucas determined to postpone operating till after her menstrual period.

Jan. 16th: The patient being in a better state of health than when admitted, and the menstrual period having passed, Mr. Lucas decided on operating. Chloroform was administered, and the carbolic spray was employed. An incision five inches in length was made along the outer border of the sterno-mastoid, commencing behind the lobule of the ear. A second incision, two inches and a half in length, was then made at right angles to the former, in a direction downwards and backwards. The platysma was divided and the skin retracted by hooks. The small occipital, great auricular, and spinal accessory nerves were divided over the tumour, which was dissected out from under the sterno-mastoid with the aid of the handle of the scalpel and a blunt dissector. There appeared to be no proper capsule to the growth, which was raised with great care from the sheath of the carotid vessels, to which it was adherent. The occipital artery was injured, then seized by two pairs of torsion-forceps, divided, and its ends twisted. The carotid artery and internal jugular vein could now be distinctly seen at the bottom of the wound. The real difficulty which presented itself was how to remove the glands in the submaxillary region without making a fresh incision or dividing the sterno-mastoid muscle. The muscle was well raised by means of a large hook, and the skin in front was then pushed back and invaginated, so as to thrust the glands under the muscle. They were then separated from their attachments and removed. At this time the patient's pulse became very feeble and her breathing shallow, so that it was necessary to finish the operation with rapidity. After the heart had been stimulated by the subcutaneous injection of brandy, Mr. Lucas made another incision, two inches and a half long, just above the clavicle, and having divided the platysma, turned out the last gland, which was about the size of a walnut. The wound was closed with wire sutures, and a drainage-tube passed under the sterno-mastoid into the submaxillary region. A small drainage-tube was also inserted into the wound above the clavicle. The operation lasted an hour and ten minutes.—17th: The patient has suffered a good deal from shock and was ordered brandy during the night. Pulse feeble and compressible. Temperature 97°. She vomited once in the night. The wound was dressed and looked well.—18th: Patient complains of headache and slight pain in the neck. She could not sleep, so was ordered a subcutaneous injection of a quarter of a grain of morphia last night.—19th: She complains of less headache and appears well, though slightly pale and weary-looking. She has a dry throat and slightly furred tongue. Temperature 99°; pulse full, slow, and regular.—20th: Her

bowels being constipated, she was given ten grains of colocynth and hyoscyamus pill. Three sutures were taken out to-day and the drainage-tube removed; the incisions have united primarily; there is no discharge.—22nd: Progressing favorably. Three more sutures were removed. She has a feeling of numbness in her ear.—25th: The remainder of the sutures were removed to-day. There is no discharge. Temperature, pulse, and respiration normal. Has a good appetite. She was ordered quinine and iron in a mixture. Dry dressings are now used over the upper part of the neck, and carbolic spray and gauze over the small wound over the clavicle. The patient has lost all headache and nausea.—30th: Bandages have been dispensed with and the patient gets up daily. There is no discharge, the edges of the wound being entirely healed throughout the whole extent by primary union.

Feb. 3rd: All that is now noticeable is a slight superficial scar where the incisions were made on the side of the neck, and this being behind the edge of the sterno-mastoid it appears as a natural crease. She has no pain in the neck. Her appetite is good, and she has regained color.—5th: The patient left the hospital well.

The tumour removed consisted of a glandular mass six inches in length, and varying in diameter from two inches to two and a half. It was firm and lobulated, the different lobules being strung together. In no part did it show any tendency to caseation or suppuration, and appeared to consist of hypertrophied gland tissue. Some glands were separately removed. The patient's temperature after the operation never once reached 100°.

NEWCASTLE-ON-TYNE INFIRMARY.

OVARIOTOMY IN A WOMAN, AGED FIFTY-SIX; DIAGNOSIS OBSCURED BY OBESITY; RECOVERY.

(Under the care of Mr. PAGE.)

For the following notes we are indebted to Mr. James Limont, senior house-surgeon:—

Mrs. W—, a widow, aged fifty-six years, was admitted September 28th, 1882. She was broadly built, of a fair and florid complexion, had the appearance of robust health, and looked much younger than her age. Her last child was born seventeen years ago, and she had not menstruated for fifteen years. The belly measured fifty-one inches in circumference at the navel, and twenty-five inches from the ensiform cartilage to the pubes. Her only complaint was that she was totally disabled by her unwieldy size, and incapacitated from earning her living as a dress-maker. The anterior surface of the abdomen was dull and the flanks resonant on percussion. There was an obscure fluctuation, as if from some ascitic fluid, and upon sinking the finger deeply downwards between the navel and pubes, as the patient lay upon her back, a tumour could be distinctly felt in the belly. The uterus was normal in size but situated so high up as to be reached with difficulty by the finger. The history of the case was obscure. For the last twelve years the patient had been growing stout, and she was unable to fix the date at which the tumour commenced to grow, or the situation in which it first made its appearance. Twelve months ago she had a severe and, six months ago, a somewhat less serious attack of peritonitis.

On Oct. 5th a small incision was made through fully two inches of fat, and the belly tapped with a trocar. Only a small quantity of ascitic fluid escaped. The incision was enlarged so as to admit the hand into the abdomen, and then the outline of a multilocular ovarian cyst could be traced. No

adhesions of any consequence were detected. The tumour was reduced in size by repeated tapplings, till it could be easily withdrawn. The pedicle was long and slender; it was tied with catgut, and returned into the belly. The wound in the peritoneum was carefully stitched with a continuous catgut suture, and the skin wound closed by means of another continuous catgut suture, a drainage-tube being introduced between the opposing surfaces of fat, but not entering the peritoneal cavity. The operation was performed under carbolic acid spray, and the wound dressed according to Lister. Recovery was uninterrupted, the pulse never having risen above 80.

Remarks by Mr. PAGE.—Diagnosis was rendered difficult in this case by reason of the patient's corpulence, an unusual accompaniment of ovarian disease. Taking into consideration the woman's helpless and uncomfortable condition, her age, her anxiety to be relieved by operation, and the risk she was exposed to of dying from an intercurrent attack of peritonitis, I thought it best to interfere at once, notwithstanding her fatness, and the result tends to strengthen the belief in the soundness of the procedure.

STRANGULATED FEMORAL HERNIA; OVARIAN CYST; OPERATION; DEATH.

(Under the care of Mr. PAGE.)

On Friday, November 10th, a woman, aged sixty-two years, was admitted into the infirmary suffering from pain in the abdomen and vomiting. She said she had been confined to the house for a month in consequence of severe pain in her bowels and constipation. A few days before admission she began to vomit. On the 7th or 8th of November strangulated femoral hernia was diagnosed and preparations made to perform herniotomy, but at the last moment the patient refused her consent.

Having become worse, she was admitted to the infirmary on Nov. 10th. She was then evidently very ill. Her pulse was quick and weak, and her tongue moist, in appearance not unlike olive-colored plush. The abdomen was somewhat distended, tender to the touch, resonant on percussion, and no fluctuation could be detected in it. There was a right femoral hernia, which could not be reduced. It was dull on percussion, not in the least tender, and there was not the slightest trace of any redness of the skin over it. Mr. Page concluded the hernia was not the cause of the peritonitis from which the patient was undoubtedly suffering, but he failed to find any other explanation of her condition. Large warm-water enemata were ordered and one grain of opium was given by the mouth. In the morning she was still vomiting; she had slept, and fecal matter was seen in some of the returned enemata. As her condition was now one of great danger, a consultation was held and a thorough examination made under the influence of chloroform. The result was a unanimous opinion that the hernia was not the cause of the woman's condition. It was also agreed there was a fulness, not a localized, but a general fulness, of the belly, the precise nature of which the tympanitic condition of the bowels made it very difficult to determine, and which was not made out. Mr. Page wished to cut down upon the hernia and, failing to find any explanation there, to open and explore the abdomen; he was averse to cutting down upon the hernia without being prepared to proceed further if he found no strangulation. The injections were ordered to be continued, and one grain of opium with a quarter of a grain of extract of belladonna to be given every four hours. At night the patient was worse, the sickness continued, the injections returned without any fecal matter, and Dr. Arnison concurred

in the view that it would not be rash to cut down upon the hernia, and finding no explanation there to seek for it in the abdomen. The patient, however, refused her consent, and continued to do so until the afternoon of the 13th. Her condition then was one of great prostration. She was vomiting every ten or fifteen minutes, no flatus had passed since the 11th, and the end did not seem to be far distant. Mr. Page cut down upon the hernia and found an enormously thickened sac, almost incorporated with which was the gland usually found in the crural ring. The sac was opened; it contained a few drops of clear fluid only. On passing the finger into the belly it was determined there was no other hernia. The abdomen was then opened, and immediately there welled out from among the distended and intensely inflamed intestines material about which there could be no mistake—the thick tenacious semi-fluid matter commonly found in an ovarian cyst. As quickly as possible the belly was cleared, and then, just emerging from the brim of the pelvis, was found an entire ovarian cyst. It was tapped and removed. The patient rallied slowly but so thoroughly, that on Thursday, the 16th, great hopes were entertained that she might recover. Early on the morning of the 17th, however, the temperature suddenly rose; she began to sink, and died at 4.30 p.m., just ninety-seven hours after the operation. Permission to make a post-mortem examination was refused, so that the precise cause of death is a matter of conjecture.

Remarks by Mr. PAGE.—The circumstances upon which I mainly relied, as evidence that the hernia was not the cause of the symptoms, were the entire absence of tenderness and of any redness of the skin over the hernia. The acute symptoms had existed for probably a week before the patient was operated upon, and even at the time of operation there was no tenderness or redness present. I felt the responsibility of not cutting down upon the hernia, and the more so as I could not advance any definite opinion as to the cause of the serious condition of the woman. Strangulated hernia would have accounted for such a condition as we found her in; but, supposing there was no strangulation, what was the connection between the fulness of the belly and her condition? Possibly a burst ovarian cyst ought to have occurred to us as an explanation, but it did not, and perhaps I may be allowed to state here that it was most difficult to obtain any information about the history of the case previous to admission of the woman into the infirmary. There may have been some injury, bursting the cyst, which the patient wished to conceal. The fact that this aged woman survived for ninety-seven hours two serious operations, performed under circumstances so very unfavorable, is instructive, and should encourage us in even desperate cases to give the patient the chance of recovery surgical interference can afford.

LONDON HOSPITAL.

CASES OF CHOREA ILLUSTRATING SOME POINTS IN THE CLINICAL HISTORY AND ALLIANCES OF THIS MORBID CONDITION, WITH INDICATIONS OF THE BRAIN AREAS MOST COMMONLY AFFECTED; REMARKS.

(Under the care of Dr. F. WARNER.)

CASE 1. *No Rheumatism or Heart Disease; Signs of Rickets in Early Life; the Chorea Movements beginning in the Right Limbs, spreading to the Left Limbs, Face and Palate, the Jaw, and the Eyes; much Paresis.*—Judah S—, aged ten years. The movements commenced in the right arm and leg, subsequently appearing also in the left limbs. The

eyes were very unsteady, fixation never being maintained for more than a few seconds at a time. Lateral movements of the jaws were frequently seen, thus causing grinding of the teeth. Facial movements were very marked; the eyebrows usually worked symmetrically; the zygomas frequently acted asymmetrically; the soft palate was seen frequently jerked up and down; the tongue was much jerked about, and the hyoid bone was often spasmodically depressed; this movement was accompanied by a sucking sound. The intercostal muscles were not choreic, but the diaphragm was occasionally spasmodically depressed. The head was often jerked from side to side. The kind of movements of the extremities varied a good deal. At one time the forearms were held out and supported by an assistant, so that the hands were free, and their movements were only the outcome of the spontaneous action of the brain. The average posture of the hands thus hanging free was the spontaneous outcome of the action of the nerve-centres governing it, and usually presented the wrist drawn over to the ulnar side, a condition of posture not uncommon in hemiplegia from organic disease. There was much separate movement of fingers; this was more marked in the right hand than in the left. The right hand often assumed the "convulsive posture" described by Trousseau as seen in tetany—i.e., the fingers were strongly flexed over the intumed thumb. The boy when at the worst was very weak, lying in the trough of the bed with his head off the pillow, and powerless to raise himself. The skin was dry and harsh.

Remarks by Dr. WARNER.—Here the movements distinctly commenced in the right limbs, indicating the choreic condition of the left hemisphere; later on we have evidence that the right hemisphere was also affected. The eyes were unsteady throughout, a common condition; but, so far as I know, strabismus never occurs from the choreic condition. It may be noted in connection with the facial chorea that the soft palate was also jerky, a not very common occurrence. There was much paresis. We have then a case of brain affection at first almost confined to the left hemisphere; this



Fig. 1.

Right hemiplegia; cerebral facial palsy on right side: the muscles about the mouth are principally affected.

pathological condition was indicated by great weakness of motor power, and by an excessive amount of spontaneous movement. It may now be worth while to point out that of the neuromuscular phenomena here recorded, some are seen in cases of organic brain disease. It was specially noted that though the eyebrows usually acted to-

gether, the zygomatic muscles often acted asymmetrically—i.e., the union between the nerve mechanisms of the two sides of the face appears to have been greater for the upper than for the lower portions. Now, it is well known that many forms of brain disease affect the muscles in the lower part of the face about the mouth, more than those about the eyes (Fig. 1). It appears to me noteworthy that there was "much separate movement of the individual fingers." When all the fingers move together, it indicates that the nerve mechanism of the fingers acts as a whole; when, on the contrary, individual fingers act separately a portion only of that nerve mechanism is active at one time. To those who accept the presence of embolism occurring in a healthy brain as a cause of chorea, it may be said, Did one embolus affect this wide area of brain, or were there emboli all about? Where there successive showers of emboli, as the area affected increased?

CASE 2. *Previous Rheumatism; Mitral Regurgitation; Area of Movements mainly on the Right Side, affecting the Eyes, the Face, the Tongue, and the Depressors of the Lower Jaw.*—John W—, aged sixteen years, was admitted with chorea, which had commenced during convalescence from an attack of acute rheumatism. The movements had commenced in the right upper extremity; he was told of these movements before he was aware of them himself. The area of the movements gradually spread, so that he was unable to walk out of doors when admitted. The movements were almost entirely confined to the right upper extremity. On the day after admission, when the right hand was held out free, the position most frequently seen was the "nervous hand," with the thumb extended (Fig. 2). Under the term "nervous hand," I have described a common spontane-

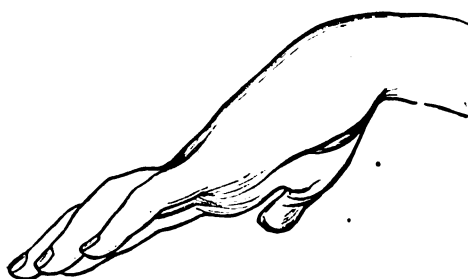


Fig. 2.

ous posture of the hand often seen in nervous children. The forearm being held out, the wrist droops, the metacarpo-phalangeal joints are extended backwards, the internodes being either slightly flexed or kept straight; the thumb is simply extended somewhat backwards, and slightly abducted from the fingers. There were frequent slight lateral movements of the wrist, there was also a considerable amount of movement of the elbow, and some general movement of the whole upper extremity. On other days we saw the fingers often flexed, thus bringing the hand from the "nervous posture" to the "convulsive hand." Different as are the postures of the "nervous hand" and the "convulsive hand," and different as are the probable indications of these postures, they are not separated by any great changes in the relation of parts. If in the "nervous hand" the fingers and thumb are all flexed—i.e., pass from the state of extension to flexion—the "convulsive hand" results. At times he was heard grinding his teeth. This symptom in chorea has not, I think, attracted much attention. Grinding of the

teeth is produced by the action of the pterygoid muscles; these are supplied by the motor division of the fifth pair of cranial nerves, while the sensory fibres of these nerves are widely distributed inside and outside the skull. Teeth-grinding is also very common in various pathological conditions of the brain, organic and functional. The head was frequently moved, apparently owing to the action of the sterno-mastoids and the trapezii. The hyoid bone was seen in frequent movement, and from time to time a sucking sound was made in the mouth, apparently due to movement of the tongue and the muscles forming the floor of the mouth.

Remarks.—The movements were in this case almost confined to the right side, and the grip of this hand was weaker than the left; the paresis and movements were then most marked in the right hand, and it was this weak hand, the seat of so much spontaneous movement, which presented the frequent posture of the nervous hand. It may be assumed that each separate movement is the result of the activity of the motor function of a corresponding portion of the nerve mechanism. If, then, the fingers are often moved separately and individually, it indicates that small portions of the central nerve mechanism are separately and individually in excitation (discharging motor force); if, on the contrary, the fingers are often moved altogether, it in like-manner indicates the simultaneous excitation of a large portion of the nerve mechanism, or the simultaneous and co-excitation of the portions of the nerve mechanism of all the fingers.

UNIVERSITY COLLEGE HOSPITAL.

ANEURISM OF LEFT AXILLARY ARTERY; LIGATION OF SUBCLAVIAN TRUNK IN THE THIRD PART WITH CARBOLIZED SILK CUT SHORT; CURE WITH RETENTION OF LIGATURE; RECOVERY.

(Under the care of Mr. BERKELEY HILL.)

T. W—, a laborer, aged forty-four, who worked usually at heavy lifting, was sent to the hospital by Dr. Gramshaw, of Gravesend. There was no history of rheumatism, syphilis, or of alcoholism. About eighteen months before admission he had felt a tingling from the left elbow to the tips of his fingers. Rather more than a fortnight before his admission he noticed a swelling in his left armpit. This grew in size rapidly, and the pain of the forearm increased, though it never prevented him from working, nor was felt above the elbow.

On admission, on March 9th, 1882, in the left axilla a swelling occupied the whole hollow, pulsating forcibly with the arterial pulse. There was also fullness of the infraclavicular region, where pulsation was also distinct. Though the pulsation of the left subclavian artery was more distinct than that of the right, no swelling could be felt along its course. The left external jugular vein was distended, though it did not fill from below. The left arm could be placed close to the side. The left radial pulse was as full, if not fuller, as the right pulse. Compression of the subclavian quite arrested the pulsation of the tumour. At the heart's apex was a soft blowing murmur. There were no signs of aneurism in the thorax or elsewhere other than in the left axilla. During the patient's stay in hospital the pain in the left forearm ascended to the shoulder, became almost constant, and greatly interfered with sleep.

On March 15th Mr. Berkeley Hill tied the left subclavian artery in the third part, using for the ligature a piece of Chinese silk twist soaked in

carbolic water for twenty-four hours. The ends of the thread were cut off short, and the wound, except for a short drainage-tube at the outer end, was closed with sutures. Until the vessel was tied, the antiseptic spray was not used. During the dressing of the wound the spray was turned on, and the wound well washed with carbolic water. Lister's gauze dressing was applied, and the instruments, operator's hands, etc., well washed in carbolic water before the operation. The pulsation in the aneurism ceased at once on the application of the ligature.

The patient complained of his old pain in the forearm during the night after the operation. The left hand remained warm. On the third day the patient was fairly comfortable; his temperature had not risen; there was no pulse in the radial artery. The pain in the shoulder was felt every night with varying severity. On the 19th the dressings were changed. The wound appeared to have healed by first intention, except where the tube lay. Slight pulsation of the tumour could be detected in the armpit. On the 19th, 20th, 21st, and 22d the temperature rose to 100° or 101°, the highest being 101·8° on the evening of March 21st. It fell to the normal range on the 23rd, and never exceeded that standard afterwards. On the 22nd the dressings were changed, the skin over the infra-clavicular region was red and slightly oedematous, and the drainage-tube was found to be blocked; on gentle pressure three or four drachms of pus welled out. The drainage-tube was replaced a little more deeply, and the dressings again applied. The pulsation in the aneurism was, as before, just perceptible. On the 25th the wound was dressed again. The swelling had much subsided, and the discharge was scanty. The tumour had ceased to pulsate, and there was no pulse in the radial. On the 29th the inflammatory swelling had quite disappeared; the wound was nearly closed; the aneurism was a firm solid mass; there was a very weak radial pulse.

The wound was thenceforth slow to heal. A few drops of pus could be squeezed from the wound at each dressing till April 12th, four weeks after the operation. On the 28th the wound was healed except for a bunch of granulations, the size of a pea, at the angle of the wound. The tumour could be easily made out beneath the pectoral muscles, occupying and filling the infra-clavicular fossa, and lying close against the thoracic wall. Nothing has been seen of the ligature. There is no pulsation in the brachial nor radial arteries.

On May 3rd the patient was discharged at his own urgent request, that he might go to work.

On Jan. 31st, 1883, Dr. Gramshaw (of Gravesend) reported that the patient was very well then; the tumour was still to be felt, without the least pulsation, but not much smaller than in May last and not very hard. The ligature had not come away nor the wound opened since it healed.

LIVERPOOL ROYAL INFIRMARY.

WOUND OF NECK; SECONDARY HÆMORRHAGE; LIGATURE OF COMMON AND EXTERNAL CAROTID ARTERIES; RECOVERY; REMARKS.

(Under the care Mr. REGINALD HARRISON.)

LOUISE B—, aged fifteen, was admitted on October 5th, 1882, suffering from an extensive incised wound of the neck extending downwards for nearly four inches from the angle of the right jaw. The injury had been occasioned the day previously by the patient having fallen violently on a broken plate she was carrying. The wound had been plugged with lint steeped in perchloride of iron.

On admission, Mr. Harrison had the patient placed under ether, and having removed the plug, carefully examined the wound with the view of ascertaining the amount of damage that had been inflicted. Though the carotid artery was bared no wound either in it or in any of the branches of the external carotid could be discovered. A few veins and small vessels were ligatured, and the sides of the wound were then brought together by silver sutures.

Twelve days afterwards when the wound had almost entirely healed, free arterial hæmorrhage was observed to take place. Mr. Harrison was summoned, and on opening the wound, and recognizing that probably one of the carotids had given way, he requested the assistance and advice of his colleague, Mr. Banks. As the hæmorrhage was so free on removing pressure from the bottom of the wound, and the parts were so matted together and obscured by the previous suppuration, it was resolved to tie the common carotid. This was accordingly done with a catgut ligature. This to some extent controlled the bleeding, but it was clear that the hæmorrhage was above that point. The external carotid was then traced up, when a distinct hole could be seen in it about half an inch above the bifurcation. A catgut ligature was placed above and below this opening, when the hæmorrhage entirely ceased, and the patient made a good recovery without any further recurrence of bleeding. As she was going to America in a steamer in which her passage had been booked, she had to leave before the wound had completely closed, but as five weeks had elapsed since the arteries had been tied, no great risk was anticipated.

Remarks.—Mr. Harrison observed that the case was one of considerable interest; it appeared to him that the artery had been opened into by ulceration. The operation was one of considerable difficulty and danger, as the neck was small, the patient enfeebled by the loss of blood, and there was the further disadvantage of having to operate by artificial light in the middle of the night. It was felt that no chance should be thrown away by searching about to determine the precise seat of the hæmorrhage; it was quite clear that one of the largest vessels in the neck was involved. It was therefore determined to place a ligature on the common carotid, as this would permit of breathing time and give a better opportunity for further search. The wisdom of this course was fully sustained by the subsequent proceedings; the hæmorrhage was abated and traced to the external carotid, which was easily ligatured. The completeness of the collateral circulation in the head and neck was well shown in this case; for though the hæmorrhage was distinctly checked when the common carotid was secured, yet it was still sufficient to have caused death in a very few minutes if the opening in the external carotid had not been occluded by a ligature both above and below it. (Mr. Harrison wishes to take the opportunity of thanking Mr. Banks for his assistance in a case of no ordinary difficulty and danger.)

CHESTER GENERAL INFIRMARY.

A CASE OF UNDESCENDED TESTIS SIMULATING INTES-TINAL OBSTRUCTION.

(Under the care of Mr. TAYLOR.)

For the notes of this interesting case we are indebted to Dr. Henry W. King, house-surgeon.

Thomas M—, aged twenty-four, employed as a boatman on one of the Shropshire Union Canal boats, was admitted on Saturday, June 25th, 1881.

On admission, the patient could walk in a bent posture and was in great pain. Upon examination a rounded and slightly reddened swelling of about the size of a hen's egg was found on the left side, over the site of the internal ring, and extending a little above and external to it. On palpation it was felt to be dense and resistant. There was no impulse on coughing; percussion note was perfectly dull. The pain was described as consisting of severe paroxysms coming on suddenly at intervals, and shooting upwards and across the stomach; upon these ceasing, there was left a dull aching pain over the tumour. Expression of face anxious and excited; tongue good; pulse 120, rather full and bounding; respiration normal, but interfered with by an occasional hiccough; urine normal. The patient, upon inquiry, stated that he had always enjoyed good health, but that he had had occasional attacks of pain from the swelling which had existed all his life. He stated further that when troubled with it, after waiting a little, it had always "gone up." The patient stated that he was walking at 4.30 on the morning of Friday, June 24th, when he felt the swelling become gradually bigger, and experienced so much pain that he hardly managed to crawl into the boat. He then went to bed and applied poultices to his side. As he did not feel much better later on, he was seen by a medical man, who tried to reduce the supposed hernia. The pain then became worse. He vomited several times and threw up a quantity of yellowish fluid. He had taken no food since the previous evening. He stated that he was much the same on the 25th. He hiccoughed several times but did not vomit, and the doctor made another unsuccessful attempt at taxis, the patient being under an anæsthetic.

On admission, on the 25th, at 4.30 P.M., he had a hot bath, was then put to bed, and ice was applied over the swelling. Later in the evening he was seen by Mr. Taylor, who ordered four ounces of tobacco enema (B.P.), and the ice to be continued locally as before. At 11 P.M. the symptoms were unrelieved. A more careful examination by Mr. Taylor elicited the fact that the scrotum contained only one testicle, that on the left side being absent. This at once threw new light upon the case, which before had been one of considerable perplexity. It was considered that some inflammation of the testis in the internal ring had been produced, which either mechanically by pressure, or by adhesions, or sympathetically, had given rise to the symptoms of intestinal obstruction. Operative measures were still entertained should the symptoms subsequently warrant it by their increased severity.—12 P.M.: Pain so severe that morphia was administered hypodermically.—25th: Patient the same, symptoms unaltered; to have ice and soda water and milk in small quantities; morphia subcutaneously when necessary.—26th: The patient vomited three times in the night, and had thrown up some bile; hiccough stopped; has passed some flatus by the bowel. Ordered to have half a grain of podophyllin in a colocynth and hyoscyamus pill.—27th: In much the same condition. The bowels had not moved; but some flatus still passes. Tumour softer; skin over it less inflamed. 8 P.M.: A simple enema was administered; and a large evacuation of feces resulted. 11.30 P.M.: A considerable amount of pain still felt. Patient vomited five or six ounces of thick brownish fluid, smelling offensively.—28th: Distinct fluctuation in tumour, which appeared to be rather larger; the vomiting continued as before. 10.30 P.M.: Tumour smaller than in the morning. To have the podophyllin pill repeated.—29th, 8 A.M.: Bowels had acted freely; evacuation of the same nature as the vomit, which has now ceased. 10 P.M.: Tumour

has quite disappeared, and its former site has become resonant.—30th: Patient has passed a good night, and said he felt "quite well."

From this time up to the date of discharge, on July 4th, convalescence continued uninterrupted.

Remarks.—The above case is one of very unusual occurrence and of great clinical interest. It shows that nearly all the symptoms of hernia may be markedly present in a case that is not hernia, or hernia only by imitation. Erichsen, in his "Science and Art of Surgery" (7th edition, vol. ii., p. 664), mentions a case very similar to the above; and Bryant, in the *Medical Times and Gazette* (vol. i., 1872, p. 454), relates a case in which he operated with success, after a consultation had been held upon the patient, a lad of fourteen, and it had been considered probable that (the testis of the affected side being absent) some hernia had descended into the open vaginal process of the peritoneum. This vaginal process was therefore laid open along with the canal, and a quantity of pus evacuated. The peritoneum was found to be thickened, the testis small, and no hernia present. After the operation all the symptoms (vomiting, quick pulse, furred tongue, etc.) ceased, and a good recovery ensued. Mention is made of the subject in Cooper's *Surgical Dictionary* (edit. 1872, vol. ii., p. 697).

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Anophthalmos.—*Clot in Pulmonary Artery.*—*Cancer of Undescended Testicle.*—*Curies of Skull.*—*Visceral Syphilis.*—*Bacillus Tuberculosis.*—*Sulphuric Acid Poisoning.*—*Sarcoma of Kidney.*—*Persistent Ovi-vitelline Duct.*

THE ordinary meeting of the Pathological Society of London was held on Tuesday, February 6th; J. W. Hulke, F.R.S., in the chair. The specimens shown were all of them of considerable interest. Dr. Mahomed tried to raise a discussion on the real nature of the clots in the heart and pulmonary artery sometimes stated to be formed during life, but nothing of much value was elicited in connection with this important subject.

Mr. Godlee showed a living male child, fourteen weeks old, suffering from one-sided Anophthalmos. The eyelids opened for the first time in the seventh week, then some mucopurulent discharge escaped, which got thinner and had almost stopped. The orbit and lids were well formed; no tears flowed from that side; puncta lacrymalia complete; the palpebral fissure opened into a slit lined with the conjunctiva, at the bottom of which was a white patch. The child was in good health; the right eye and lids were normal. Mr. Godlee defended the use of the term one-sided anophthalmos, as associating this condition with that of complete anophthalmos and separating it from cyclops deformity. Up to 1875 only six cases of one-sided anophthalmos had been recorded; three of the patients had died, two having deformity of the brain, but in the third an optic nerve was found and all the orbital muscles were developed. There was no evidence of the presence of the lacrymal gland in his own case.—Mr. Nettleship had seen two other cases very much like this case, one published in the first volume of the Ophthalmological Society's Transactions, in which tears flowed from both orbits; in both of them a "button" was felt under the conjunctiva; and he thought there was something like it in Mr. Godlee's case, and su

gested that the child should be examined under chloroform.—Mr. Boulby said that recently Mr. Willett had a boy, aged eleven, under his care with a similar deformity. The bones had not developed normally, and the palpebral fissure was much smaller than on the other side; he was not sure whether tears were secreted on that side.

Dr. Mahomed showed a Clot from the Pulmonary Artery. He said it was difficult to believe that a clot could be formed during life over healthy endocardium or endothelium large enough to obstruct the cavities of the heart or vessels. Sir J. Fayer had recently described such clots formed in cases of septicæmia and malaria. The only case he had ever seen in which there appeared to him to be evidence of ante-mortem coagulation was the one shown. It was removed from a woman, aged forty-nine, under Mr. Howse's care for epithelioma of cheek; this was successfully removed by operation; afterwards a gland was removed from below the jaw, and three days later she died. At 1.30 she had beef-tea, gravy, fish, and custard pudding. At 2.30 she felt faint, her face became ashy-white, and her lips blue; she recovered, and passed a motion at 3, and another loose motion at 4. She again fainted and became pulseless; brandy and nitrite of amyl were administered, but she died quietly at 4.30. At the post-mortem examination the pulmonary artery was found full of a firm, dark, dry clot, like an ante-mortem clot. The clot pervaded every branch of the vessel on both sides. It was covered by a very thin layer of white lymph-like material; it was quite uniform externally. On making a section a small central clot, with a fine layer of fibrin round it, was seen, which could be squeezed out from the larger clot. There was no other similar clot in any other vessel or either cavity of the heart. Between the vagina and rectum there was a large cyst, and also a dermoid cyst of the ovary. The large cyst contained pus and a number of curiously moulded bodies. The cyst had pressed on the rectum, which contained many dilated veins. At the root of the right lung there was a small pulmonary apoplexy. Dr. Mahomed suggested that an embolus had been carried from the rectal veins to the heart, and through to the left lung, that clotting had spread back towards the heart during life, and that this ante-mortem clot did not fill the vessel, but that the last contraction of the right ventricle filled the pulmonary artery with blood, which then contracted round the smaller clot.—Mr. Hulke said the subject was very large and very interesting, and divided itself into the questions: 1. Were these clots of ante or post-mortem origin? 2. If ante-mortem, were they embolic or autochthonous in nature?—Dr. Norman Moore said that these clots were first noticed soon after the discovery of the circulation of the blood. Polypus of the heart was a common subject of investigation at the end of the last century, and it was then known as a cause of sudden death. In 1793 Matthew Baillie said that these polypi were in truth clots, probably formed after death. He himself had never seen a clot which could be supposed to be formed in the pulmonary artery during life, filling that vessel and reaching into the lungs. He had, however, found large adherent clots in large branches of the pulmonary artery, evidently formed ante-mortem, in cases in which death had not been sudden.—Dr. Morrison referred to a case of clot extending throughout every branch of the pulmonary artery of one lung in which the lung was gangrenous.—He thought this clot had been evidently formed during life, and had been the cause of the gangrene of the lung.—Dr. Hale White mentioned that in November last a man was admitted under his care into the Seamen's Hospital with severe heart disease. Post mortem on

the left side a large clot was found extending from the ventricles to just beyond the innominate artery; the upper part was of a dirty hue, softening and breaking down in the centre; the lower end was clearly post-mortem. Mr. Barker suggested that the very firm clots found in the heart began to form during the last hours of life, and were greatly enlarged at and soon after death. These firm clots were very common in the right ventricle, and were there laminated and adherent, and became softer, darker, and distinctly post-mortem in origin in the pulmonary artery.—Dr. Williams asked if there were two layers of decolorized clot in Dr. Mahomed's specimen, and if so, how he accounted for the formation of the outermost layer of fibrin?—Mr. Sutton said that in cases of cancer in which death was very slow, it was possible to predict with certainty the presence of a large clot in the pulmonary artery.—Mr. Boulby said Dr. Mahomed had not showed that his clot was embolic; he had not proved that the rectal veins contained any clots, and even if they did, clots were not displaced from veins except from some change in the walls of the vessels. He therefore could not accept the embolic origin of this clot as satisfactorily established.—Mr. Lockwood said that even assuming that a piece of clot had been detached from a clot in a rectal vein before passing to the lung, it would have had to pass through the liver capillaries, and this rendered it almost impossible for Dr. Mahomed's suggestion to be correct.

Dr. Mahomed replied that he thought in Dr. Morrison's case the gangrene was primary, and the clot in the artery secondary. He asked Dr. White whether in his case there was any disease of the aorta. The rectal veins were not examined, and he suggested that the embolus was very minute and carried to one of the extremities of the pulmonary vessels. At the lower end of the rectum the portal and systemic veins communicate, and so an embolus could pass from them into the heart without going through the liver.

Dr. Mahomed also showed a specimen of Cancer of an Undescended Testicle. He said that undescended testicles were known to be very prone to malignant disease, as shown many years ago by Dr. G. Johnson and Mr. Arnott, among others. This case was under Dr. Moxon's care at first and then under his own. For six weeks before admission the patient had pain in the right lumbar region, and a swelling in the hypogastrium had been noticed for three weeks. The swelling was like that of a distended bladder, and moved with the bladder; it was semi-fluctuant, and was therefore tapped, and a little whitish material was found in the cannula and proved to be sarcomatous tissue. No sign of any secondary infection was discovered. Mr. Howse then examined the case, but finding the man's leg swollen, refused to operate. At the post-mortem the tumour was found hanging over the side of the pelvis by a small thin pedicle, consisting of the cord, and it could have been removed during life with the greatest ease. Secondary growths were found in the lumbar, retro-peritoneal, mediastinal, and bronchial glands. The enlarged glands had caused great distension and ulceration of the duodenum. The ducts of the liver were greatly distended. Microscopical examination of the liver tissue did not show that it was inflamed, as might have been expected. The thymus gland was also infected. The tumour tissue was that of an ordinary carcinoma.

Dr. Norman Moore showed a specimen of Ulceration of Calvaria, from a man, aged forty-two, who died in St. Bartholomew's Hospital from abscess of the brain. The scalp was entire, but for many months it had felt puffy all over. When removed there was found a quantity of pus with some loose

fragments of necrosed bone and a large quantity of greyish oedematous granulation tissue. The calvaria was ulcerated over its whole outer surface with many small areas of necrosis, and it could be cut with a knife. On the inner surface were some ulcerated and necrosed patches. The dura mater was entire, but beneath it, on the posterior part of the right cerebral hemisphere, there was a superficial abscess of considerable size, which extended through the grey matter, but not deep into the brain. All the viscera were free from amyloid infiltration and from gummata, and Dr. Hensley, who had treated the case, could discover neither specific indications in treatment nor the history of a sore. Such calvariae were usually due to syphilis, but were they invariably so?

Dr. Norman Moore also showed specimens illustrating Visceral Syphilis, from a man aged fifty-six, who died in St. Bartholomew's Hospital. In November, 1881, he was admitted with hæmatemesis and ascites, and was concluded to have cirrhosis of the liver. He partially recovered, and went out in March, 1882. In January, 1883, he was readmitted with ascites, and died shortly after of a general dropsy. There was a distinct history of syphilis and a well-marked scar. His viscera showed three forms of morbid change attributable to syphilis: 1. The whole capsule of his liver and that of his spleen were evenly thickened, while in the liver scar-tissue in several places dipped down into the organ. The spleen weighed nineteen ounces. With this great peri-hepatitis there was no general thickening of the peritoneum. 2. The kidneys gave a well-marked amyloid reaction. 3. The aorta was extensively calcified, and showed two large aneurismal dilatations, one at the end of the arch and the other a little above the diaphragm.

Mr. Hulke, in reference to the first case, asked what occupied the spaces left by the destruction of the bone. In regard to the second case, he said that the true Hunterian sore did not leave a well-marked scar in many cases, the best-marked venereal scars being caused by the large sores of simple origin.—Mr. Barker said that he had seen caries of the parietal bone without any history of syphilis, in a case in which there was also caries of the spine. In this case the caries had occurred on the inner surface of the parietal bone. The patient was a boy. On trying to strip off the dura mater a layer of caseous material was found between it and the dura mater; the bone was excavated to a depth of about a line.—Mr. Doran observed that it was important that the significance of peri-hepatitis, as found in the autopsy of a patient who had never shown any symptoms of hepatic disease during life, should be clearly understood. As yet nothing was certain on this point. Mr. Doran had made a large number of necropsies of patients who had died with uterine or ovarian tumours, or after their removal. In such cases adhesion of the capsule of each kidney was the rule, though a history of renal disease was the exception. Yet he had never observed peri-hepatitis, except where recent general peritonitis existed, or where the history of the pelvic tumour had shown some suspicion of hepatic complication.—Mr. Morris said that it was necessary to guard against excluding syphilis simply on account of absence of a syphilitic history. He related a case of long-standing caries of the lower jaw, in which he quite failed to get any syphilitic history, but which resisted all but anti-syphilitic treatment.—Dr. N. Moore said that under the scalp there was a large amount of pus. The man had been treated by anti-syphilitic remedies without benefit. There was a distinct history of constitutional syphilis in the second case.

Dr. Samuel West described two cases of rapid

Phthisis, in which he had obtained from the contents of cavities bacilli in great groups and masses, in one case so large as to be visible to the naked eye. One case was fatal in ten weeks, occurring in a previously healthy man; the other was of seven months' duration, but ended rapidly. Both had extreme constitutional symptoms of high temperature (102° to 103°), rapid pulse, and rapid breathing, with great prostration and emaciation. In one case numerous sections of lung were made, but bacilli were not found in the lung tissue, but only in the lining of the cavities. The fact was important, as indicating the value of the number and arrangement of the bacilli in the sputum of phthical cases. He thought they were evidence of disintegration of the lung, of slow destruction if few and isolated, of rapid destruction if numerous and in groups or masses. Great variations would occur then in the same case from time to time, as the contents of the cavities were expectorated in greater or less abundance. Dr. West stated that the results of his observations upon a large number of cases of phthisis (at least fifty) led him to the conclusions:—1. That bacilli were found in all cases of phthisis in which there was excavation, and that they varied in number with the rate of destruction. 2. That the arrangement in groups and masses indicated greater destruction than if the bacilli were isolated, unless the isolated bacilli were in great numbers. 3. That he had detected no variation in the size of the bacilli in different cases. It has been stated that the bacilli are smaller and less completely developed in the very rapid cases than in the more chronic cases; but Dr. West's observation did not confirm this. 4. That in many of the rapid cases bright bodies existed in the bacilli, which had been called spores; and that in some of his cases similar bright bodies existed free in the preparation. Were these free spores? 5. That the bacilli being in his opinion evidence of destruction of lung, they might, in some doubtful cases, be of diagnostic value; but that in most cases they were merely an additional confirmation of what was already clear from the clinical and physical signs, and the same was true as regarded prognosis.—Mr. Alban Doran asked whether Dr. West thought that the more broken-down tissue there was in the lung the more bacteria were present, and, if so, was it not probable that the micro-organisms were secondary to the disease in the lungs? In dental caries the micro-organisms were more numerous the more abundant the decomposing albuminoid matter clinging to the tooth.—Dr. Goodhart asked Dr. West whether by phthisis he meant only tubercular disease, or all destructive diseases of the lungs.—Dr. S. West said that he meant by phthisis cases of "consumption," beginning at the apex and running the usual course; he supposed they would be called tubercular. He had not found the bacilli in non-consumptive cases of lung disease. He did not wish to speak with certainty as to the etiological importance of the bacilli.

Dr. Hale White showed a recent specimen of Sulphuric-acid Poisoning. Thirteen hours before admission to Guy's Hospital a woman took a large quantity of sulphuric-acid, and she died collapsed. The mouth was excoriated and inflamed; the aryteno-epiglottic folds were reddened, and had a slough on them; the œsophagus had a large slough on it; the stomach was inflamed and blackened in places; the duodenum was healthy, showing that the acid had not passed into it; the transverse colon was intensely inflamed. Thus in thirteen hours the inflammation had spread through the stomach to the transverse colon; the liver was of a peculiar whitish-yellow color on the surface, and he asked whether this could have been due to the

escape, through a perforation in the stomach, of mustard given as an emetic.

Mr. Knowsley Thornton showed a specimen of Sarcoma of the Kidney removed by operation. The tumour began six years ago, and was then movable; it was very soft, brain-like; mixed in character. The patient was a woman fifty-three years of age, and the tumour was inconvenient from its size. The tumour weighed eleven pounds; it was removed on Feb. 2nd, and the patient, up to the present time, was doing well. The kidney itself was healthy, and the tumour evidently sprang from the capsule. From the detection of resonance behind the dull tumour he had diagnosed it as an ovarian growth, and had removed it through the middle line.

Mr. Barwell showed a specimen of Persistent Ovi-vitelline Duct, causing Intestinal Obstruction. The patient was a boy, aged ten; he was brought to Charing-cross Hospital with symptoms of acute intestinal obstruction. The bladder was found distended, and was emptied by catheter. Enemata were administered, and opium and atropine given. On Feb. 5th the abdomen was opened, and the finger then felt a hard, tight body passing from the middle of the abdomen to the right iliac fossa; it was found attached to the umbilicus; on incising it, solid fecal matter came out. Recognizing it as a persistent ovi-vitelline duct, it was tied in two places and divided. The boy died in thirteen hours, and it was found that the diagnosis was correct. He was not aware of any case in which the ovi-vitelline duct had caused intestinal obstruction.

Dr. Mahomed showed two card specimens (1) Paravaginal and Dermoid Cysts from a case of Pulmonary Thrombosis; (2) Dilated and Ulcerated Duodenum, with Dilatation of Hepatic Ducts from Pressure of Cancerous Glands.

Aneurism of the Aorta.—Sarcoma of Femur.—Chondroma of Jaw.—Deformity of Humerus.—Disease of Bones in Animals.—Osteitis Deformans.—Rickets.

The ordinary meeting of the above Society was held on Tuesday, February 20th, Mr. J. W. Hulke, F.R.S., in the chair. Among other specimens shown, were several illustrating disease of bones in the lower animals.

Mr. Butlin read the Report of the Morbid Growths Committee on Dr. Haddon's case of Disseminated Sarcoma. Dr. Cobbold had been consulted by the committee and was of opinion that the disease in the kidney might be parasitic, bodies resembling psorospermial sacs being found. In the heart the disease was not parasitic, but probably sarcomatous.

Dr. S. West showed a specimen of Aneurism of the Arch of the Aorta opening into the Pulmonary Artery. It was obtained from a man, aged thirty-eight, who was seized suddenly with pain in the chest, cough, and dyspnoea. On admission into hospital, his cardiac dulness was found increased, and a murmur, loudest in the third left costal space, was heard, conducted in all directions. He died from gradual cardiac failure. The heart was enlarged, the right ventricle much dilated. Just above the pulmonary valve a hole, half an inch across, was found; the pulmonary valves were healthy; the hole led into an aneurism of the aorta the size of a hen's egg. The rest of the aorta was atheromatous. It was very rare for an aneurism to burst in this direction.

Dr. West also showed an Aneurism from the Second Part of the Arch of the Aorta, in which death occurred from aortic embolism. The patient

was a man, who suffered from cough, dyspnoea, and dysphagia. The diagnosis of aneurism was made. He suffered from several severe paroxysms of dyspnoea, in one of which he fell back dead. At the autopsy a sacculated aneurism, springing from the top of the arch, was found reaching up in front of the trachea between the two carotid arteries; the left recurrent laryngeal nerve was wholly adherent to the sac. Lying curled up in the arch was a decolorized laminated clot, which was found to have come from the left ventricle; it was flattened and like clots found in the ventricle in such cases. This termination of such a disease was an extremely rare one.

Dr. Silcock showed an Aneurism of the Abdominal Aorta springing from the back of the Artery opposite the superior mesenteric artery. It formed a huge sac behind the peritoneum, containing seven pounds of clot. It had burst into the sheath of the left psoas and formed a fluctuating tumour in the left groin. It had also spread to a less extent into the right psoas. The vertebrae were eroded, and the dura mater was exposed. A similar case occurred under the care of Sir Wm. Fergusson, in which he tied the femoral artery. The whole of the viscera were pushed forward. The man complained of pain in one hip-joint, due to pressure on the lumbar plexus. The diagnosis of malignant disease was made. The skin was not discolored. There was no evidence to show when the rupture occurred. The man had been ill two years. Some of the clot was evidently of very old date.—Dr. S. Wilks asked Dr. S. West for more particulars of the bruit in his first case. He had seen two or three similar cases, two of which were diagnosed. The bruit in both was diastolic, and very characteristic in its position and character.—Dr. Taylor asked if the acute symptoms just before death were supposed to be due to the rupture of the aneurism into the pulmonary artery. In a case he had published the rupture did not take place just before death, as was shown by the thickened edges of the opening, and the artery opposite it. He had had another similar case under his care recently, in a man aged thirty-nine, who, on admission to the hospital, suffered from dyspnoea and consolidation of the right base of the lung; a systolic murmur at right base, a diastolic murmur, and a pericardial rub at one time were detected. There was also localized dulness at the upper part of the sternum. After death an aneurism one inch in diameter was found springing from the aorta, bulging over and opening into the pulmonary artery; opposite the opening the pulmonary artery was thickened, suggesting that the current of blood had impinged upon this part of the vessel. This condition was not diagnosed during life. A similar case occurred in Guy's last August, and he thought a good many cases of this lesion could be collected.—Dr. S. West replied that there was no evidence of the rupture having occurred in the four weeks while the man was under observation, but his illness dated from a sudden onset ten weeks before that, and he thought the rupture occurred then. During life the diagnosis of aortic aneurism was made; a thrill was felt in the third and fourth left spaces. There was a loud double murmur, loudest at apex and left base, propagated from left base to lower end of sternum; it commenced at the latter end of diastole and continued all through the systole.

Mr. Arthur Durham showed a boy, aged nine years, who was admitted into Guy's in September last. Five or six months before he hurt himself in the leg and thigh, and then a swelling in the upper part of his thigh was first noticed, which had rapidly increased; the pain, at first great, subsided. In September the thigh measured twenty-

four inches round. He thought it a large, very rapidly spreading osteo-sarcoma growing from the inside of the bone. The tumour was now of enormous size, involving the whole length of the bone.—Mr. Hulke said the case was of great interest, but as it would probably soon come before them again in another form, discussion had better be postponed.

Mr. G. Lawson exhibited a Recurrent Cartilaginous Tumour of the Head and Neck. The patient had had the growth removed eleven times, five times by the late Sir William Fergusson, and six times by Mr. Lawson. She first came under Mr. Lawson's care in December, 1877, and he then removed a large cartilaginous tumour, which nearly filled the mouth and a large portion of the lower maxilla. Since that time there have been five operations for extensive recurrences of the disease, and on each occasion masses of cartilage similar to those exhibited were removed. The recurrences have been in the neck, and in the temporo-maxillary region, extending from the glenoid fossa of the temporal bone towards the base of the skull, and in the cheek between the mucous membrane and the external integument. At each operation the tumour was found to be composed of large isolated masses of cartilage, varying in size from that of the closed fist to a small nut, packed tightly together, and each portion enclosed in a distinct capsule, from which it could with a little difficulty be enucleated. The specimen exhibited was removed on Feb. 10th of this year, and the patient is again rapidly progressing towards recovery.—Mr. Hulke did not know of any instance of a pure enchondroma recurring again and again. This did not seem to have been a case of a typical enchondroma. Chondro-sarcomata often recurred. He referred the tumour to the Morbid Growths Committee.—Mr. Barwell asked whether this case did not show the propriety of removing half the lower jaw from the articulation in all such growths.

Mr. Butlin was glad the case was to be referred to the Morbid Growths Committee, as Dr. Thin, who had examined the growth, evidently had difficulty in deciding whether it was a pure chondroma or chondro-sarcoma. It was interesting also to notice that it grew from the outer surface of the periosteum. He had removed a para-osteal tumour of the radius without excising any of the bone. A slow recurrence was afterwards removed, and now the patient was free from disease. Had the disease grown from under the periosteum, the only proper treatment would have been amputation of the forearm.

Mr. Lockwood showed a specimen from a female body brought into the dissecting-room. Growing from the lesser tuberosity of the humerus was a process of bone an inch long, to which the infraspinatus was attached. The question was, whether this was a congenital abnormality of the bone or due to injury. Congenital deformity of this nature was very rare. There was some evidence of rheumatoid arthritis. The other humerus had evidently been fractured.—Mr. Barwell said the appearance was like that of ataxic arthritis.

Mr. Sutton showed six specimens of bone disease in animals. The first was a skeleton of a Lizard from the Zoological Gardens; it had lived there two years, and had been fed on eggs and fruit. The costal cartilages were distorted in the middle of the cartilages. A layer of ossifying cartilage existed normally between the articular cartilage and bone in this animal; but in this case there was a quantity of soft matter above this ossifying cartilage; the marrow was soft; compact bone very thin, cranial bones very soft. On the cornua of the hyoid bone were four cartilaginous tumours. The second was a skeleton of a Rhea.

The bones were mere shells filled with oily material, so soft that they could be twisted in any direction like leather. This bird, too, had at the junction of the epiphyses of two metatarsal bones two large cartilaginous tumours. Four skeletons of Monkeys were also exhibited. One was said to be a paralyzed monkey. The chest was deformed, but without the costal beadings seen in rickets. The crests of the ilia were doubled over by the abdominal muscles. The serratus magnus had produced the same effect on the base of the scapula. The long bones were very soft at their ends, and the epiphysal cartilages enlarged. The bones were also curved at the lower end, where the cancellous tissue was specially soft, and contained fat. In one femur the medullary cavity extended quite down to the epiphysal cartilage. The skull showed some osteophytic bones. In the second specimen the chest was deformed, the long bones only distorted at the lower end. The skull in the roof of the orbit and at the posterior fossa showed most marked cranio-tabes, even to perforation. The third showed osteoporosis. It was sound, except in the skull; there was no deformity. On section of the skull the condition was at once discovered. In the fourth specimen there was slight lateral curvature of the spine. The left radius was curved in a very peculiar manner, which he called osteitis deformans. Only it and the ulna were diseased. He had concluded, from his dissections of monkeys, that osteomalacia, osteitis deformans, osteophytes, and rickets were all results of chronic inflammation. He thought the pathological processes were but modifications of the physiological developmental changes in the bones. These were periosteal deposit, osteoporosis, and epiphysal growth. Irregular periosteal deposit led to osteophytes; excess of it to osteitis deformans. Excess of osteoporosis led to osteomalacia, and excess of epiphysal growth was the change in rickets. But all were caused by chronic inflammation.

Mr. Bouly showed the Femora from two cases of Osteitis Deformans. W. H.—, aged sixty-four. There was a very marked curve forward of the right femur; curve equally distributed over the length of the bone; the compact bone of the shaft was much thinned. A soft mortar-like substance filled up the medullary cavity. A small cavity full of cheese-like material was found near each end of the bone. In the second case, the right femur had become curved during the last ten years of life, the whole bone curved out and forwards, enlarged in circumference, rough externally, articular surfaces normal, medullary canal irregular, compact tissue thickened; a small cavity near the front of the bone contained a small sequestrum. The two bones differed in all points except the curve and increase in diameter. He thought in each the cause was inflammation of the bones. Lengthening of bones occurred from excess of blood-supply, but did not cause a curve except in the tibia. The soft mortar-like material he thought due to degeneration of inflammatory products. The almost entire absence of an outward curve in the first specimen was of interest, as in all other cases he had seen this had occurred.

Mr. Barwell showed two children, to illustrate the formation of the curves in Rickety Bones. W. P.—, aged eight, in whom one tibia was thickened and an inch longer than its fellow, the bone was bent forwards and was becoming more bent; it was due to hyperplasia affecting the front more than the back of the bone. Sarah A.—, aged four years and a half, a strong child except for signs of rickets. The right tibia was more bent than the left, and was becoming more bent even though she was kept in bed; it was considerably longer

than the other—an inch and a quarter, measured along the curves. There was evidently, therefore, a hyperplasia of the bone, affecting the front of the bone most; sometimes the front of the bone was tender. He submitted that rickets did not connote merely softened bones, but that the curves were produced by localized hyperplastic inflammation of bones. Other diseases besides rickets caused tendencies to bony curves in children. He referred to a man, aged twenty-two, in whom the bones were found, in performing osteotomy, soft enough to be cut with a knife. This man was well till five years of age, when he had a fever; then the bones began to bend; he had genu valgum, tibiae were not bent, patellae dislocated on to outer condyle of femur, left radius very twisted, and in the convexity he has pains. This was certainly not rickets, but a disease for which we had no name.—Mr. Hulke said Mr. Sutton's specimens were very interesting, and particularly as they all occurred in animals living in unnatural conditions of life tending to produce general malnutrition.—Mr. Parker said these cases were instances of true osteomalacia, as the disease was called generally. Typical osteomalacia had been produced in animals by giving them food deficient in lime salts. He thought we had no proof that normally there was a periosteal deposit, which, when irregular, produced osteophytes, or in excess caused osteitis deformans. He had always regarded osteophytes as disease of bone, not of the periosteum. He thought that osteoporosis in the skull was very common in young children. He could not regard rickets as epiphyseal overgrowth merely.—Mr. Treves questioned whether Mr. Sutton's nomenclature aided us at all. What evidence was there that his specimen of osteoporosis was due to chronic inflammation rather than to malnutrition? And further, how could he show that osteomalacia was an excess of osteoporosis?—Mr. Eve remarked that all Mr. Sutton's specimens were diseases of development, whereas osteomalacia and osteitis deformans were diseases of later life. In reference to Mr. Barwell's cases, he pointed out that in rickets the greatest formation of bone occurred in the concave surface of the bone; but in some cases the bone was found heaped up in the convexity.—Mr. Sutton was assured that all pathological processes were but exaggerations of physiological processes. In osteoporosis the sign of chronic inflammation was increased vascularity. On examining the bone microscopically, spaces filled with fat lined by osseous tissue or decalcified bone were found. He would submit his specimens to a committee of the Society.

Dr. Carrington showed as a card specimen an Aneurism of the Aorta. There were two aneurisms, one springing from the first part of the arch, which was nearly occluded by clot. The other, much larger, sprang from the second part of the arch, and although containing a large quantity of clot, had yet caused death by pressure upon the trachea at its bifurcation. The patient had been treated by rest, dieting, and iodide of potassium.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Ligature of the Common Carotid Artery for Aneurism of the External Carotid.—Ligature of the Right Subclavian and Carotid Arteries for Aneurism of the Aorta.—Aneurism of the Arch of Aorta involving the Innominate Artery.—The Distal Ligature.

THE ordinary meeting of this Society was held on February 13th, Professor Marshall, F.R.S.,

President, in the chair. Three papers were read dealing with the subject of aneurism. Mr. Heath's was the record of a case in which the common carotid was tied for an external carotid aneurism in a patient suffering from cardiac disease, and death occurred from cerebral embolism, due to the endocarditis, seven weeks after the ligature, the aneurism itself being filled with clot. The papers by Mr. Marsh and Mr. Morris both dealt with the question of distal ligature in cases of aortic and innominate aneurism, and the prolonged debate which ensued was mainly occupied with this important subject. Several museum specimens in illustration of the subject were shown by Mr. Morris and Mr. Heath. Microscopical preparations showing the changes induced by silk and catgut ligatures respectively, were exhibited by Messrs. Stanley Boyd and Horsley. The last-named gentleman also demonstrated the comparative strength of ox aorta tendon and sciatic nerve. Mr. F. T. Paul, of Liverpool, exhibited microscopical specimens from the case of scirrhus of the prostate related by Mr. Harrison at the last meeting. As doubts were expressed at that meeting as to the cancerous nature of the tumour, Mr. Paul was anxious that the Fellows should have the opportunity of seeing the growth, which clearly started from the glandular epithelium of the prostate.

The following is an abstract of the paper on a Case of Aneurism of the External Carotid Artery; ligature of the common carotid, with cure of the aneurism; death from paralysis on the thirty-fifth day; by Mr. Christopher Heath. The author records this case in support of the view that ligature of the common carotid is sufficient for the cure of certain cases of aneurism of the external carotid, and in opposition to the view that ligatures should also be placed on branches of the external carotid artery. A carbolized silk ligature was employed with antiseptic dressings, and the wound healed by first intention, the silk being *in situ*. The patient was a young woman of twenty-three, with extensive disease of the cardiac valves. A month before admission she came down in the morning speaking indistinctly, and found that the tongue deviated to the right side. Four days after she noticed a swelling near the angle of the jaw, for which she became an out-patient at a hospital, where the swelling was painted with iodine. On admission to University College Hospital there was a smooth, round, pulsating swelling, just below the right mastoid process, reaching down to about the level of the upper border of the thyroid cartilage, limited in front by the ramus and angle of the jaw, and overlapped behind by the sternomastoid. The right tonsil was pushed somewhat inwards, and the tongue deviated much to the right, the right half of the organ being a good deal wasted. The heart's impulse was strong and heaving, extending far outside the nipple-line. At the apex a loud, well-conducted, mitral systolic murmur was heard; at the base a much fainter double aortic murmur. On Jan. 11th, Mr. Heath tied the common carotid above the omo-hyoid with a carbolized silk ligature, the ends of which were cut short and the wound closed throughout. An antiseptic dressing was applied after the wound had been washed out with carbolic lotion. A gutta-percha splint was bandaged to the head and shoulders to keep the face turned towards the left. Slight pulsation persisted till the seventh day, on which the wound was found completely healed. The patient made a good recovery until the thirty-third day, when, while eating dinner, she suddenly dropped her knife and fork and complained of pain in the spine. An hour and a half later her speech became unintelligible, and four hours later she ceased to take notice. During the night swallow-

ing became difficult, and next day (thirty-fourth) the right arm, and soon after the right leg, became paralyzed, and she died on the afternoon of the thirty-fifth day. The post-mortem showed an embolus at the base of Broca's convolution, and five or six small patches of yellow softening were found beneath the grey matter of the surface. The heart was much hypertrophied, the mitral valve thickened, and with vegetations on both surfaces; each cusp of the aortic valve was also studded with vegetations. The wound was completely healed, and the sac of the aneurism filled with firm clot. It sprang from the external carotid half an inch above the origin of the artery, stretching the hypoglossal nerve, which was of a yellow color at that point. The silk ligature was embedded in connective tissue, and a firm red clot extended for three-quarters of an inch above and a quarter of an inch below the ligature. Microscopic examination showed the silk to be unaltered.

The next paper read was on a Case of Ligature of the Right Subclavian and Carotid Arteries for Aneurism of the Aorta; death from rupture of the sac on the fifty-first day after the operation; by Mr. Howard Marsh. F. B.—, a shopman, aged thirty, was admitted into St. Bartholomew's Hospital, Jan. 17th, 1881. Previous health good, and never had syphilis. Was in the habit of lifting heavy weights, but was unaware of having received any blow or strain. Nine months before admission he had "neuralgia" in the right side of the head and neck, and in the right shoulder and arm. A month later his voice changed to a hoarse whisper. Seven weeks before admission he first noticed a pulsating swelling at the root of the neck to the right of the middle line. This was of the size of a bantam's egg. On examination the tumour was found rising above the right sterno-clavicular articulation. The clavicle and sternum were partially absorbed. No pressure signs or extended dulness could be detected in the thorax; no bruit; heart normal; pulse in the right radial somewhat more feeble than in the left; pulsation hardly to be felt in the right carotid; pupils equal. In the next few days the swelling increased slightly towards the left. On Jan. 31st the subclavian and carotid were tied with catgut prepared by the chromic-acid process. The wounds did favorably, but the operation was followed by rapid enlargement of the aneurism to the left side; the swelling soon led to absorption of the sternum, and extended high in the neck. Repeated hæmorrhages occurred, and the patient died at the end of about seven weeks. The author remarked that the case illustrates what is probably a serious danger in the treatment of aortic aneurism by ligature of the carotid and subclavian vessels—namely, disturbance of the blood pressure and consequent dilatation of the arch in some new direction, and he alluded to one case in which great pulsation in the sac followed the operation, and to another in which a second aneurism was found, which had apparently commenced very shortly after the trunks had been tied. In the present case no post-mortem could be obtained. He believed, however, the aneurism was originally seated on the first part of the arch near the innominate, but that increased pressure after ligature led to rapid dilatation of the arch towards the left side.

A third paper was read, on a Case of Aneurism of the Arch of the Aorta involving the Innominate Artery, with remarks on the Distal Ligature, by Mr. Henry Morris. A married woman, aged forty-three, who described herself as a "farm laborer," came under treatment on Sept. 7th, 1882, for an aneurism supposed to be of the innominate artery. The symptoms were partly characteristic of innominate, partly of aortic aneurism; but the shape

and position of the tumour favored the opinion that it was chiefly, if not entirely, of the innominate vessel. Tufnell's treatment was tried for nearly two months with temporary benefit. As distal pressure on the common carotid produced marked effect on the aneurism, and pressure on the third part of the subclavian did not, ligation of the carotid alone was decided upon. The operation disclosed a strongly pulsating internal jugular vein adherent to the sac of the aneurism, but no common carotid could be found. In the search for the artery the vein was wounded and had to be ligatured above and below the wound. The patient died fourteen days after the operation from asthenia, the result of diffused suppuration in the right side of the neck. Post-mortem examination showed the aneurism to be almost entirely aortic, though the innominate and roots of the subclavian and carotid were thickened and enlarged. The carotid was firmly occluded by a plug of fibrine about one inch and three-eighths of an inch from its origin, and lay flattened and deeply bound down by a dense thick layer of sclerosed connective tissue, out of which it was dissected with much difficulty. The left innominate vein was occluded, so that the whole of the blood from the head had to return through the right external jugular and other smaller anastomosing veins of the right side; this had excited the fatal suppuration. The case showed:—1. The impossibility of diagnosing some aortic from innominate aneurisms. 2. The unreliability of any conclusion which may be drawn from the effects of distal compression on the large arteries in connection with such aneurisms, as to the form of operation to be adopted for their cure. 3. That a very appreciable pulsation may be felt along the course of the carotid in the neck, though that vessel be plugged, if the internal jugular become incorporated with the wall of the aneurism. 4. That it is not probable that this aneurism would have been cured by the occlusion of the subclavian as well as the carotid. It is suggested that Mr. Heath's well-known case has led to the double distal ligature being held in a far too favorable light, and that in estimating the effect of this treatment too much importance has perhaps been attached to cases, such as Fearn's and others, in which the aneurism has been found filled with clot after death. As distinct from the effects of ligature, much importance ought also to be attached to the condition of the blood and the circulation which precedes death, as well as to the slow approach of death, circumstances which themselves favor, in no small degree, the deposition of fibrine. In suitable cases of aortic aneurism ligation of the left common carotid gives the patient a much better chance, because the method is more nearly allied to Brasdor's, whilst there is only half the risk of the double distal ligature.

Mr. Bryant considered Mr. Heath's case a very good example of the Hunterian operation, but did not think the facts proved its superiority to the ligature on the distal side of the aneurism as advocated by Mr. Morris, or to laying open the aneurism and securing the vessels coming from it. The other cases raised the question of distal ligature in aortic aneurism, the results of which he had long felt to be unsatisfactory, for he quite agreed in believing that the excellent result of Mr. Heath's first case had led them to place too much reliance upon it as a curative measure. He doubted whether in most cases life was really prolonged by the procedure, although, certainly, it was made more endurable. He also thought that less risks were run, and especially the risk of increasing the blood-pressure in the sac, by tying only one vessel in preference to the simultaneous ligation of two; and he quoted two cases, in one of which he had tied

the carotid, in the other the subclavian, with relief to the patient.—Mr. Barwell hardly thought the cases related by Mr. Marsh and Mr. Morris afforded sufficient ground for debating the practice of the double distal ligation. In Mr. Marsh's case the aneurism was extending to the left, and his choice of the right vessels for ligation would favor that extension by directing the blood-pressure in that direction. Mr. Morris's deduction was hardly warranted, since in his case the single vessel he selected for ligation was actually occluded by the disease. Mr. Barwell pointed out that in cases where an aortic aneurism is pressing forwards there is always evidence of venous congestion in the left side of the neck from obstruction of the left innominate; when backwards, there are pressure signs on the right bronchus. The reason why patients were unable to reap the full benefit of the operation was because it was often impossible to enforce absolute rest, owing to the dyspnoea induced by pressure on the trachea or laryngeal nerves. But that life was prolonged by it there could be no doubt, since in one of his cases there was so much dyspnoea that the physicians declared the patient could not survive many days, and the relief given by the ligation enabled him to survive three months.—Mr. Holmes pointed out that one of the earliest cases related to the Society was almost the counterpart of Mr. Heath's case. It was one described by Sir Astley Cooper, who tied the common carotid artery for an aneurism of the external carotid. For a few days there was no appreciable effect, then pulsation ceased, and the patient was entirely relieved and passed from notice.—Mr. Heath explained that he had not deemed it necessary to refer to Sir Astley Cooper's and other cases, since this had been fully done by Mr. Morris in his paper on the subject in Vol. 64 of the Transactions.—Mr. Holmes said that such cases showed that the old Hunterian operation was adequate for the cure of such aneurisms; and certainly it was preferable to the dangerous and uncertain method of laying open the sac and tying the branches of the vessel. As to distal ligation for aortic aneurism, he had arrived at the same conclusion as Mr. Marsh and Mr. Morris had—viz., that it was best to tie one vessel first, and on all accounts the carotid is the best to select. Fearn's case was one of the most successful; and he could not agree that the clotting in the sac in that case was due to the approach of death. In many instances the formation of clot had led, if not to cure, to great amelioration. A case of aortic aneurism under the care of Dr. Ogle suddenly developed cerebral symptoms, which passed off, and the aneurismal signs forthwith disappeared. A year later the patient died of phthisis, and the common carotid was found to be occluded by clot extending from the aneurism, the cavity of which was itself reduced to a channel not larger than the normal vessels. A Canadian surgeon had published a similar case, where much the same result ensued on ligation of the carotid. Mr. Holmes had tied the left carotid in one case of aortic aneurism, and, although pulsation and bruit remained, the woman was still living, engaged in domestic service seven years after the operation. His choice of the vessel would depend upon the effect produced on the aneurism by pressure upon the vessel. He could never understand what effect ligation of the third part of the subclavian could be supposed to exert in determining clotting in an aortic or innominate aneurism, since the large branches arising from the first part remained free to the blood-current. In Mr. Barwell's case the clot in the subclavian had probably been carried from the aneurism, and had not extended backwards from the seat of ligation.

Mr. Savory pointed out that the principle of

Brasdor's operation rested on the fact that the amount of blood-pressure was in proportion to the area supplied by the blood; and therefore if one or more arteries are tied, the pressure will (after a short time) be *pro tanto* diminished. Mr. Morris's case reminded him of a possible fallacy in the practice of resorting to ligation when pressure upon a vessel diminishes the pulsation in the aneurism. He was recently called to a case of intrathoracic aneurism with a view to operation; pressure on the right carotid diminished the pulsation of the sac, but it also diminished the pulsation of the heart and of the arteries generally; and the same result followed pressure on the left carotid. He concluded therefore, that the effect was due to pressure on the vagus nerve.—Dr. Douglas Powell suggested that in Mr. Marsh's case the aneurism might have been of the form of a dilatation rather than sacculated, and inquired whether auscultation revealed that second jogging sound which he believed to be diagnostic of a saccular aneurism. Of course, if it were a dilated aneurism, distal ligation would have no effect upon it. He assured Mr. Barwell that there was no venous congestion of the left side of the neck in Mr. Morris's patient, and in his experience these venous pressure signs only occurred in very advanced cases, and pressing widely in different directions. Clinically, Mr. Morris's case seemed one particularly suitable for the distal ligation, and had it been possible to diagnose the occlusion of the carotids, he would have advised that the subclavian should be tied.—Mr. Treves, alluding to Mr. Heath's case, pointed out that the mortality after ligation of the common carotid was very high as compared with that following ligation of the external carotid, for, excluding fatalities from secondary hemorrhages, a large number die from cerebral disturbance after ligation of the former vessel. Upon distal ligation for aortic aneurism, he agreed that there were no scientific data to serve as guides in the selection of a vessel for ligation, for although Mr. Barwell had laid stress upon the direction of the blood-currents from the aorta into the right and left carotids respectively, it must be remembered that in the case of an aneurism the normal relations were much disturbed. Of thirteen cases of distal ligation in aortic aneurism, given by Wyatt, five were benefited, and six died from the operation. Mr. Treves reminded the Fellows that two years ago he had read a paper before the Society, in which ligation of the subclavian alone had cured an innominate aneurism. In that case the carotid was also tied simultaneously with the subclavian, but its ligation became detached. It must be remembered that in many cases of innominate aneurism the clavicle and sternum were eroded, and successful consolidation could not be hoped for under such conditions, the presence of the bone in the sac preventing the coagulation around it. He suggested the tentative application of a catgut ligation in these cases of aneurism at the root of the neck.—Professor Lister remarked that in his first experiment upon aseptic ligation he had applied a carbolized silk ligation to a horse's carotids, and found it to be unaltered at the end of six weeks; and a year later he had in the human subject met with a case where an abscess formed around such a ligation, a small part of which had only been absorbed. This led him to seek for a material capable of being absorbed. What was required was a material which could be securely tied in a knot, incapable of absorbing organic fluids and of itself resisting absorption. That would be the most perfect form of ligation, and had yet to be obtained. Until they had this he believed an absorbable ligation was the best.—Mr. Stanley Boyd said that the specimen he had prepared from

Mr. Heath's case showed unaltered silk fibres separated by abundant infiltration of round cells and giant cells, whereas the wound itself showed scarcely any signs of inflammation. Thus it was easy to understand how an abscess might form around the ligature.—Dr. Goodhart questioned whether any real good was attained by the medical treatment of aortic aneurism; the cases almost invariably proved fatal, and spontaneous cure was rare. Nor was clotting in the sac an evidence of cure; his pathological experience showed him that aneurisms extended notwithstanding the presence of clot, the blood being forced between the layers of clot. Therefore, he would say that an aneurism is not necessarily to be treated because it exists, and he was persuaded from post-mortem evidence that the Joliffe Tufnell treatment did no real good. He confessed himself confused as to the opinion of surgeons regarding the selection of a vessel for distal ligature, the statement of Mr. Barwell being directly contradictory to the rule laid down by Mr. Holmes in his lectures.—Dr. Broadbent, referring to Mr. Goodhart's remarks, said that the post-mortem room was hardly the place to look for cures, and could assert that he had seen very marked benefit result from the iodide of potassium treatment. Some cases he had seen seven or eight years after commencing the treatment, and he had two cases now in hospital where the signs of improvement were striking. The *modus operandi* of this treatment was much the same as that of Tufnell's plan—viz., inspissation of the blood, with the added advantage of the depressing action of the potash salt upon the heart.—Mr. Horsley briefly described the experiment of testing the comparative strength of ox aorta, kangaroo tendon, and sciatic nerve-ligatures. He also showed microscopical specimens of a catgut ligature undergoing absorption, six days after its application. The wound was quite aseptic, and leucocytes could be seen infiltrating the fibres of the ligature.—Mr. Heath, in reply, said that the object of his paper was to show that external carotid aneurism could be cured by ligature of the common trunk. Death resulted from embolism due to the cardiac disease. As to distal ligature in aortic aneurism, it might be best to tie only one artery; but Mr. Holmes had not said which carotid was to be preferred. He (Mr. Heath) had had a case of ascending aortic aneurism, in which he tied the left carotid, and the man lived for four years. If Mr. Morris in his case had tied the left carotid the patient would have died at once, for then both carotids would have been occluded. Such a mischance once happened to himself, the patient dying in a few hours after the application of the ligature to the left carotid. The cases must be very few where the vertebrals would be sufficiently large to carry on the cerebral circulation.—Mr. Marsh, in reply to Mr. Barwell, pointed out that in his case the aneurism was well towards the right, and ligature was resorted to when it showed signs of extension leftwards. He felt sure it was a saccular aneurism, but did not know if the diagnostic point mentioned by Dr. Powell had been observed.—Mr. Morris, in reply, pointed out that the consolidation of an aneurism was only a means to the end in view—the cure of the aneurism. Cure implied a shrinking of the sac, and not merely its becoming filled with clot. Suppuration and hæmorrhage may take place in the clots. Both Mr. Heath's case and that of Sir A. Cooper supported the view he (Mr. Morris) had laid down in his previous paper on the subject, that to ensure consolidation of an external carotid aneurism some of the branches of the vessel must be occluded. In Mr. Heath's case the facial and lingual arteries were found to be plugged, and in Sir A. Cooper's

consolidation did not set in until the temporal pulse could no longer be felt. In Mr. Porter's case of the Hunterian operation, suppuration of the sac seemed to have brought about the cure. The free anastomosis of the external carotid put it in a category by itself; so that treatment of its aneurism by ligature could not be compared with that of any other vessel in the body. His proposal in dealing with such cases was to ligature some of its branches, temporal, lingual, and facial, as well as the common carotid, thus protecting the aneurism from the recurrent flow of blood through those channels. Mr. Savory had raised a very interesting point—viz., whether pressure applied to the carotid artery might not reduce pulsation in an aneurism through cardiac depression from the vagus being compressed, a point which he remembered to have been stated by a writer on the subject.—The President observed that the debate showed that in spite of all the study that had been given to aneurism, the subject still admitted of much investigation.

The Society adjourned at a late hour.

MEDICAL SOCIETY OF LONDON.

Volvulus of the Ileum treated by Abdominal Section.—Abdominal Pulsation.

A MEETING of this Society was held on Jan. 15th, Mr. F. Mason, President, in the chair.

Dr. J. K. Fowler read the notes of a case of Intestinal Obstruction from Volvulus of the Ileum treated by Abdominal Section, and offered some suggestions as to the mode of performing the operation. The patient was a man, aged forty, who was admitted into the Middlesex Hospital under Dr. Fowler's care on Aug. 7th, 1882, with a history of acute obstruction of the bowels of four days' duration. An enema was administered, and by auscultation of the colon the fluid was found to pass as far as the ileo-cæcal orifice. Attention was called to this important aid to diagnosis between obstruction of the large and small intestine, and some experiments were described which tended to confirm the generally received idea that under normal circumstances the ileo-cæcal valve is competent. Abdominal section was at once performed by Mr. Hulke, and a volvulus of the ileum found and untwisted. The patient was much relieved by the operation, and the bowels were opened freely three times subsequently. Death took place three days afterwards from cardiac failure and hypostatic pneumonia. At the post-mortem examination a portion of the ileum with a long mesentery was found somewhat congested, the peritoneum generally was normal and the wound healthy. Special stress was laid upon the advisability of operating early in cases of internal strangulation of the small intestine, and attention was directed to the following mode of proceeding, at the author's suggestion, after the abdomen had been opened. The finger was passed deeply down into the pelvis, where a portion of collapsed small intestine was found; this was withdrawn and carefully followed until the obstruction was reached. It was laid down as an absolute rule that in the operation of laparotomy the distended bowel should only be manipulated in case the surgeon after a careful search had failed to find the collapsed intestine. The following advantages were claimed for this method of operation: (1) That the collapsed bowel can be examined with far greater ease and in much less time than an equal length of distended intestine; (2) that a considerable length may, if necessary, be exposed at one time, without any difficulty arising, when it is desired to return it into the ab-

domen; (3) that the collapsed intestine never leads to the duodenum—a matter of some importance; (4) that the danger from peritonitis from exposure of contracted bowel is very slight; and (5) that rupture during its manipulation is practically impossible. It was suggested for the following reasons that in all cases of obstruction of the small intestine the contracted portion would be found, as in this case, lying in the pelvis: (1) The tympanitic abdomen shows that distended bowel is on the surface, as would be expected from its diminished specific weight; (2) that in making autopsies the author had noticed that if the upper portion of the small intestine be distended, the contracted lower end is always seen lying behind the distended portion, low down in the pelvis. The explanation offered was that during the violent and continued peristalsis, and gradual distension of the bowel above the obstruction, the smaller and less active portion of bowel below is forced into the pelvis, which is, besides, too small to hold a distended loop. Two cases were mentioned which had lately been operated on at the Middlesex Hospital, in which at the autopsy a second band had been found close to one divided during the operation; the result had not in either case been influenced by these bands having escaped notice.—The President did not think a small incision in the abdominal wall a wise practice, and quoted a case of his in favor of early interference.—Mr. Bryant trusted that in future surgical aid would be invoked at an earlier period than is now customary. A volvulus was equivalent to an internal hernia, and should be subjected to the same surgical rules of early operation. Injections as a means of diagnosis would be applicable only in a small proportion of cases; and as a method of treatment, in intussusception excepted, they were of very little use. His own experience showed them to be harmful, sometimes causing rupture of bowel and fatal collapse. He nevertheless thought that Dr. Fowler's method of diagnosis in this case was ingenious and trustworthy, and in early stages might have good results. He approved the author's criticisms of the operation, and argued that the collapsed intestine should be sought for on the right side of the brim of the pelvis. He reiterated his belief in the danger of puncture of distended bowel, and had seen fecal extravasation follow puncture in three cases.

Mr. Edmund Owen compared the nature of acute internal obstruction to that kind of external hernia in which a little knuckle of small intestine was tightly strangulated; these were the very cases in which a cutting operation was urgently required. The chief signs of the acute obstruction are umbilical pain, sickness, and collapse. The co-existence of alvine evacuations was of no material import. Copious evacuations should not be employed with a view to overcoming acute obstruction.—Dr. Coupland thought that operative interference was often postponed on account of the late stage at which cases were sent into hospital. In one case of his, after operative interference had been invoked, spontaneous relief occurred before the surgeon arrived. But he would say that he had never yet seen recovery after operation in acute internal obstruction.—Dr. Green considered that the question of operation rested on diagnosis. If a physician were satisfied of obstruction in the small intestine, he would not hesitate to invoke surgical interference. Was it possible to distinguish between simple volvulus and serious obstruction.

Mr. Walsham agreed with Dr. Green on the difficulty of exact diagnosis, and the desirability of some better rule on the subject. The diagnosis between obstruction in the large and small

intestine was not quite satisfactory, and he thought Dr. Fowler's plan would prove of value. He also recommended the insertion of the hand into the rectum, which, if practiced with proper precaution, involved no risk. He thought it possible to tell the direction of the exposed intestine from noting the direction of the mesentery. He had succeeded in returning coils of intestine into the abdomen by making firm pressure with a sponge on the whole mass.—Dr. Fowler replied, and stated that it was impossible to distinguish between those cases of volvulus which would untwist spontaneously and those which would not.

Dr. Wiltshire then read a paper on Abdominal Pulsation. He pointed out that abdominal pulsation of an abnormal kind occurs in males as well as in females, but more frequently in the latter. In males it may arise from various causes, but aneurism is much more probable than in females. It very rarely occurs in girls or young women before child-bearing, and when it does usually arises from impoverished blood, but may be due to tumours, malignant or benign, or cardiac disease. It becomes more common towards the change of life and afterwards, and may then arise from various causes, which may be grouped as follows:—*Affections of the vascular system:* (1) Cardiac lesions—e.g., aortic regurgitation; (2) arterial lesions—degenerative changes, such as calcification, atheroma, etc., sometimes secondary to renal disease, aneurism, vaso-motor neuroses, peripheral spasm, pressure on the aorta, or its branches, by tumours of various kinds, fæces, abscesses, effusions; (3) blood-changes—anaemia, hydremia, chlorosis, deficiency of albumen, or various cachectic blood states arising from excessive loss or otherwise. *Extra-vascular affections:* Pulsatile tumours of the liver, spleen, stomach, omentum, mesentery, kidneys, intestinal tract or other tissues in the abdominal cavity, notably if malignant; tumours lying over the aorta, as horseshoe kidney, movable kidneys, the pancreas, purulent collections, hydatids, sarcomata, fecal collections, mesenteric cysts; neurotic affections, as from fright, anxiety, grief, shock, disappointment; Addison's disease; climacteric disorder, nervous and vascular, accompanying catamenial suppression. *Diagnosis:* Careful physical examination of abdomen, pelvis, and thorax. Inquiry into general state, particularly of blood. *Treatment:* Dependent upon cause, to discover which no effort is to be spared. Vascular sedatives generally helpful, as potassium iodide, the bromides, etc. Blood impoverishment to be amended by iron and liberal diet. Laxatives useful—e.g., an ounce of the compound decoction of aloes and five grains of iodide of potassium, three times a day.—The President had found good results from the use of laxatives.—Dr. Thorowgood had seen a remarkable case related by the author, which had been under observation for many years. He could testify to the good effect of iodide of potassium in that case.—Dr. Green had seen good effects from bromide of potassium and iron. He thought only the "neurotic" form of pulsation was unaccompanied by distinct symptoms.—Dr. Ewart had lately under his care a man, aged thirty-five, in whom abdominal pulsation of this kind occurred. The patient was dyspeptic, and had not noticed the pulsation till his medical attendant discovered it, and from that time he imagined various symptoms in connection with it.—Dr. Owen had also seen a case of the kind in a male subject.—Dr. Wiltshire briefly replied. He had seen cases illustrating all the varieties of pulsation mentioned in his paper. Many of the cases were dyspeptic and suffered from constipation. He had seen the pulsation accompany aortic incompetence and Bright's disease.

The Relation of Bacilli to Tuberculosis.

At the meeting of the above Society on Jan. 29th, Mr. F. Mason, President, in the chair, a discussion upon the relation of bacilli to tuberculosis was opened by Dr. Whipple in a paper upon a case of acute tuberculosis, complicated by albuminuria, unusually low temperature, absence of marked physical signs, consolidation of the lungs, and presence of bacilli in the sputum.

Dr. Whipple's case was that of a man, aged nineteen, who died in St. George's Hospital under his care on Nov. 14th, 1882. At the time of the patient's admission (Oct. 10th, 1882) his father was an in-patient with symptoms of phthisis. The youth had been subject to severe colds for some time, but had not been ill until six weeks previously. It appeared, however, that he had spat up some blood four years ago when he was suffering from a bad cold. Six weeks before his admission he had a slight catarrhal attack; his legs began to swell soon afterwards, and in the course of a fortnight diarrhoea set in. For two or three weeks he had been troubled by cough. There were no night sweats, and very little expectoration. He had lost much flesh of late. On admission he was suffering from dropsy. He had cough, but it was not troublesome. The lung sounds were normal. The urine contained a very large amount of albumen, and was on one or two occasions nearly solid on the application of heat. Diarrhoea was profuse. There was a little glairy expectoration. The patient made no improvement, and the diarrhoea, though perhaps it was checked for a few hours at different times, practically remained uncontrolled to the end. When the patient was first under observation no abnormal sounds were detected in the lungs, but towards the end of October slight dulness was found at the apices; a few crackling sounds were audible, which cleared up for thirty-six hours and then returned. The expectoration became rusty, and was streaked with blood. At the beginning of November there was an increase of the dulness (which was, however, not absolute) on the right side; the vocal resonance was increased, but was not louder than is often the case in persons with thin chest walls. The liver was found to be much enlarged. On Nov. 9th, a portion of the expectoration was prepared and stained by Dr. Heneage Gibbes' method, and the bacilli of tubercle were demonstrated in considerable numbers. The temperature chart, extending over thirty-two days, showed that on nineteen days the temperature was subnormal; on fourteen days only was it above 98.4° F.; that on six days only did it exceed 99° F.; and that on one evening only did it reach 100° F. The patient died on Nov. 14th, 1882; and at the post-mortem examination the lungs were extensively occupied by miliary tubercle in various stages. Tubercular ulcers were found throughout the small intestines and in the large intestine also. The liver, spleen, and kidneys were highly lardaceous. With regard to some remarkable features in the above case, Dr. Whipple pointed out:—1st. The absence of marked physical signs in a chest in which the autopsy revealed such extensive consolidation of and disease in the lungs. 2nd. The unusually low temperature which prevailed during the thirty-two days on which the patient was under observation. Dr. Theodore Williams had drawn attention to the influence of albuminuria on the temperature in cases of phthisis in a paper read before the Medical and Chirurgical Society in March, 1882, and found that when albuminuria is a concomitant of phthisis the temperature is subfebrile. 3rd. The clinical features of the case pointed to tuberculosis and lardaceous disease, yet the physical signs of

the former were, to a great extent, wanting. The fact, however, that tuberculosis of the lung frequently does not admit of stethoscopic demonstration was duly recognized, and it was suggested by Mr. F. W. Hewitt, the house-physician, that the sputa should be microscopically examined, and the discovery of bacilli constitutes not the least interesting feature in this case. Dr. Whipple then briefly reviewed the results of observations on this important subject both at home and abroad, and with regard to the method of staining had come to the conclusion that the process suggested by Dr. Heneage Gibbes was the most satisfactory. The questions which obviously occur with respect to the significance of these bacilli are:—

1. Can these organisms be demonstrated in the expectoration or other morbid secretions of persons who are, presumably, not suffering from phthisis? 2. Are they always demonstrable in cases of phthisis? and, if so, to what extent do they assist diagnosis, or indicate the progress or arrest of the disease? The results of the observations on twenty cases were then shortly stated. Of these seven were instances either of acute tuberculosis or of acute exacerbations of previously existing tuberculosis, and in all the bacilli of tubercle were found, in some cases in abundance. Four were cases of phthisis in which the disease was either arrested or was improving under treatment, and in them the bacilli were either absent or, if present, were found in small numbers. In one case sections of the walls of a vomica were carefully examined, but no bacilli could with certainty be demonstrated in the pigmented fibrous tissue bounding the cavity. Of the remainder, one was a case of rapidly fatal diphtheria in a child aged three, in which the expectorated membrane was examined, but no bacilli were found. A second was a case of acute pneumonia in an otherwise healthy man of twenty. The sputa were examined carefully on two occasions, but no bacilli were discovered. Three were cases of bronchitis, in two of which the lungs were emphysematous, and in one of which hæmoptysis occurred. In none of these were bacilli detected. One was a case of severe pemphigus in a woman aged sixty-one. The bullae were of large size; some contained clear fluid, others contained pus. Both were examined, but no bacilli were found. One was a case of undoubted tuberculosis in a casualty patient; one sputum obtained while the patient was waiting in the surgery showed no signs of bacilli. It was doubtful, however, whether the expectoration in this case came from the lungs or from the nares or pharynx. Attention was called to an important observation of Dr. Eugene Prideaux, of Wellington, to the effect that in order to obtain satisfactory results, the temperature of the magenta staining should be maintained at 100° F. Dr. Whipple's observations confirmed those of Balmer and Fraentzel, who have examined 120 cases of phthisis (*Berlin. Klin. Woch.*, 1882, No. 45), in all of which they found bacilli, while in bronchitis they found none; that the organisms are abundant in the most acute cases of phthisis, and when the disease is rapidly progressing. Professor D'Espine, of Geneva, however (*Rev. Méd. de Suisse Rom.*, Dec., 1882), only partially confirms the observations of Balmer and Fraentzel, and considers the bacilli valuable in a diagnostic point of view, but of less value in prognosis. Dr. G. A. Heron, at a meeting of Medical Officers of Health, read a paper on the results of an examination of sixty-two cases of phthisis, in all of which he found bacilli. It appears, then, that these bacilli, seeing that they are present in a very large majority of cases of phthisis, can be no mere accidental inhabitants of the sputa of phthisical patients. At

the same time due weight must be given to the statement of Professor Korgangi (*Weiner Med. Week.*, No. 51) that in a case presumably of pulmonary syphilis he found bacilli of tubercle. From Dr. Whipham's own observations, and from the published records of those of others, he was disposed to think that in acute tuberculosis and in exacerbations of the disease that the bacilli were especially numerous in the sputa, and that when the disease was arrested, or the patients were improving under treatment, the organisms were greatly reduced in number or disappeared from the expectoration. The question of contagiousness of tubercle so far has received no solution from the discovery of bacilli, and difficulties of explaining the rapid extension of diseases such as typhus or small-pox, and the comparatively slow march of phthisis, if bacilli are the sole cause of the disease, were pointed out. If the development of bacilli be the sole cause of phthisis it must be assumed that the bacilli lack the virulence which characterizes other bacteria. Otherwise there must be, as rarely happens in zymotic diseases, a large proportion of persons who present a soil unsuitable to the development of the bacilli of tubercle. The other great question of the heredity of phthisis, Dr. Whipham thought was equally inexplicable by this discovery of Koch's and that at present it is no more possible to advance any satisfactory explanation of the fact than before the discovery of bacilli. The following suggestions were made as the results of the observations which have lately been brought under the notice of the profession:—1. That bacilli may, as a rule, be found in the expectoration of persons suffering from phthisis, but that even when the disease is advanced, and rapidly extending, repeated examinations of the sputa may be required for their demonstration. 2. That they are especially abundant in the acute form of the disease, and in the exacerbation of previously existing disease. 3. That in cases where the disease is arrested, or is improving under treatment, they may be absent altogether. 4. That a solution of the questions of the contagiousness or heredity of phthisis is not afforded by the discovery of the bacillus of tubercle.—Dr. Seymour Taylor remarked on the frequency with which acute tuberculosis coexisted with entire absence of physical signs of phthisis. He believed that heredity on one side or other was common in such cases, which frequently begin with laryngeal symptoms. The low temperature might be connected with the bowel lesion, as well as with the albuminuria; for abdominal injuries in animals proved rapidly fatal from shock, and in many cases, (e.g., enteric fever) recovery from extensive bowel lesion was accompanied by subnormal temperatures. He asked whether bacilli had been found in tubercular subjects in other excretions than those of the respiratory tract.—Dr. Samuel West said that Koch's masterly investigation had left little to subsequent observers, save in confirming his results; and his own observations, which he had been making for some months, were entirely confirmatory of Koch's conclusions. 1. He had found bacilli present in every case of phthisis which he had examined, though in some cases they were in such small numbers as only to be found after repeated and very careful examination. 2. The number he had found, as a general rule, to vary with the rate of breaking down of the lung, and therefore, in most cases, with the gravity of the disease. 3. The arrangement of the bacilli in the sputum varied much. At times they were isolated, few in number or many, and very numerous in rapid cases; at other times arranged in groups and masses, and this appeared to be the rule in the most rapid cases. 4. In some instances

the bacilli contained small bright bodies, which had been called spores, and this seemed to be a common condition in acute cases. Similar minute bright bodies were often found free in these cases. It was possible they were free spores; but upon this point there were no observations forthcoming. 5. There appeared to be but little variations in the size of the individual bacilli in different cases. 6. In cavities the bacilli existed in large numbers and usually in masses. It was remarkable that they were not found in the lung-tissue to anything like the extent which would be anticipated. Two cases were referred to in which masses of extraordinary size were found in the cavities, none at all on section after section of the lung, although the characteristic chronic pathological changes of phthisis were well marked. This fact afforded the probable explanation of the variations in the number of bacilli in the sputum; the more cheesy matter or fluid from a cavity there was in the expectoration the more bacilli we might expect to find. Consequently, in a case of acute tuberculosis, before breaking down of the lung we should expect to find none; and we should further look for great and irregular variations from time to time dependent solely upon the amount of cavity-fluid discharged. Dr. West advocated caution in drawing conclusions. The presence, number, and arrangement, as well as the occurrence of spores, were all facts of some value in diagnosis, indicating the kind of process which was going on in the lung; but it was not proved yet that the bacillus was the one absolute test of phthisis. As regards the questions of treatment and of contagion, there were not yet sufficient facts upon which an opinion might be based. However tempting the theory of the contagiousness of phthisis might be in the light of these recent discoveries, clinically it was very far from being proved; indeed, clinical evidence of contagion in any ordinary sense of the term was hardly to be found. The question of the exact relation between phthisis and these bacilli could only be answered by such experiments as those which Koch had instituted; and admirable and apparently conclusive as these experiments were, they would require much confirmation before the conclusions based upon them could be unreservedly accepted.—Dr. Green dwelt on the necessity for many further observations. So far, those of different observers in the main agreed; and assuming the truth of these facts, there appeared to be no ground for separating phthisis into different varieties. Koch's experiments, if not refuted, established the fact that phthisis was a communicable disease. But bacilli were not the only agents in the causation of phthisis; if they were, all who were exposed to the contagion should become tuberculous, whereas the whole of clinical experience was against phthisis being contagious. What the other agent was had yet to be ascertained. Were bacilli the only agent in the causation it was not clear why phthisis should affect so markedly the apex of the lung. Might not that other element render the apex of the lung favorable to the growth of bacilli? And the old view that conditions which favored blood stagnation and exudation also favored the development of phthisis might still hold good. As to inheritance of phthisis, there was transmitted a general feebleness of constitution and some local weakness that laid the subject open to attacks of the disease.

Dr. Burney Yeo said that Dr. Barrow, of Liverpool, had informed him that he had detected bacilli in the urine of a case of tuberculous kidney, and in another case in the lymphatics of the lung. His own observations coincided entirely with Dr. Whipham's remarks, and he agreed with

Dr. Green as to the evidence now at hand in favor of the unity of phthisis. The absence of bacilli was as important diagnostically as their presence; as illustrated by a case under his care at King's College Hospital, which presented the characters of acute pulmonary and general tuberculosis, but no bacilli were found in the sputum after repeated examinations. The patient died, and the lesions of typhoid fever were found with the concomitant bronchitis, but no trace of tubercle. In another case of empyema communicating with the lung no bacilli were found in the pus withdrawn from the pleura, nor in that expectorated. There could be no doubt that the bacillus was one of the agents in phthisis, and as to the contagiousness of that disease, it was a subject which required investigation. He was quite surprised at the large number of affirmative replies that had been received from practitioners to the circular lately issued by the Collective Investigation Committee of the British Medical Association. Upon this question depended points of great practical importance, as in a case recently under his notice of an applicant for life insurance, three of whose sisters had died of phthisis, yet the man in question was in good health, and not one other of his relatives suffered from phthisis. The inference was that the three sisters had acquired the disease. He did not consider that the bronchi were always the channel of entrance for the bacilli, and instanced the fact of the pulmonary disease arising secondarily to intestinal tuberculosis.—Dr. Richardson hoped that the discussion would place the present position of the question plainly before the public and the profession. He thought that exact information was needed as to the way in which germs were supposed to be developed and reproduced; also as to the chemical and physical characteristics of germs and bacilli, upon which he had as yet heard little said. In an experience of over 3,000 cases of phthisis he had endeavored to arrive at conclusions respecting its mode of origin. There was, first, a well-marked peculiarity of physical organization; secondly, certain nervous and mental peculiarities; thirdly, he had found a history of exposure to cold in a large majority of cases. In one case he was in the company of the patient, and was exposed to the same chill that started in her an illness which rapidly assumed the character of phthisis and ended fatally. He showed a series of drawings of lungs from animals killed by nitrite of amyl. The earliest condition was one of striking pallor; a later state was that of intense congestion with hæmorrhages, the apices of the lungs being always affected; whilst in cases where the animals had recovered from the immediate effects, and had been killed later, actual excavation was found. These were changes not unlike those of phthisis produced by the operation of an agent which acted in a manner like a chill did upon the pulmonary vessels. He had never known any case which seemed to him to suggest the theory of contagiousness. He had known cases of phthisis attacking many members of one family, even simultaneously, but never under circumstances which supported the view of contagion. Were this doctrine true one would expect to see, in families predisposed to phthisis, frequent instances of extension from one to another. He had never seen such. He strongly held to the fact of the hereditary transmission of phthisis, and could not see how this agreed with its accidental origin by taking bacilli into the body.

At this point the debate was adjourned until Feb. 12th.

A meeting of this Society was held on February 12th, Mr. Francis Mason, President, in the chair.

Dr. C. T. Williams continued the debate on the Relation of Bacilli to Tuberculosis. (His remarks appear in another column, p. 430).—Dr. Heron said that the bacillus had now been found in many organs, and in the living subject, in the sputum, in the urine, in an ulcer of the tongue, in lupus, and in an unopened knee-joint. He had found the bacillus himself in fifty-four cases of phthisis, and he believed that practically it would always be found in cases where physical signs of phthisis existed. But in some of these cases the physical signs were so slight that he should have hesitated to make a diagnosis without the aid of the bacillus. As regards prognosis, he believed a few bacilli betokened a chronic course; a large number and persistence of them indicated a rapidly fatal course. The same results had been obtained by Balmer and Fraentzel. In rapidly sinking cases the bacilli were found in large numbers, often grouped into masses. This grouping indicated an unusually rapid course, and in one or two cases it had preceded by a day or two an aggravation of the symptoms. Some observations appeared to show that the bacilli might appear before physical signs were manifest. In some cases the bacilli, which had been present in moderate amount, had disappeared from the sputum for several weeks. In such cases he thought that the patient might be considered to be in a fair way of recovery. Heredity he had found to exist in 30 per cent. of his cases at Victoria-park Hospital during four years.—Dr. Heneage Gibbes directed attention to two points: first, the difference in the structure of miliary tubercles in the lungs and the relation of the bacilli to those of different forms; and, second, the presence of bacilli in the smallest or commencing tubercles. He showed specimens of the two forms of miliary tubercle from cases which had run a very similar clinical course, and in which the naked-eye post-mortem appearances were very similar. Microscopically the tubercles in the one specimen were of the reticular form, consisting of a distinctly fibrillated structure with one or more giant cells and a caseous mass in the centre. In the other specimen the tubercles were non-reticular, having no fibrillation, no giant cells, but consisting of irregular cells in the periphery and a caseous mass in the centre. In the one form the surrounding vesicles contained catarrhal products, in the other fibrinous exudation. He had examined a large number of lungs affected with the reticular form, and had only succeeded in finding bacilli in three cases, and these in small numbers, distributed through the reticulum. In the non-reticular form, however, he had invariably found bacilli in large numbers in the caseous centre. Dr. Gibbes also pointed out that the bacilli were to be found in the smallest tubercles. A lung may be stuffed with tubercles, each one containing thousands of bacilli, and yet the patient will die before the destructive process has gone far enough to cause any of them to be ejected with the sputum. Thus there were two forms of fatal tuberculosis in which no bacilli could be found in the sputum; and he could not agree with Dr. West that little remained to be done on the subject. On the contrary, he felt sure that the threshold of the inquiry was only reached, and that it would require long and patient investigation before the relation of the bacilli to tubercle is fully determined. He added that he had examined the lungs of guinea-pigs which had become tuberculous after being kept in the air shafts of the Brompton Hospital, and had found no bacilli in them; and he knew of an instance in which a guinea-pig inoculated with sputum from a case of phthisis presented a glandular abscess in the thigh which abounded in bacilli, whereas the external organs, although full

of tubercles, did not yield a single bacillus.—Dr. Broadbent remarked on the number of views of the pathology of tubercle and phthisis that had been in turn presented to the profession. He himself had held that phthisis was one disease, and that that disease was inflammatory. We were now looking not for a particular histological element, but for a particular irritant to start the inflammation. There were still difficulties in accepting the bacillus as the universal cause of the process. One difficulty was the fact that the disease remains for so long a period limited to one lung. The question of the communicability of phthisis was not in any way affected by the discovery of the bacillus; and he thought that the issue of a circular on this subject by the Collective Investigation Committee was an injudicious step. He believed that the replies would be largely dictated by imagination, and unless the Committee were to go behind the evidence and estimate the value of each communication, the work of the Committee would be seriously discredited. He had found better results from disinfectant inhalations in phthisis than Dr. Williams had. The bacilli were, as Dr. Gibbs had pointed out, beyond the reach of inhalations, but the cavities must contain putrid matters, which it would be an advantage to disinfect.—Dr. Drysdale said that he had repeated Villemin's experiments on inoculation of tubercle with fatal result to the animals employed; but he was not satisfied that the lesions produced were tubercle. He had for several years sought diligently for a case of transmission of the disease among his phthisical patients, but had failed to find one. In more than one-half of private patients heredity was present; but it was difficult to obtain trustworthy family histories in hospital cases. He had found no good results from antiseptic inhalations.—In reply to the President, who asked whether in the case of the guinea-pig with glandular abscess the pus containing bacilli had been taken from the interior of the gland or from the surrounding tissue, Dr. Gibbs said it was from the interior of the gland.

Dr. Whipham, in reply, pointed out that the bacilli had been found in the urine in cases of tuberculous kidney, in the spleen, and in a closed suppurating knee-joint. The undisturbed position which bacilli needed for their development seemed eminently afforded by the apices of the lungs, which might explain the selection of that part as the starting-point of phthisis. In two cases, the one related in his paper and another, the bacillus was demonstrated before physical signs appeared.

CLINICAL SOCIETY OF LONDON.

The Period of Infectiveness of Scarlet Fever.

THE ordinary meeting of the Society was held on Jan. 26th, Dr. Andrew Clark, President, occupying the chair for the first since his election. There was a numerous attendance, and the proceedings commenced by the delivery of an earnest, eloquent, and spirited address by the President, who, on the motion of Dr. Glover, seconded by Dr. Day, was formally thanked for his address and requested to have it published in the Transactions of the Society. The rest of the evening was occupied by a paper by Dr. Longhurst, which attempted to prove that scarlet fever was infective in the pre-eruptive stage, but not in the stage of desquamation. It was generally felt, however, that his facts were too few and inconclusive to warrant a deduction which, as more than one speaker emphatically pointed out, was a dangerous one to advance. An interesting case, believed by the exhibitor to be an early condition of osteitis deformans, and showing

also the remarkable state described as "spondylitis deformans," was exhibited by Dr. Lediard, of Carlisle. Cases of scleroderma were shown by Dr. S. West and Dr. Goodhart respectively. Mr. Shuter exhibited a patient upon whom he had performed subperiosteal amputation at the hip-joint.

Dr. Longhurst read a paper on the Activity of the Infective Power of the Poison of Scarlet Fever during the Pre-eruptive Stage of the Disease. He said that in a short paper on the Infection of Scarlet Fever, in *THE LANCET*, in 1877, he expressed a belief that the period of greatest activity of the fever poison was in the early stage of the disease. Extended observation has strengthened that belief, and it is borne out in the cases reported, which seem to encourage a line of investigation in connection with the study of acute specific diseases advocated by the late Dr. Murchison in a paper on the Period of Incubation of Scarlet Fever and the probability that they may be transmitted even during the stage of incubation. Case 1 supports such view, and forcibly demonstrates that the fever poison is not absorbed by, nor developed in, all persons with the same rapidity and activity, and that possibly even during the stage of incubation the poison may be passed on from one member of a family to another, the latest case having little, if any, direct relation to the first, but being due to the further development of the poison through fresh systems. Cases 2, 3, and 4 all point to the activity of the fever poison in the very earliest stage, whilst Case 4 is especially interesting as proving that the long isolation and confinement still enforced by some are not always necessary. It is most important that a belief in the activity of the infective power of the fever poison during the very earliest stage, possibly also during that of incubation, should be generally accepted; for then, instead of risking the spread of the disease by scattering at once the members of a family, forming new and fresh centres of infection, ought we not rather to be content with isolating the sufferer in his own house, or removal to the hospital, according to circumstances, and with rigidly adopting all sanitary precautions? If also we admit the activity of the fever poison to be in the earliest stage rather than during the stage of desquamation, as still held by some, then we could feel that the long period of isolation and confinement of two or three months, as still in the opinion of many is deemed necessary, may be safely shortened, to the very great relief of both the sufferer and his family.—Dr. Broadbent said that before evidence of this kind could be accepted of the contagious power of the fever in the pre-eruptive stage, there must be proof that the other children were not exposed to the same source of infection as the first was; but amongst a number of children this exposure to the same source of contagion was very likely to occur. Until we have cases occurring alone, and exposed only to a case in the pre-eruptive stage, the point could not be proved. His own experience was that even where two children slept in the same bed until the eruption came out on one of them the other might escape, and that some children were more susceptible to the poison than others. It was different with regard to measles, which, he had no doubt, could be communicated in the preliminary catarrhal stage. He had seen both in measles and mumps children sent away from a house where these diseases occurred going to a family at a distance and communicating the disease, although they did not present the symptoms until after their arrival. No such exposure in the early stage of scarlet fever sufficed to transmit the disease. He would agree with the author as to the danger of sending away other children as soon as one case occurred. At

the Fever Hospital, although every possible precaution is taken to disinfect the clothing and persons of children on being sent home, even at long intervals of six or eight weeks, others have been infected.—Dr. B. O'Connor remarked that it would have been interesting if the infection in the cases related had been traced to some articles of diet, as happened in the Kensington epidemic a few years ago.—Dr. Gilbert Smith said an important detail is the length of the period of incubation. In an orphanage with which he was acquainted a child returned from a stay in London, and next day had a scarlet fever rash. The same nurse attended to the other children, who next day had sore-throat, showing that incubation in these cases occurred within twenty-four hours. Dr. Smith, of the Fever Hospital, had informed him that if the disease had not appeared within seventy-five hours of exposure it would as a rule not appear at all.—Dr. Glover thought the Society should by no means accept the conclusions of the author, because of their grave public importance. Isolation of cases was a common rule, and anything tending to destroy faith in it would be disastrous, for in the later stages scarlet fever is very seriously infectious. At this very time the author of the paper would send patients away to communicate the disease far and wide.—Mr. Jessett said that the most important part of the paper was the very early stage at which the author sent patients out of town. It was far too soon to send them away at the end of three weeks. During the stage of peeling the disease is the most infectious. He mentioned a case where contagion occurred through a patient going to a calico ball, thirty or forty people being infected. He could confirm what had been said by Dr. Broadbent as to the infectiousness of measles in the catarrhal stage.—Dr. Eastes said that in 1866 he had scarlet fever, and a brother came to see him and contracted the disease, returning to school, where fourteen other boys slept in the same dormitory. The rash appeared next day, and he was isolated. Not one of the other boys took it. At a school in the country a child was taken ill with others, and all precautions were observed. At the end of six weeks she went home, and the other children in her house became ill.—Dr. Black gave an instance of infection of measles in the catarrhal stage. A pupil of his one day was suffering from severe catarrh, and next day presented the rash of measles. A short time after (fourteen days) his own two children developed measles, apparently from his having himself conveyed the disease from his pupil.—Dr. Duckworth said there was much misunderstanding as to the period at which scarlet fever cases should be sent away, and a rule was required which should be applicable in all cases. His own plan was that the patient should be kept under the blanket for at least three weeks, and confined to his room for eight or ten days later; and if this were inflexibly carried out we should hear very little of renal complications and other troubles. It was a sound, practical, working rule, which should be enforced even in the mildest cases.—The President said there was no question of the importance of the subject. The writer had not proved his position, for he had failed to show that the children were not exposed to the action of the same poison. As to the time at which a patient should be removed, he held there was no reasonable safety within six weeks; no perfect safety within seven. Some years ago he had scarlet fever in his own house and was called to Scotland. He declined to go, but the idea of any risk was ridiculed, and he was again urgently summoned. He waited for six weeks and went, when, within a week of his arrival, scarlet fever broke out in the place.—Dr. Longhurst, in reply, said he had ex-

pected severe criticism. He admitted that he had been unable satisfactorily to trace the source of infection in the cases, and that all might have been infected from the same source; but as all occurred within a week, it proved that there is infectivity in an early period of the disease; and his main contention was, that infection is during the early stage rather than in the stage of desquamation. In estimating the probable period of incubation, one was apt to be misled by infection from clothes and surroundings.

Subperiosteal Amputation of the Hip.—Nephro-Lithotomy.—Urinary Test Pellets and Papers.

The ordinary meeting of this Society was held on Friday, February 9th, Dr. Andrew Clark, President, in the chair. There was a large attendance of members, and the communications read all excited much interest. Although there was doubt expressed by some as to the presence of new-formed bone in the stump of Mr. Shuter's patient, all agreed that the result obtained by the amputation was remarkably good. So far as mere operative surgery is concerned, the successful removal of the enormous stone from the kidney, shown by Mr. Bennett May, may certainly be called a triumph of surgery, such as could hardly have been anticipated by the earlier operators upon the kidney. Not less interesting than these two striking cases were the demonstrations in urinary testing by Drs. Pavy and Oliver, and while both methods were obviously practical and admirable, it was evident that Dr. Oliver's tiny test papers were more quickly used than Dr. Pavy's pellets, and equally accurate.

Mr. Shuter read a paper on Subperiosteal Amputation at the Hip-joint. On Oct. 16th, 1881, the author had a consultation with Dr. Samuel West and Mr. Rose on a male patient aged eighteen, in whom he diagnosed acute necrosis without suppuration in the lower end of the left femur. This had led to septicæmia and secondary inflammation of the left hip-joint. Although the diagnosis was not supported, it was agreed that nothing but amputation at the hip-joint would save the boy's life. The next day the following operation was performed. A circular amputation through the junction of the middle and upper third was done, followed by a longitudinal incision on the outer side of the femur down to the bone, the periosteum stripped off and left in the flaps, and the whole of the bone enucleated. The patient made a good and rapid recovery. A little more than two months after the operation he had a movable stump, and within six months of the operation he was wearing an artificial limb, on which he could get about very satisfactorily, and continued to do so until a few weeks ago, when the use of this was discontinued in order to allow a sinus to heal. In 1859 Professor Ollier, of Lyon, after performing many experiments on the lower animals, devised subperiosteal operations on the human subject with the view of obtaining bony support to flaps cut for disarticulations. Among his suggestions was an operation similar to the one Mr. Shuter performed on the hip-joint. This case, however, is the first successful periosteal amputation at the hip-joint which has been attended with the formation of bone in the stump, and in which the patient has been able to wear an artificial limb satisfactorily.—Mr. Bryant congratulated Mr. Shuter on the success of his case. The stump was certainly good and very firm. He differed from Mr. Shuter, however, as to there being bone in any quantity present. There might be microscopical portions of bone, but practically he thought there was none. The leaving of the periosteum gave the muscles a

firm attachment. The operation was first cousin to, if not identical with, the operation suggested by Mr. Furneaux Jordan. In many cases, he thought, the periosteum could be preserved, but in others it could not. In such a case as Mr. Shuter's it was easy to separate the periosteum, as the bone was inflamed. But in many cases needing amputation at the hip-joint for tumour it would be impossible to separate the periosteum. Mr. Shuter's stump was, he must say, the best result he had ever witnessed after this amputation.—Mr. Croft said that this case was comparable to a complete excision of the hip-joint subperiosteally, which had been said to be impossible. He asked Mr. Shuter how he peeled the periosteum from the great trochanter, which at this age was ossified to the shaft. It was evidently most desirable to save the periosteum in amputation at the hip-joint where possible. He thought there was some bone in the stump, making the stump a very good one.—Mr. Barker referred to a precisely similar operation published by himself last month in the *British Medical Journal*, in which the result was exactly the same. The operation was performed in February, 1881, and the patient had an excellent firm movable stump with a solid axis of bone. In this case the exarticulations of the bone was done subsequently to the division of the soft parts. The disease was suppurative of the hip-joint.—Mr. Cripps thought there was no new bone produced in the stump. Twice lately he had assisted at amputation of the hip-joint by Mr. F. Jordan's method; but it seemed to him to prolong the operation very greatly, and so to detract from the safety of it. Mr. Jordan recommended his method because of the ease of controlling hæmorrhage, but the introduction of Davy's lever had lessened the value of this argument. The value of rapidity in this operation was certainly great.—Mr. Pick said that, anyhow, Mr. Shuter's patient could wear an artificial limb, which was a matter of the gravest importance. He had lately attempted, unsuccessfully, to invent an artificial limb for a case of amputation by the old method, which left the patient very painfully mutilated and forced to go about with crutches only. No artificial limb had yet been devised for these stumps, and Mr. Shuter's result was, therefore, a very gratifying one.—Mr. Howard Marsh proposed that the case be referred to a committee, with a view of determining whether there be any new bone in the stump, and the way in which the man used the artificial limb, whether he moved it at the hip or only from the spine. He had seen Mr. Davy's lever used many times, and it had always been efficient, and so he thought the prime object of Mr. F. Jordan's operation was attained by it, but he had performed it twice, and found it much more tedious than the flap method.—Mr. Butlin thought that it was impossible to amputate subperiosteally by the flap method. He certainly believed there was bone in this stump, which was a much better one than was usually seen after this amputation.—Mr. Barker said that in his case there was no bone left behind at the time of the amputation.—Mr. R. Davy thought the subperiosteal method caused less injury to the deep structures of the limb than any other. At the Surgical Aid Society they had been quite unable to devise any artificial limb which could be usefully adapted to the stumps left after hip amputations. He now had to record a misfortune in the use of his lever. It occurred at the Westminster Hospital in an amputation of the right hip in a man aged forty. He himself applied the lever, and noticed nothing untoward at the time. That evening peritonitis came on, and next day the patient died from peritonitis; at the autopsy a small linear rent was found in the

rectum. He had used the lever himself eighteen times, three times since this accident, and had not lost his confidence in it. Altogether he knew of forty cases in which it had been used, twenty on the right side, and in these cases there had been 65 per cent. of recoveries. The case recorded was the thirtieth. The lever was used with all care, and the accident was caused by shortness of the meso-rectum, which was demonstrated after death. He had been present at seven autopsies after the use of the lever, and in no other than the one recorded had there been any evidence of injury to the rectum.

At the President's suggestion Mr. Shuter's patient was here brought into the room with his artificial limb on, and he walked round quite firmly and easily, demonstrating that he could not only wear, but use, the limb. The man stated that he could walk some distance with it.—Mr. Morrant Baker had had three successful cases of amputation at the hip-joint, but in neither was the stump so good as in Mr. Shuter's. He attributed this result to the very long skin flaps, rather than to the subperiosteal method employed. He thought there was actually bone in the stump, but that it was of secondary importance.—Mr. Morris believed that the man walked with motion between the stump and the pelvis. He thought that the subperiosteal method did not add to the difficulty of the operation. Only two days ago he had operated on a boy with disease of the upper end of the shaft and of the femur, and he quite readily separated the thickened periosteum from the bone.—Mr. Clement Lucas thought the case was of sufficient importance to be referred to a committee. In his opinion the bone in the stump was very small in amount, if present at all, and he thought that the excellence of the stump was rather due to the stripping off of the muscles in their normal connection with the periosteum.—Mr. Shuter stated that since his case he had assisted at a similar operation, where three months afterwards the man died, and in that instance a mass of bone was actually found in the stump after death; he therefore came to the conclusion that there was ground for asserting that there was bone in his own stump. The operation was really devised by Ollier in 1859, and not originally by F. Jordan. In his case he did not remove the periosteum from the great trochanter. In the case he assisted at afterwards, of a man aged thirty, the periosteum was removed from the trochanter without much difficulty; the only difficulty was in starting the stripping of the periosteum. He thought the man could move his artificial limb forwards or backwards by the stump itself.—Dr. A. Clark said that in the discussion three questions had been raised:—(1) as to the structure of the stump; (2) as to the mobility of the stump; (3) as to the relative value of the three methods. He nominated Mr. H. Marsh, Mr. Clement Lucas, and Mr. Croft as a committee to investigate these questions and report to the Society.

Mr. Bennett May (Birmingham) showed a patient from whom he had removed a large Stone from the Left Kidney (calculus shown). The case closely resembles that of Mr. Henry Morris, which was the first of the kind, and was communicated to that Society in November, 1880; as also the subsequent cases by other operators, all of which had been discussed there. It showed an advance in point of size and weight of stone removed, this being three inches long and an ounce in weight. The patient, a coal-miner, thirty-four years of age, had his first symptoms of the disease when sixteen, in the form of severe and characteristic pain in the left loin, which, after recurring several times during the next few years, completely left

him till twelve months ago. During the interval, blood constantly appeared in the urine after exertion, and this, together with a permanent, ropy sediment, left no doubt that a stone was present in the kidney all the time, and slowly growing there. In November, 1881, pain returned with great severity after a hard day's work, and since then he could only live in comfort by avoiding every exertion. A fast walk, rough work, or drive in a conveyance brought on an attack of renal colic, which, beginning with rigor and sickness, was attended with severe pain in left loin, radiating down the course of the ureter into the testis and thigh, and after lasting six or seven hours was followed by copious hæmaturia and frequent micturition for the next day or two. There was frequent turbidity of the urine from pus and phosphates; but the amount was subject to frequent aggravation. The existence of a stone in the kidney was diagnosed by his medical attendant, Dr. Hartill, of Willenhall, at whose instigation he came to Queen's Hospital for an operation. While here, an examination of the loin and abdomen showed complete absence of any tumour or difference on the two sides, or tenderness on pressure and palpation; but the act of stooping was a source of great local pain. He seemed in fair health, but expressed his life as being unbearable, owing to the impossibility of earning his living. His symptoms, with the exception of slight turbidity of urine, being nearly all in abeyance, he was got to do some fast walking, which brought on one of his attacks, and on the following day he voided, *per vias naturales*, a small calculus, too small, however, to be regarded as the source of his troubles, or the growth of eighteen years. The operation was performed October 20th, 1882. The finger failed to make out a stone, but acupuncture detected it at once. The kidney substance was incised in a vertical direction until the wound appeared large enough to permit the extraction of the stone, which was accomplished by a scooping action of the forefingers and gentle traction on its smaller end. Bleeding of a venous character was profuse, but controlled by pressure. The parenchyma of the kidney appeared healthy; there was no appearance of pus or a thickened sac, and the cavity, after removal, was felt to be free from fragments. For the first twenty-four hours there was intense pain and some shock, and the urine contained much blood. On the following day urine began to flow through the lumbar wound, but it ceased entirely on the twenty-first day. The wound healed by the fifth week, never showing any tendency to the formation of a urinary fistula. At the beginning of the second week there was a slight attack of pleurisy with effusion on the same side, not septic, probably diaphragmatic, and due to contiguity of tissue. He had quite recovered from it at the end of another week. The urine had slowly returned to a nearly normal standard; blood-staining disappeared after four or five days. The latest report (Jan. 31st) is that it is still opalescent and turbid, with small quantity of pus and phosphates. He had tested his recovery by active exercise and numerous rides by rail. He feels perfectly restored to health, and free from pain, and fit for active work. The diagnosis was not very difficult to establish, the symptoms being sufficiently distinct from those of stone in the bladder. The only embarrassment resulted from his voiding a stone two days prior to operation, but the patient himself experienced no relief in consequence. It was found convenient, during the operation, to divide the edges of both erector and quadratus muscles. The kidney fell forwards, and by its recession when touched increased the depth of the wound to something considerable; and it was perhaps owing to this cause

that the stone could not be palpated. The fingers, retained in the wound of the kidney whilst being made and during extraction of the stone, acted as a plug, and arrested bleeding, which would otherwise have been very profuse. The principal feature of interest was the question of completeness of ultimate recovery, and of restoration of the kidney as a healthy working organ, after the infliction of such severe injury by the presence of so large a stone and by the operation. From the state of the urine for a long time there must have been some degree of pyelitis, but there was no visible destructive change at the time of operation, and to that fact, which has been pointed out in the discussions of this Society, his recovery, was no doubt due. The stone appeared to consist largely of a crystalline phosphate of lime, but it probably contained one or more nuclei of oxalate.

Mr. Howse had performed this operation ten days ago on a case different from Mr. May's. The stone weighed twenty-six grains, consisting of oxalate of lime. The patient was a sailor, aged fifty-six. Six years ago he had sudden severe pain in the right loin, passing down into the thigh, accompanied by vomiting. The pain suddenly subsided, and next day he passed sand. About every seven months he had had another similar attack up to two years ago, when the pain became constant, and since then he had not passed any sand. He complained of continual forcing pain in the right loin and a feeling of needles running into his right kidney. The pain did not run down into the thigh. There was a tender spot in the right loin. The urine was free from crystals; no blood, mucus, or albumen. Mr. Howse cut down on the kidney, making a transverse and vertical incision. The finger felt the front of the kidney, also a small stone; behind he could not feel it, and it was therefore important in all such cases to examine the kidney from the front, with the organ firmly supported by the psoas. He found the lower end of the kidney, grasped the calculus with his finger and thumb, tore the kidney with a director, and extracted the stone. The temperature had once since risen to 102°, but was then 99°. The man was doing well; the urine was draining freely from the wound, but was quite sweet.—Mr. Clement Lucas remarked that hitherto the cases published had been those of small stones with healthy kidneys, and of large stones with destruction of kidney. The real distinction was to be made between cases of stone in healthy kidney and stone of any size in degenerate kidney. He thought it very important in these cases to explore the kidney from the front against the resisting psoas muscle.—Mr. Butlin said that the stone removed by Mr. Bennett May was enormously larger than any other yet recorded. He had recently heard from his patient whose case he recorded before the Clinical Society last year, and he was quite well; he had had an attack of gravel, in which the symptoms all pointed to the affection of the other kidney. He could not agree with Mr. Barwell in thinking that in all these cases the kidneys should be excised as being diseased organs; this should only be done where the organ was obviously disintegrated.—Mr. Morris asked Mr. Howse whether he would advise his operation in all cases in which he had to cut down upon the kidney for exploration. He thought it added greatly to the difficulty and danger of the operation, and that if the loin were well propped up, and the kidney supported by an assistant, the kidney did not fall forwards away from the hand. In two cases he had recently explored a kidney, and had not found a stone. After these operations, and a similar one since that he had seen, recovery followed without any difficulty, and in one

of them, at any rate, benefit followed. He suggested that this improvement might be due to the cicatrization of the wound giving the kidney greater fixation than before.—Mr Bennett May thought that it still remained to be ascertained whether the kidney in these cases completely recovered and became a useful organ. In his case it would have been hardly possible to explore the front of the kidney, as the wound was so deep. Abdominal pressure did not fix the kidney, as Mr. Morris had suggested.

Dr. Pavy demonstrated a Test for Albumen in the Urine, by the use of Ferrocyanide Pellets. The convenience of the cupric test pellets for sugar had convinced him that it would be very desirable to have similar pellets for detecting albuminuria. Metaphosphoric acid was a good test for albumen, but he failed to get a satisfactory pellet. Ferrocyanide of potassium and acetic acid had been long known as one of the very best tests for albumen. He had replaced acetic acid by citric acid, which acted as well, and the potash by the sodic ferrocyanide. The pellets were made of citric acid and sodic ferrocyanide only. For use the pellet must be crushed, dropped into a test-tube, and the urine poured in to the height of one inch, and shaken, and if albumen be present a precipitate is at once formed, and by allowing it to subside its quantity could be measured. It acts equally well in alkaline and acid urine, and phosphates do not interfere with it. Urates must be redissolved by warming the urine before adding the pellet. If a pellet were dissolved in a small quantity of water, and urine carefully poured down the side of the test-tube on to the solution, a ring of precipitate appeared at the line of junction of the two fluids if albumen were present, and on agitation and mixing the fluids this precipitate was increased.

Dr. Oliver (Harrogate) showed his Test-papers recently described in our columns; he had six specimens of healthy urine, and six specimens of urine containing from .75 to 1 per cent. of albumen; by simply dropping the papers into the twelve tubes, the latter six were at once distinguished by the formation of a white cloud, or a white flaky precipitate. He stated that he had also devised test-papers for the detection of sugar.

Two cases of Pseudo-hypertrophic Paralysis affecting two adults (brothers) were shown by Dr. J. K. Fowler. Also a case of Fracture of both Bones of the Forearm, in which Mr. Godlee had excised the lower end of the ulna.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held on Jan. 11th, 1883, Mr. B. Walker, President, in the chair.

Excision of Wrist.—The Pathological Committee presented its report on the specimen exhibited by Mr. Favell at the meeting on Dec. 7th. Amputation had been performed in the lower part of the forearm in a case in which excision of the wrist had some time previously been done. The report described the dissection of the specimen, which revealed caries of the metacarpal bones of the index and middle fingers and of the lower end of the radius. The flexor tendons of the wrist were somewhat matted to the surrounding structures, whilst the extensor tendons, some of which had evidently sloughed away, were still more firmly fixed.

Intussusception.—Dr. Sinclair White related the particulars of this case. The patient, a boy, aged five, was admitted into the Public Hospital, on Dec. 14th last, with most severe scalds of the buttocks and thighs. There was also slight bronchitis. There was no collapse, and the child was

comfortable through the night and next day until 5.30 P.M., when vomiting and purging commenced. This continued, and he became collapsed and died at 7.30 the same evening. The post-mortem showed an intussusception of the small intestine at the junction of the jejunum and ileum two inches long. There were no inflammatory signs observed, and a full-sized catheter could be passed through the invaginated portion. Dr. White suggested as queries, Was the intussusception the cause or the result of the vomiting? or, Was it produced about the time of death?

Sarcoma of Femur.—Mr. R. J. Pye-Smith showed the knee, etc., which he had amputated the day before on account of a tumour about the internal condyle. A. H.—, a lad, aged nineteen, had had slight pain in the right knee for three or four months, and for six weeks the inner side of the knee had been enlarging. He had kept at work as a glass-moulder, which involved his kneeling constantly, till he came to the Sheffield Public Hospital and Dispensary three days ago. There was a firm, smooth, tumour, as large as a fist, growing apparently from the inner condyle. It was slightly tender, but not red, and it did not pulsate. The inguinal glands were not enlarged. On admission an exploratory incision was made, and some small pieces of a soft, tumour mixed with bone were removed for examination. They consisted of very variously shaped large cells, without any well defined arrangement. The limb was amputated next day in the middle of the thigh. On making a section of the tumour, together with the femur, the lower end of the shaft was found to be slightly enlarged, and infiltrated with a soft, pale material, which invaded to a small extent the epiphysis also. The inner wall of the bone was replaced by a blood-stained growth, nearly as large as an adult fist, made up of a loose, bony framework, containing small nodules of soft brainlike tissue; it was not encapsuled. It seemed evidently a malignant growth, corresponding with cases formerly described as encephaloid, but classed as sarcomatous by more modern authorities. The specimen was referred to the Pathological Committee for examination.

Case of Pericarditis with Effusion.—In brining forward this case, Dr. Martin referred to the insidious onset of the disease, and to the fact that it had only been preceded by rheumatic shoulder pains, so trivial as to escape the patient's attention. There was no further personal history of rheumatism, nor, indeed, any in the family history. The patient, aged twenty-nine, formerly a wine and spirit merchant, was a well nourished and well developed man. He had taken freely of alcoholic drinks. Dr. Martin had first been consulted on January 5th this year. The patient had just changed houses in consequence of the dampness of the one he had left. For some time he had experienced a cough and dyspnoea, and for ten days before the date mentioned he had not been able to lie down, and had suffered from sleeplessness. Now the heart's dulness was found greatly enlarged, being five inches and a half vertical by six inches horizontal; no displacement of point of impulse. A double friction murmur was heard at the heart's apex, and well round into the axilla. There was no elevation of temperature; the treatment adopted consisted in the application of a blister and the administration of digitalis with the iodide and bicarbonate of potassium. Recovery was rapid. On January 11th the dulness over the heart had receded to three inches in the vertical and four inches and a half in the horizontal direction. Friction sounds were diminished. Dr. Martin laid great stress on the point that we may have inflammatory affection of the great serous.

membranes, which must be regarded as a local manifestation of the gouty or rheumatic dyscrasia and not as idiopathic disease. An interesting discussion took place connected with the points raised and as to the benefit to be derived from blisters, in which the President, Drs. Law, Dyson, Gwynne, and Davies, and Mr. Pye-Smith joined.

A meeting of this Society was held on Jan. 25th, 1883, Mr. B. Walker, President, in the chair.

Mr. R. J. Pye-Smith related notes of a case of Injury to the Knee, with Rupture of both Crucial Ligaments. G. W., a cabman, aged fifty-three, was admitted to the Sheffield Public Hospital on Dec. 25th, 1882, having twisted his right knee in falling from his cab. There was considerable lateral mobility of the joint and it contained some fluid. Pressure was applied by means of an elastic bandage over cotton-wool, and the swelling subsided, leaving extensive ecchymosis. Pneumonia soon developed at the right apex (the patient had been drinking heavily for six months past), and was fatal on the eighth day after the injury. Post mortem the internal lateral ligament and both crucial ligaments were found to be completely ruptured, the latter close to their femoral attachments. The central part of the cartilage of the patella was crushed into fibres, so as to present a plush-like appearance. The joint contained a few small clots of blood. The injuries to the ligament seemed to point to forced eversion of the leg at the knee as their most probable cause. Extreme rotation of the leg inwards might possibly have produced them. There was no dislocation of the joint nor injury to the popliteal vessels. The upper lobe of the right lung was in a state of red and grey hepatization.

Mr. G. S. Taylor related the particulars of a case of Malignant Polypus of Uterus. The patient, aged sixty-four, had been under treatment for nine years for attacks of profuse uterine hæmorrhage, which lasted for a few days or few weeks, and she died three days after the last attack. She menstruated at eleven years, married early, and had three children, the last forty years ago. There was always a great loss at menstrual periods, and no climacteric cessation. No pain was experienced, and the discharges between the hæmorrhages were never offensive and mostly watery. Attempts to explore the uterus brought on excessive bleeding. No growth ever descended through the canal of the cervix. After death the abdomen was opened and the uterus examined; it was five inches and a half long; outer surface smooth, presenting several cushioned projections; the os soft and patulous. The cavity was occupied almost entirely by a mass somewhat like placenta, and showing large vessels attached to the fundus and bathed in soft medullary matter. The uterine walls were considerably thickened from infiltration which in places formed nodules. Both ovaries were firm white masses, each the size of a pigeon's egg. Under the microscope sections of the growth, the walls of the uterus, and the ovaries exhibited the characters of medullary carcinoma. Mr. Taylor considered this to be one of those rare cases mentioned by West, Simpson, and a few other writers, in which a polypus of malignant structure grows from the interior of the uterus independent of previous disease of its orifice. The points of interest were the almost total absence of pain, the character of the discharge, and the long continuance of the disease.

Dr. Martin read a paper on Questions as to the Nature of Fever Poisons. Having reviewed some of the older theories as to the nature of the infective matter, he went into the germ theory, and broached the view that the phenomena of fever, be

the special form what it may, are not produced by the mere presence of germs as germs, but that they are due to the presence of some toxic product, dependent upon the existence, growth, and waste of different species of germs in the systems of the patients affected. This product may be an excretion, or possibly a secretion, excreted or secreted by the germ. What its clinical nature may be Dr. Martin does not profess to know; possibly it may be alkaloidal in its constitution. He drew attention to Pasteur's experiments with the chicken cholera bacterium, when, with the fluid freed by careful filtration from the presence of germs, he obtained by inoculation toxic and narcotic effects similar to those observed in the disease itself. Dr. Martin disagreed with M. Pasteur's conclusion, that because the effects were only slight and transient, therefore it could not be said that the disease was due to a poisonous product apart from the germs themselves. The toxic product, whatever it is, could not propagate itself and was soon cast out; but when the germ is living and multiplying there is a constantly increasing supply. Dr. Martin pointed out a fact that had come to his knowledge after his paper had been written, that Pettinkofer foreshadowed this view in connection with the subject of cholera.

At the meeting held on Feb. 8th, 1883, Mr. B. Walker, President, in the chair, the Pathological Committee presented its report on Mr. Pye-Smith's specimen of tumour of femur, exhibited at the meeting on Jan. 11th. The opinion expressed was that the growth was sarcomatous; it consisted mainly of cells, varying a good deal in shape and size, but in most parts corresponding pretty much with those of a large round-celled sarcoma, together with a well-marked stroma of homogeneous structure surrounding most of the individual cells.

Mr. Walker related the particulars of a case in which a silver plate with two artificial teeth attached passed per rectum. The patient, a woman aged forty-two, applied at the Rotherham Hospital on July 22d last, stating she had swallowed her false teeth and that they were sticking in her throat. On examination, however, with the finger they could not be felt. On July 26th the plate and teeth attached were passed per anum. Mr. Walker exhibited the plate; it measured across about seven-eighths of an inch, and on either side was a fine hook.

Mr. Snell exhibited photographs, and gave particulars, of a case of Extensive Scarring of an Infant's Face from Injuries at the time of Birth. The child had been brought to him at the General Infirmary last summer, when it would be about three or four months old, as the mother wished to know if the condition of the eyes could be improved. There was ectropion of both upper eyelids, especially the left, which exposed a good deal of conjunctiva. In addition to this, however, the forehead was seamed almost all over with cicatrices, which also ran over the nose, the point of the latter being puckered in, etc. On the left cheek was a large semicircular scar running from the nose to the mouth, but the right cheek was the most affected, and the right auricle seemed in a great measure destroyed and tied down by the surrounding cicatrix. The surface of the head was scarred also, and the condition here and in other parts was described in detail. The only explanation offered for this condition was that given to Mr. Snell by the medical man who, called in at the confinement, had arrived late, and found a midwife industriously rubbing with a towel the face and head of the baby. He desired her to de-

sist, but to this he attributed the child's condition. Doubts were expressed by several gentlemen as to the sufficiency of this explanation.

Dr. Dyson showed the morbid specimens from a case of Mediastinal Tumour. The patient, a woman aged thirty-two, the mother of five children, had been under his care in the Sheffield Public Hospital. She stated she had been ill nine months, and attributed her illness to hurrying along the street once with a heavy child on her right arm. The tumour occupied the mediastinum, and had invaded the whole of the right lung, the left lung being unaffected. The superior vena cava and right phrenic nerves were completely surrounded, the former being only slightly patent. The new growth had also invaded the auricles, and, proceeding down the right side of the pericardium, had exerted considerable pressure on the inferior vena cava. This last circumstance explained the oedema of the lower extremities, and the immense distension and enlargement of the superficial veins on the abdomen. The growth had the appearance (microscopic and naked eye) of a lympho-sarcoma. Growths of a similar nature were found in the substance and in the surface of both kidneys, in the right ovary, and in one or two places subcutaneously. On the surface of the kidney and in the right ovary, the growths were caseating, and converted into greenish puruloid fluid. The symptoms were of the usual varied and distressing character, and the whole period of illness barely lasted a year.

Dr. Porter read a paper on Lead Palsy, in which, after referring to the prevalence of cases of lead poisoning in Sheffield owing to the use of a lead cushion in file cutting, the lead bath in file hardening, and the lead-coated wheel or "lap" in penknife finishing, he quoted from some statistics he had taken from the patients suffering from this disease at the Sheffield General Infirmary. Twenty-five out of thirty cases which he noted had occurred among file-cutters, and he drew attention to the fact that in this trade the advent of symptoms was generally delayed; thus, in sixteen cases the average time between the first exposure to the poison and the first appearance of symptoms was fourteen years; in eight more the actual time was not noted, and in one case only did they appear directly after exposure. But although their appearance might be delayed for years, or they might be absent from first to last, the usual indications of general ill health which precede them were very seldom wanting, and many of these file-cutters who had never presented any of the symptoms peculiar to lead poisoning carried the indications of their trade in the unhealthy, cachectic appearance of their faces and the blue line on their gums. Referring to the relative frequency of the special symptoms of lead poisoning, Dr. Porter stated that in the thirty cases before referred to colic had occurred in twenty-seven, some loss of muscular power or paralysis in eighteen, and eclampsia in two. The characteristic blue line was present in twenty, and of the other ten cases six had not been working among lead for some time, and in three more the fact of its presence or absence was not noted. Speaking of lead palsy, he believed that when that was the only symptom of lead disease it occurred usually only after long-continued exposure to the poison; as in three such cases which came under his observation, one was after eighteen years, another after twenty-two years, and the third after thirty years' file cutting. Referring to the pathology of lead palsy, Dr. Porter alluded to the experiments and researches of Vulpian and Charcot, and stated that it was still a disputed point whether the paralysis was due to an anterior poliomyelitis, or affection of the ganglia of the

anterior cornua of the cord, or whether it was to be regarded as the result of a general peripheral neuritis, independent of spinal lesion. In conclusion, he dwelt particularly on the importance of preventive measures being adopted among those who were unavoidably exposed to the action of lead.

ACADEMY OF MEDICINE IN IRELAND.

PATHOLOGICAL SECTION.

A MEETING of the Pathological Section of the Academy of Medicine in Ireland was held in the Albert-hall, Royal College of Surgeons, on Friday evening, January 5th.

Specimens Exhibited by Card.

Dr. F. Henston exhibited an Oval Dermoid Tumour of the Right Ovary, the circumference being ten inches and the diameter nine. He had removed it from the body of a dissecting-room subject, aged sixty-five. The tumour was connected by adhesions with the surrounding viscera. Microscopic sections of the wall of the cyst showed bony plates and nodules of cartilage. A fibroma existed in the upper and posterior portion of the vagina.

Mr. Arthur Benson exhibited drawings of two cases of Rupture of the Choroid from External Injury. Case 1: From the left eye of a man, aged thirty-three, who received the injury three weeks before admission into St. Mark's Ophthalmic Hospital by a fall from a horse. The rent in the choroid was seen to occupy a space midway between the disc and the yellow spot, and was crescentic in form, its concavity being directed towards the disc. The rent was marked by a considerable accumulation of pigment. The retinal vessels ran over it without any alteration in their curvature or direction. The pigment occurred six or seven weeks after the accident, and was not the remains of hæmorrhage. Case 2: From a girl, aged nineteen, who had six months before admission received a blow from a portion of an exploding coffee-pot. There were three separate rents in the choroid: one at the yellow spot; the second, a small crescent, above the disc; and the third, a large irregular rent, above the last, and near the periphery.

Mr. T. McArdle exhibited Tumours of the Cerebellum, removed from a child ten years old, who, three days after a fall on his head, was admitted into St. Vincent's Hospital with all the symptoms of cerebro-spinal meningitis. Sections of the tumour showed giant cells, with caseation of the central parts of the tubercular mass.

Mr. McArdle also showed a Toe with Fibroid Tumour attached. The tumour was painless and slow of growth until within a month of its removal. A short time before admission into St. Vincent's Hospital caustics had been applied with the effect of increasing the size and altering the surface of the tumour, as well as deadening the pain.

Mr. Anthony H. Corley exhibited a specimen of Extra-capsular Fracture of the Neck of the Femur. The patient was over eighty years of age. She lived three weeks after the accident, and had more power than usual in turning in bed. There were no signs of severe contusion. She suffered from bronchitis and emphysema, and died rather suddenly. The fracture was comminuted, the great trochanter being split vertically.

Dr. J. Magee Finny showed a specimen of Cirrhosis, or Fibroid Induration, of the Upper Lobe of the Right Lung, in which the disease was strictly limited to that lobe, and had caused it to be converted into a series of cysts, varying in size

from a pea to a small marble. There was a complete absence of the normal alveolar tissue, which was replaced by a dense fibro-cellular tissue of a greyish-red color. The cysts, which as a rule did not communicate with each other, contained a yellow muco-purulent secretion, free from special fetor, and were lined with a mucous membrane, continuous with that of the bronchi. They permeated the entire lobe, giving it a very peculiar honeycombed appearance. The bronchi were slightly dilated in their tertiary division. It seemed as though the alveolar tissue alone, to the almost total exclusion of the pleura, and to a partial exclusion of the bronchi, was the seat of the fibroid change. No other exactly similar case has been observed, and while the lines of demarcation between bronchiectasis and the cirrhosis of Corrigan are by no means so marked as some recent writers (including Juergensen, for instance, in vol. ix. of Ziemssen's *Cyclopædia*) would imply, it was plain that in the specimen the bronchial dilatation had little, if any, connection with the condition of the lobe. The pleura of the right lung was thickened, and adherent to a very slight degree, and sent no fibroid prolongations into the substance of the lung. The patient, a boy aged seventeen, was under observation for about a week, having been admitted to Sir Patrick Dun's Hospital on Dec. 21st, 1882, for a supposed attack of pneumonia of the upper lobe. On Dec. 28th, physical examination showed the presence of what was thought to be a multiple abscess of the lobe, and pleural effusion of a latent type of the left side to the level of the sixth rib. In the course of the case, two days before death, the pleuritic friction was heard as high as the fourth rib. Over a limited extent occupying the third and fourth costo-sternal articulations a double friction sound, synchronous with the impulse of the heart, and increased by pressure, was readily made out, and heard by several observers. It was thought to be of pericardial origin, the inflammation being secondary to extension from the pleura. The post-mortem examination showed that there was no pericarditis, and that its real cause was the impact of the heart against the pleura, which was roughened and granular in its narrow prolongation under the sternum. Dr. Finny noticed the rarity and commented on the clinical significance of this physical sign. The cause of death was syncope, due to the sudden outpouring of fluid into the left pleura and the incautious sitting up of the patient. On the evening before his death the respiration was 28; pulse 120; temperature 102°; and there were no signs of asphyxia. The patient was resting easily on the right side, and expressed himself easier and better than he had been since admission. During the day the fluid had not reached above the fifth rib in the semi-recumbent posture, and there were no symptoms suggesting, not to say demanding, mechanical relief. At 3 a.m. on the 29th, whilst taking nourishment, he was noticed suddenly to become pale and to be bathed in perspiration. He died in an hour. Effusion of a very rapid nature and to a very considerable extent must have occurred during the night, as the pleural cavity was found full of fibrous serum, and the lungs compressed, without enlargement of the side or bulging of the intercostals.

Communications: (1) *Double Gliomæ Retinæ*; (2) *Intraocular Tumour.*

Mr. Swanzy read a paper on *Double Gliomæ Retinæ*, illustrated by a living specimen. The patient was aged two years and a half. His mother first noticed a peculiar appearance in the interior of the right eye twelve months ago, and four months later in the left eye. At the first visit to

the National Eye and Ear Infirmary six weeks ago, a growth was found in each eye of a pale-yellow color. In the right eye it lay deep on the posterior surface of the globe; in the left eye it came most to the front occupying two-thirds of the vitreous humor, and presented a lobulated surface. The vitreous humor in each eye was clear. There had been no iritis, or other inflammatory process, and there was no injection of the anterior parts of the eyeballs. There were not, and had not been, any head symptoms, and in all respects the patient's general health was perfect. He had never had any illness. The only changes since the case had been under observation were a slight increase in the size of the growths and that the right eye had become glaucomatous. However, the child who spoke remarkable well for his age, has lately spoken sometimes very indistinctly and with much rapidity.

Dr. Swanzy also read a paper on a case of *Intra-ocular-Tumour* (illustrated by microscopical sections prepared by Mr. P. S. Abraham). The growth had commenced six years ago, and when removed was, with the eyeball, the size of a hen's egg. It was still covered in front by conjunctiva and atrophied sclerotic, but had grown through the sclerotic above and displaced the eyeball downwards. The greater portion of the tumour was found to consist of a melanotic sarcoma, with round and spindle cells in the usual arrangement. Around the optic nerve, behind the globe, there was a considerable mass of tumour containing less pigment, and in it there was an alveolar arrangement corresponding to Billroth's alveolar sarcoma. At one part of the highly pigmented portion, where it came in proximity to the conjunctiva, there were well-marked alveoli containing epithelial cells, thus, so far, placing the tumour in the category of carcinomatous sarcomata described by Virchow.

SURGICAL SECTION.

A meeting of this Section was held on January 12th, Mr. J. K. Barton, President of the College, in the chair.

Exhibition of Specimens.

Specimens by card were exhibited by Messrs. Wheeler (vice-President), Thomson, and Stokes; and living specimens by Messrs. Benson, Swan, Wheeler, and Croly.

Anæsthetics in certain Surgical Operations.—Trephining in Mastoid and Tympanic Disease.

Dr. Fitzgibbon read a paper advocating the use of anæsthetics in surgical operations upon the mouth, anus, and rectum, and especially in operations for the removal of internal hæmorrhoids. The anæsthetic he recommended was bichloride of methylene, which he had largely used in the foregoing operations, employing Junker's inhaler.—The President corroborated Dr. Fitzgibbon's statement with regard to the facility of exploring the rectum under anæsthetics.—Mr. Hamilton pointed out that rectal surgery had for many years past undergone great modification. He alluded to a paper of his published several years ago, recognizing the advantage of anæsthetics in the treatment of hæmorrhoids. Anæsthetics were, he considered, more adapted to the rational and scientific treatment of rectal diseases than any other department of surgery. Indeed, he did not think that any conscientious surgeon would operate without anæsthetics, which had the advantage in addition of lessening the repugnance that many persons had to such physical examination.—Mr. Thomson observed that from the time he was a

student in the Richmond Hospital almost all rectal operations had been performed under the influence of anæsthetics, except in cases where there was some special contra-indication. His experience of ether as an anæsthetic was so favorable that he did not see any reason to substitute bichloride of methylene for it, especially as it was not so safe as ether.—Mr. Ormsby distinctly preferred ether, and pointed out that statistics were against the use of bichloride of methylene and chloroform. He doubted the propriety of advocating the use of anæsthetics in all cases requiring rectal operations.—Mr. Pratt stated that his experience of bichloride of methylene was very favorable. Its action was much more rapid than that of ether, and the required quantity used much less, especially in protracted operations.—Mr. Wheeler endorsed all that Dr. Fitzgibbon had said in reference to the advantages derived from the use of bichloride of methylene. He thought that the length of time patients remained intoxicated after the use of ether was a disadvantage which was got rid of by the use of bichloride of methylene, and that there was less liability to sickness after the latter. In cleftpalate operations, especially in very young children, its use was indicated.—Dr. MacSwiney alluded to the late Professor Morgan's researches on anæsthetics, and asked Mr. Stokes what anæsthetic he had used in the case of excision of the superior maxilla exhibited previous to the meeting.—Mr. W. Stokes observed that in the case Dr. MacSwiney alluded to ether was used, and he preferred it to any known anæsthetic.—Dr. Kilgariff also gave preference to ether, and enumerated various important operations about the mouth in which he had employed it with success. Dr. Fitzgibbon replied, emphasizing the alleged advantages of bichloride of methylene over ether and chloroform, particularly in operations about the rectum and the mouth.

The Vice-President (Mr. Wheeler) read a paper on Trephining in Mastoid and Tympanic Disease. He related the causes of purulent discharges from the ear, and the necessity for early trephining in diseases of the osseous structures, if not yielding to other treatment within a reasonable time. He recorded the last two cases he operated on; the first that of an old man, seventy years of age (who was present); and second that of a patient, aged forty-one, who suffered from acute inflammation of the mastoid process. Both made good recoveries. Statistics which he quoted showed that nearly all the cases left to nature or expectant treatment died. Having enumerated the various channels through which purulent discharge found its way to the cranium, he advocated trephining in that situation where the mastoid cells and tympanum would be opened and the dura mater exposed—namely, anterior to a line which divides the mastoid process vertically, which would avoid the lateral sinus and the lower border of the temporo-sphenoidal lobe on a level with the external auditory meatus.—Mr. Benson inquired what treatment previous to operation had been adopted by Mr. Wheeler, mentioning that Mr. Pollock and other authorities did not despair of effecting cures in such cases, even when there was caries of the mastoid cells.—Mr. Doyle mentioned cases of mastoid disease that had been successfully treated by making an incision on the mastoid process.—Dr. Henry Kennedy stated that in his experience such cases as had been detailed were not permanently benefited by incising the mastoid process.—Dr. Thomson asked whether Mr. Wheeler had adopted any other treatment than what he had stated in his paper; and also whether in all cases of otorrhœa with tenderness over the mastoid process he would at once recommend trephining.

ing.—Dr. Bennett pointed out that Mr. Wheeler had described his treatment only in cases in which, while there was otorrhœa, there was manifestly disease in the neighborhood of the mastoid process capable of being detected. There were a number of cases where the bone was diseased, and where the disease was entirely remote from the mastoid process.—Mr. Wheeler, in reply, said that the previous treatment in the case of the younger patient alluded to by Mr. Benson was simply syringing the ear. There was evidently disease of the bone. He had not stated they were to trephine without adopting other means, but he had mentioned that if the disease lasted any length of time he would trephine, even in the absence of osseous disease. He had witnessed one case where excellent results had been obtained by incising the mastoid process, but in these there was no disease of the cells. Dr. Bennett had asked if he would trephine in all cases, and if there was a piece of bone diseased at the apex of the petrous portion of the temporal bone whether there would be any possibility of doing good. He (Mr. Wheeler) doubted if diseased bone could be thus diagnosed; but if the person had cerebral symptoms and running from the ear he would be induced to trephine. The operation was not done often enough.

HARVEIAN SOCIETY OF LONDON.

At the meeting of this Society on Feb. 1st, 1883, E. Symes Thompson, M.D., President, in the chair, Mr. W. H. Lamb read notes of a case of Pleuropneumonia, which presented several interesting features. The President, Dr. Ewart, Dr. Hayes, and Mr. Cripps Lawrence joined in the discussion which followed.

The paper of the evening was read by Mr. H. C. Stewart, the subject being "The Treatment of Fevers and Exanthemata by Antiseptics." The author said that his attention had been directed to this subject since the year 1837, when, as a student, he saw cases of glanders and farcy treated with creasote by the late Dr. Elliotson with considerable success. Since that date he had treated cases of small-pox, some of them of most virulent type, with sulphite of soda, the result being decidedly favorable. He found that this drug cut short the usual periods of the different stages, that maturation began and ended earlier under its influence, that the scabs were more quickly thrown off, and with less pitting. For scarlet fever he used a linctus composed of one part of sulphurous acid to seven parts of honey, which he found very efficacious for the throat distress in scarlatina anginosa; measles, typhoid fever, diphtheria, and erysipelas treated with the sulphite of soda or sulphurous acid quickly subsided under the use of these drugs. Salicylic acid, combined with potash, soda, or ammonia, was found useful in catarrh, influenza, and the milder cases of scarlet fever, typhoid fever, and measles; but in the severer cases the sulphites were to be preferred. The author then quoted M. Ramonet, of Algeria, and M. Duplatz, of Lille, who had treated successfully many cases of typhoid fever by enemata of solutions of carbolic acid, of a strength varying from one to fifteen grammes of the crystals to 150 grammes of water. He mentioned the discovery by Ehland, of Stockholm, of a vast number of peculiar cellular bodies in the blood and urine of scarlatinal patients. This discovery had recently been confirmed by Dr. Oesterlony in America, and, if the views of these observers be correct, the infective material of scarlet fever had been discovered.—In the discussion which followed, the President and Mr. Eastes took part, and the author briefly replied.

Discussion on the Effects of the Use of Alcohol in Relation to Disease and Death.

The meeting on Feb. 15th (the President, Dr. E. Symes Thompson in the chair) was devoted to a discussion on the report of the committee appointed for the purpose of inquiring into the Mortality referable to Alcohol.

Dr. Morton, in opening the discussion, remarked that the largeness of the number of cases the committee were able to collect was a matter of congratulation in two respects. First, as evidencing the interest of the profession in the inquiry instituted by the Society; and, secondly, in sufficing to eliminate, as nothing but large numbers could have done, some sources of error to which this inquiry, and all inquiries of a statistical kind, are notoriously exposed. He thought the figure eventually arrived at—namely, 4 per cent., was to be thoroughly relied upon as representing, at least for the metropolis, the proportion of deaths in the causation of which alcohol played some part. In Table B, and the sections based upon it, it is to be remarked that the causes of death set down are the certified causes; and it should be borne in mind that certificates which under the present system are open to the inspection of sorrowing relatives, and perhaps critical insurance offices, do not always express the whole mind of the certifier. As to the immense preponderance of deaths from disease of the liver and other allied organs, it is to be remarked how very small the mortality from these causes would be apart from the results of alcohol, and of residence in tropical climates. Explaining the smaller mortality amongst the alcoholic from chronic pulmonary disorders, the speaker pointed out that the heavy demands of these exceedingly common diseases could not be satisfied after alcohol had exacted its tax in the shape of liver, kidney, and brain disease, which engrossed 150, 20, and 85 respectively out of the whole total of 397 in Class C. The later stage of phthisis might be accounted for by that distinct form described by Dr. Richardson as occurring among hard drinkers.—Dr. Cleveland thought the report remarkable by the absence of any deductions, and asked the *cui bono* of it; there was no question as to the harm done by alcohol, but the report told them nothing they did not know before.

Dr. Norman Kerr remarked that the figures of the report, if applied to the United Kingdom, would make up a total not far short of 50,000 deaths due to intemperance, or 5,000 more than the computation he had made some years since, which had met with much adverse criticism. One benefit resulting from this report would be, that the attention of medical men would be more pointedly drawn to the effect of alcoholic excess on the death-rate of their patients in the future than it had been in the past. The committee, he thought, were well advised in not being too positive in their deductions; it was very difficult to arrive at the truth, both from the personal idiosyncrasy of the observers and the inherent difficulty of the subject. Death certificate counterfoils were no very reliable basis; but he suggested that the Collective Investigation Committee of the British Medical Association should ask 500 or 1,000 medical men in different parts of the country to record simultaneously, for a period of twelve months, the causes of all the deaths occurring in their practices, by which means an accurate approximation might be made of the number of deaths annually caused by personal excess in alcohol.

Dr. B. W. Richardson remarked that deaths from alcohol were seldom or never recorded as such in death certificates from feelings of delicacy to the friends. As to the paucity of deaths from phthisis

amongst drunkards, he agreed with Dr. Morton's explanation, and pointed out that phthisis and alcohol asserted their influence at different times, deaths from the former cause taking place earlier in life, and mostly before alcohol could have exerted its baneful influence. Alcohol could not, certainly, exercise any preservative action from phthisis. He could not understand the lessened mortality from heart disease, and thought there was a want of accuracy in the definition. He had found nothing so common amongst the intemperate as cardiac disease, not so much valvular as structural in nature.—Dr. Fitzpatrick believed that the net scientific value of the report was nil. The inquiry was tainted in its origin by its party character, and he looked upon it as a manoeuvre on the part of certain persons to *exploit* the Harveian Society in the interests of the temperance propaganda. Having quoted a passage from Mr. M. Arnold's speech on "lucidity," to the effect that "there is no other country in which so much nonsense is as firmly believed as in England," he urged the Society not to add to this floating capital of nonsense by affirming on scientific authority that the moderate use of wine, beer, and spirits is unwholesome.—Mr. Eastes said that were not deaths from abdominal diseases amongst drunkards much increased, an advocate of the liquor traffic might have suggested that deaths, and particularly those who would avoid death from thoracic diseases, should take alcohol without stint. In Table 3 of the report the percentage of mortality amongst drunkards from various diseases was compared with that of the entire population of London from the same diseases. As the entire population comprised abstainers, temperate persons, and drunkards, the difference for and against drunkards would be accentuated if their deaths were contrasted with those of the temperate and abstainers only. This would give the former a still lessened percentage from thoracic diseases, and still more striking increase of deaths from abdominal diseases. Further, all persons of Class C in Table 3 were not necessarily greater drunkards than those of class B, nor possibly were all of Class C habitual drunkards. A first debauch might, as in accidents, cause death, and be classed as entirely due to alcohol. These tables told only part of the tale of the effects of alcohol; in order to cover the whole inquiry one must consult the general practitioner, the surgeon, the physician, the physiologist, and last, though not least, the relieving officer of the poor, since alcohol costs money, incapacitates breadwinners, and in other ways brings poverty in its train.—Mr. Burridge said the report would be considered of great value by the actuarial profession, which, for the moment, he had the honor to represent. The report threw additional light on the mortality arising from irregular habits. This was a source of much trouble to insurance offices, and it was necessary to impose a very heavy extra premium, or to decline altogether cases where a suspicion as to habits existed. He pointed out that the mortality amongst publicans was far higher than amongst members of any other trade, the percentage of deaths amongst them being very similar to those of Classes B and C in this report combined. Experience of those offices which had ensured large numbers of abstainers showed that amongst them the actual claims were only 70 per cent. of the expected claims; among the non-abstainers 99 per cent. of expected claims. He concluded by hoping that the Harveian Society would extend their useful labors.—Mr. Stewart, who acted as chairman of the committee, said that one good, he hoped, would result from the report was a more accurate use of terms in filling up death certificates;

he had been much struck with the looseness of phraseology adopted by medical men. Another good was that the profession would watch more closely the effects of alcohol on their patients, and treat them accordingly.—Dr. Francis considered that a similar investigation in India would produce valuable results. Persons come home from that country attributing their ill-health to its climate, but the real cause was that they did not adapt themselves to the climate, but by the use of stimulants taxed their livers to an extent which would be injurious at home, but was disastrous in the tropics; for, owing to the diminished capacity of the lungs for eliminating carbon, that duty fell upon the liver, which under ordinary circumstances, was hardly equal to the strain.—The President explained the reduced number of deaths due to diseases of the heart, kidneys, and lungs, by the fact that the disease of the liver was the most prominent symptom at the time of death, and in the tables of the report only the principal cause of death could be recorded. As to the smaller proportion of deaths from alcohol among women, he suggested that a large number of women were secret drinkers, and managed to keep their secret so well that even the medical man failed to find it out.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

Colloid Cancer of the Peritoneum.—Post-hemiplegic Hemichorea.—Recurrent Fibroid.—Calculus in the Ureter.

THE usual monthly meeting of the above Society was held on January 5th, Mr. Frederick Lawrence in the chair.

Dr. Thorowgood exhibited a patient believed to be suffering from Malignant Disease of the Abdomen. On examination the abdomen was much distended. Slight evidence of localized fluctuation could be detected in the flanks, and he said that when in St. Mary's Hospital last August (the patient was admitted to the West London Hospital on December 13th, 1882), he was tapped by order of Dr. Handfield Jones in the left flank, from which serous fluid was drawn. He is now losing flesh, has a quiet pulse, clean tongue, does not vomit, heart and lungs act normally, and he appears healthy. On feeling the abdomen a hard mass is found below the ensiform cartilage, about two inches by two inches in size; doubtful if this mass moves much in respiration; below this comes a zone of resonance, then across abdomen can be traced at level of umbilicus a chain of hard, tender, irregular masses. Liver dulness somewhat increases upwards. Twenty years ago he came home from India invalided for dysentery, and ten years ago he had slight coughing up of blood. With these exceptions his health has been good. Present illness commenced with enlargement of abdomen five weeks before the admission into St. Mary's Hospital on August 21st, 1882. Paracentesis abdominis was performed, and after that liver dulness extended eight fingers' breadth upwards in right chest. No lumps were felt in the abdomen at this time, but a hard mass below the xiphoid cartilage was believed to be the left lobe of the liver. The urine contained lithates, but no albumen. The case was set down as cirrhosis with ascites, and on Nov. 2nd the patient left St. Mary's Hospital. He says that while in that hospital he had a dose given him which brought away three yards of tapeworm, but not the head of the parasite. Before tapping his abdomen measured 38½ in. at level of umbilicus. Present measurement 34

in. Dr. Thorowgood believed the disease from the first was colloid cancer. At present the functions of the stomach and intestines are not much affected, but the patient loses flesh rapidly, and the prognosis was, in his opinion, anything but favorable. Saline purgatives were given him to relieve congestion and oppression, and at night extract of conium to relieve pain.—Dr. Schacht referred to a case in which a mass could be felt on deep palpation in the hypogastric region which was diagnosed as malignant, and proved at post mortem to be a mass of encephaloid cancer.—Dr. Thudichum asked for a definition of "colloid cancer;" he knew what "colloid" meant, and he knew what "cancer" meant, but he did not understand the combination of terms. As the case under notice was of long standing it was very interesting and important, but he was not clear as to the possibility of diagnosing abdominal cancer in the living human being. Then as to treatment: he could not understand why extract of conium was administered as so little was known of its influence. He questioned whether it contained any alkaloid, and, indeed, whether it had any medical effect whatever. It was not chemically definable.

Dr. Pope said that he knew a case of an old man who had large masses in the abdomen, swelling in both sides, and much obstruction in breathing. There was also localized fluid easily felt in the flank. It turned out to be sarcoma originating in stone and chronic kidney disorder.—Dr. Daniel, referring to the disputed use of extract of conium, said that he preferred morphia as a sedative, because it was more certain in its operation.—Dr. Alden Owles did not regard the comparative absence of pain as weighing much against the symptoms of cancer in the case, as in his experience severe pain was far from being an invariable concomitant of abdominal cancer.—Dr. Thorowgood, in reply, said that it was, of course, possible to have abdominal cancer without pain. This might be a case of sarcoma, but the locality indicated that it was a colloidal form of cancer. He regarded extract of conium as a useful sedative, although it was not clear what was its effective principle, and although its mode of action was obscure.

Mr. Percy Potter showed a case of Post-hemiplegic Hemichorea with Hemianæsthesia, in which there were some peculiar clinical features. The patient, aged thirty-two, had been a soldier, and had always enjoyed good health previously to the present affection. He never had rheumatic fever nor syphilis, nor was there any history of injury to the head. The family history was good, except that his mother had temporary chorea. Eighteen months ago, whilst playing a wind instrument under the tropical sun of India, he became suddenly unconscious, and when he recovered consciousness there was right hemiplegia, without aphasia. This improved to some extent, but the muscles of the legs became atrophied, and the flexors of the foot tonically contracted, assuming, as in paralytic club-foot, the form of talipes equinus. Having returned to England, he was operated upon for this contracture, tenotomy of the tendo Achillis being performed at Netley Hospital three months after the outset of hemiplegia. This did not influence the deformity. Three weeks ago the patient was frightened by a mastiff dog, which knocked him down. Five days after there appeared chorea of the affected side. There was now well-marked right hemiplegia, including the face, without aphasia. The vision of the right eye was defective; the senses of smell, hearing, taste (as tested by aloes and colocynth) were blunted. There was complete anæsthesia of the right side of the face and leg; less complete of arm, trunk, and thigh. The symptoms of chorea

consisted of sudden and unexpected jerks of the right arm and thigh, and right side of face. The muscular movements were quite uncontrollable. Tendon reflex and ankle clonus increased; no cardiac bruit; urine normal.

Dr. James Thompson showed a Tumour removed from a woman, aged thirty-six, after its fifth recurrence. Its situation was in the median line at the border of the hair in the forehead. The size was that of a goose's egg, springing from a base only three-quarters of an inch in diameter. The original tumour was removed in 1869. At least four surgeons had operated. Both caustics and the knife had been used. Dr. Thompson operated with Richardson's scissors, and applied the actual cautery to the foot. A committee was appointed to report upon the character of the tumour. Dr. Thompson also exhibited a Calculus, believed to have been formed in the ureter.

MIDLAND MEDICAL SOCIETY.

At the meeting of this Society, held on Jan. 24th, Dr. E. Malins, President, in the chair, Dr. Suckling exhibited a man suffering from Primary Lateral Sclerosis of the Spinal Cord. Thirteen years previously he had had an attack of paraplegia, from which he completely and readily recovered, and subsequently remained perfectly free from any symptoms of spinal affection for ten years. Two years ago he first noticed a weakness and trembling in his limbs, which had constantly increased ever since. At the present time sensation was intact. There was great exaggeration of knee tendon-reflex and marked ankle clonus. The optic discs were normal. There was a history of previous syphilis.

Mr. Eales showed three cases in which the Lens had been dislocated, in each case inwards and somewhat upwards, as the result of blows on the eye. In the first (a little boy aged four years), the lens still retained its transparency intact, though nearly five months had elapsed since the injury. The pupil, moreover, remained completely dilated, and would not contract even under the application of eserine drops (four grains to the ounce); myopia and astigmatism—due, apparently, to the shifting of the lens—were present. In the second case, a man, aged thirty, the lens was quite opaque, in addition to being dislocated. There was also a rupture of the sclerotic coat just behind and parallel to the corneo-sclerotic junction, the iris being incarcerated in the wound. The eye was blind, and T-2. In the third case, a man, aged eighty-three years, the lens had been opaque and dislocated for thirty years. In spite of the age of the patient, and the long time since the injury, the lens and also its capsule had been removed successfully.

Dr. Malins showed two Ovarian Cysts which he had removed a few days previously. One, a simple one, from a girl, aged sixteen years, weighing, with its contained fluid, eight pounds, was remarkable for the rapidity of its growth, which extended over only three months. The other was of a dark color, and its walls were considerably thickened, and showed signs of much inflammatory action, while the pedicle had become completely severed in consequence of rotation of the tumour causing strangulation of the pedicle.

Mr. Bennett May read a paper on Operative Treatment in cases of Intestinal Obstruction, in which he laid stress upon the difficulty and importance of making an accurate diagnosis in this condition, and alluded to the various operations that a surgeon may be called upon to choose between in his attempts to relieve this condition,

which he arranged in the following order as regards subsequent mortality in an increasing ratio:—(1) Colotomy in the loin; (2) enterotomy, by a small incision in the right groin, through which the first distended and presenting coil of intestine is secured and made the site of an artificial anus, without exploration; (3) inguinal colotomy, by opening the sigmoid flexure in the left groin; (4) laparotomy, by median section, the cavity being explored, the cause of the obstruction removed, and the wound closed again; or laparo-enterotomy, if completed by opening the small intestine. He thought the reasons why enterotomy gave a so much lower death-rate than laparotomy, or laparo-enterotomy, were, first, because the conditions for which it is typically applicable are themselves less acute and lethal; secondly, the injury inflicted by the operation is far less; while, thirdly, it is undertaken earlier, and he regarded it as a compromise between colotomy (which in some cases was the better operation) and laparotomy; and one which many surgeons invariably adopted in all cases where the indications to open the colon were not clear and distinct. There were, however, cases in which laparotomy was the only suitable operation; and in many of these it was wise to open the small intestine as near the lower end of the ileum as possible, and stitch it to the median wound, thus performing laparo-enterotomy, and not to trust entirely to the removal of the apparent cause of obstruction. In many such cases the artificial anus after a while closed, the faeces passing by the natural passage. In impacted gall-stones the results had been uniformly bad, and in this condition, if slight force failed to dislodge the calculus, he would perform laparo-enterotomy. If there was great local pain or tumour, he would not confine himself to the median section, but would open the abdomen near the apparent seat of trouble. In chronic obstruction, if due to obstruction in the small intestine from various causes, such as tumour, etc., and in many cases of obstruction in the large intestine where the cause could not be localized, he regarded enterotomy as the best operation.

YORK MEDICAL SOCIETY.

A MEETING of this Society was held on January 13th, Mr. W. H. Jalland, F.R.C.S., president, in the chair.

Mr. Spencer read notes of a case of Croup, in which tracheotomy was performed. The child did well for three days, when broncho-pneumonia commenced, and rapidly proved fatal.

Mr. Jefferson read a paper on some of the Uses of Plaster-of-Paris in Surgery. After drawing attention to a few practical points in the preparation of plaster-splints—such as the warming of the dry plaster, the use of tiffany bandages, and of strips of Bavarian flannel, the latter covered on both sides with moist plaster, for the purpose of giving additional strength—Mr. Jefferson said that the plaster-splint was to be preferred to the glue, starch, and others, in the treatment of fractures, because it dries and sets quickly, thus securing immobility within a few minutes of application. The splint is invaluable in fractures of the lower extremity, and in all compound fractures. Ununited fractures of the humerus are probably best treated by the same splint, carried from the hand to the axilla, the arm being kept extended. In simple fracture of the lower extremity, whether attended with much, little, or no swelling, the plaster-splint could always be applied at once. In fracture of the femur, where the hip must be included, some difficulty would be experienced un-

less something resembling the crane of a hospital bed existed by which the patient could raise himself. When all swelling had subsided, the splint should be lined with a thick layer of cotton-wool, reapplied and fixed by an ordinary bandage. The method of cutting a window in the splint in the case of compound fracture, was described, with the precautions necessary for rendering and keeping the wound aseptic. With this object the use of salicylic wool beneath the splint, instead of the ordinary flannel roller, was recommended.

Mr. Jefferson also read notes of two cases of Compound Fracture of the Upper Extremity, treated in the manner described, at the York County Hospital. He also referred to twenty-four cases in which osteotomy had been performed by Mr. Jalland at the County Hospital. None of these latter cases required a second dressing, and at the end of three or four weeks, when the dressings were removed, the wounds, with one exception, were found to be healed. In disease of joints where a splint-rest is required, whether in the early stages or after operation, plaster-of-Paris affords the necessary support, while it permits the patient to get about with ease. In the early stages of fungous synovitis of the knee it had been found especially valuable after the limb had been straightened under an anæsthetic, the ice-bag-like action during drying preventing fresh inflammatory effusion. Mr. Jefferson quoted cases illustrating its utility in this form of disease. In illustration of the value of Sayre's jackets, Mr. Jefferson mentioned the case of a boy who had just had one of those jackets applied, making the fifth time within eighteen months. Eighteen months ago he had acute pain and tenderness in the lower dorsal region, with slight displacement backwards of two vertebrae. Two large psoas abscesses, one on each side, were opened. These have now quite healed, and there is not the least pain or tenderness in the affected region of the spine. In fact he may be said to be well.

CAMBRIDGE MEDICAL SOCIETY.

At the meeting on Jan. 5th, Professor Humphry, M.D., F.R.S., President, in the chair, the subject of the Communicability of Phthisis was discussed. On the suggestion of the President the following question had been sent by post-card to all the members of the Society, and Mr. Shield read a short analysis of the replies received:—"Have you known any instances of phthisis being communicated from one person to another?" If no such cases had been observed the answer was merely "No." In the event of instances of the kind having come under observation, the names of the persons concerned, and their relationship, the dates of their disease and the result, and the hereditary predisposition, were to be noted by the observer. Out of sixty inquiries but thirty-eight replies were forthcoming, and thirty-four of these were in the negative. On the whole the experience of the medical men in the neighborhood went to prove that cases of communicability were not by any means common, but the question could only be answered satisfactorily by long, patient, laborious, and trustworthy observation.—In the discussion which followed, Dr. Paget remarked that he had no certain experiences to record. He referred to the old view that a general impurity of the air was productive of phthisis, and quoted Dr. Guy's report on the effect of bad air on printers. He also alluded to the diminution of phthisis which had followed the enlargement and improved sanitation of the barracks in England, as shown by the army sanitation report, and inclined to the view that

there was no specific agency in operation, such as the bacillus.—Dr. Armistead observed that there had been a great decrease of phthisis since cottages had been kept in a more healthy condition and sanitary matters attended to in the district under his supervision, embracing unions with a total population of 80,000.

Mr. Laurence Humphry referred to the statistics of the Brompton Hospital for thirty-six years, with regard to the resident officials, compiled by Dr. T. Williams, from which it appeared that of four resident medical officers, one of whom had served twenty-five years, none had any lung disease, of six matrons none were consumptive, of 150 resident clinical assistants eight became consumptive and five died, but in only one was the disease developed during residence. Since 1867, of 101 nurses only one died from phthisis, and that after leaving the hospital. Before 1867 six died, three of these of phthisis, but only one became so whilst resident, and she had a consumptive sister, and married a consumptive patient from the hospital; she died thirteen years after first joining the hospital, but was not there the whole time. Of thirty-two gallery maids since 1867 none developed phthisis whilst at the hospital. Of twenty house porters five died, but none of consumption. Non-resident:—Of nine secretaries three were threatened with lung disease, but recovered. Of twenty-two dispensers seven died, three of phthisis, one while at the hospital. Of four chaplains three died, none of phthisis. Of twenty-nine physicians and assistant physicians eight died, none of phthisis. At the Chest Hospital, Victoria Park, there had been five resident medical officers during about the last fifteen years; all alive and well. Two matrons; neither consumptive. There were two clinical assistants appointed every three months; none known to have developed lung disease at the hospital. One nurse out of fifty or sixty in the last few years became consumptive while at the hospital and died after a year's illness. Mr. Laurence Humphry thought that if there were evidence of phthisis being an infectious disease, it would appear in the greatest degree in consumption hospitals.—Dr. Latham expressed an opinion antagonistic to the theory of infection, and said if the theory were correct there ought to be more cases in support of it.

Mr. Marmaduke Shield showed a specimen of Thrombosis of the Abdominal Aorta and Celiac Axis.

OBSTETRICAL SOCIETY OF LONDON.

THE annual meeting of this Society was held on Wednesday Feb. 7th, 1883, Dr. Mathews Duncan, President, in the chair.

Perimetric Abscess.—Mr. Griffith showed a specimen of Retro-uterine Perimetric Abscess due to the opening into Douglas's pouch of a number of rectal fistulae, a cause of these abscesses, he believed, not previously described.

Epithelioma of Cervix removed during Pregnancy without causing Abortion.—An account of this case was read by Dr. Godson. The patient, aged thirty-five, had suffered for twelve months from yellow or watery fetid discharge, latterly from hæmorrhage and occasional pain. Till then she had been healthy. The cervix was enlarged and ulcerated; the uterus was mobile. The cervix was removed by the écraseur four days after the cessation of hæmorrhage believed by the patient to be menstrual, no bad symptoms followed. Nine days after the operation a sound was passed into the uterus, and four days after this a fetus of about eight weeks' development was expelled. The author remarked

that he believed the abortion was due to the use of the sound, and not to the operation. He advocated the removal of cancerous growths, if possible, at any stage of pregnancy. His case supported the view that cancer favored the occurrence of pregnancy, the patient not having been pregnant for six years previously. He remarked on the patient's previous good health, the late onset of pain, and the importance of not pulling down the cervix when using the *écraseur*.—Dr. Routh remarked on the advantages of early removal of the disease during pregnancy when possible.—Dr. Playfair thought cancer of the cervix more prone to occur in women in whom that part was previously unhealthy. When pregnancy occurred in a cancerous uterus, the cancer often grew with extreme rapidity. He thought the use of the *écraseur* to amputate a cancerous cervix was the worst way of doing it; by this the superficial part only was shaved off and the diseased base left. The best operation was that of Marion Sims, which he (Dr. Playfair) had done repeatedly, with very satisfactory results.—Dr. Herman thought that if cancer of the cervix favored conception, cases of the complication of cancer with pregnancy would be much commoner than they were. The galvanic *écraseur* not only cut through the cervix, but burnt the tissues on each side for some little distance from the line of division. Where the wire tended to slip, it was his practice to cut with scissors a shallow groove for it to lie in.—Dr. Rogers mentioned a case in which removal of a cancerous cervix was followed by abortion. He thought that in this operation Douglas's pouch might be opened notwithstanding every precaution.—Dr. Edis remarked on the practical importance of the early diagnosis of uterine cancer. Where there was doubt, a second opinion ought to be at once procured.

The business of the annual meeting was then proceeded with. The list of officers nominated by the Council was accepted by the Society, and the President delivered an address.

Editorial.

EXCISION OF TUMOURS FROM THE MEDIASTINUM.

At one of the January meetings of the Berlin Medical Society, Dr. E. Küster read a paper on a Case in which he had removed a Tumour from the Sternum and Anterior Mediastinum; and the case is so important that we are anxious to draw attention to the report of it, to be found in the *Berliner Klinischer Wochenschrift*, Feb. 26th. The patient was a healthy-looking, robust man, aged thirty, who on his admission to the Augusta Hospital did not complain of any illness. He denied any syphilitic infection, and there was no evidence of this diathesis. In the winter of 1881-82 he felt for some months dull pains in his chest, and in April, 1882, he observed a tumour on the right side of the sternum which had slowly increased. He had been treated by iodide of potassium for six weeks, and during that time the swelling had increased. Projecting forwards from, and adhering to, the right border of the sternum was a tumour the size of a goose's egg, which also involved the third and fourth rib cartilages, and dipped deeply

into the chest between them. The surface of the tumour was smooth, and the skin over it slightly reddened. The tumour was elastic and gave a sensation of deep fluctuation; no pulsation was detected in it. Heart and lungs were found to be normal. The tumour was punctured with a fine syringe and a few drops of blood escaped, and the end of the needle appeared to be freely movable in a cavity. The result of this puncture was held to exclude anæurism, the absence of all history or other evidence of syphilis led to the exclusion of gumma, and the tumour was diagnosed to be a sarcoma. On October 27th Dr. Küster proceeded to remove this growth, adopting full antiseptic precautions. The first step of the operation was the raising of a large flap of skin from below, off from the tumour. The third and fourth rib cartilages were cut through, and half the breadth of the sternum was detached with a chisel. A narrow kind of stalk of the tumour dipped down into the anterior mediastinum, and there was continuous with a broad mass. In detaching this deeper part the internal mammary artery was cut, and as it could not be secured by a ligature the bleeding was stopped by acupressure; on peeling the tumour from the right pleura a small aperture was made into that sac, and the lung was seen to collapse immediately; a piece of folded gauze was pressed over this wound, and the tumour finally separated by detaching it from the pericardium, which was not injured. The wound was then closed one end of the piece of gauze over the pleural wound being made to project from under the flap of skin which was pressed down by pads into the gap made by the removal of the tumour. The patient made a good recovery, and was shown to the Berlin Medical Society in December last. No lung complication came on. At first the pulsations of the heart were perceptible, but as cicatrization advanced the hollow became more and more filled up, and pulsation was abolished. The tumour was found to be a gumma; the central part consisted of detritus, and surrounding that was a zone of granulation-tissue composed of round and short spindle-cells, and the outer layers of the tumour were composed of firm cicatricial tissue. Are we to admire or to condemn this operation? Küster admits that his diagnosis was erroneous, but contends that the sequel justified his treatment; and that had he known the tumour was a gumma softening, and degenerated in its centre, it would have been the right course to excise it. For he states that gummatous tumours, encapsuled in cicatricial tissue, and undergoing regressive metamorphosis in the centre, are not curable by iodide of potassium, but only by elimination; while in this position a softened gumma is a source of great danger from its liability to burst into the pleura, pericardium, or one of the great vessels, and cause instant death. He refers to König's case of excision of an osteo-chondromatous tumour of the sternum, in which both pleural sacs and the peri-

cardium were opened, and the two internal mammary vessels were divided. The patient, a woman, aged thirty-six years, recovered. After a short review of the varieties of tumours met with in this region, Küster recommends an operation for cases of dermoid cyst and lipoma of the anterior mediastinum, and excludes the rapidly growing and very malignant lympho-sarcomata of that region. He asserts that with our existing means of treating wounds with the certainty of avoiding sepsis, the only great danger of these operations is the occurrence of double pneumothorax. In some very favorable cases the pleura—one or other—escapes uninjured, but care should be taken to have a compress of carbolic gauze ready to be placed over any wound made into the serous sac. This compress can be withdrawn from the wound as the healing progresses. It is impossible to deny that these cases of Küster's and König's are triumphs of operative skill and surgical treatment, and they demonstrate the possibility of so bold a measure being carried out with success. But should these cases remain as surgical curiosities or as models for future imitation? Opinions will differ. We believe that many will affirm that the operation was quite unjustifiable in Küster's case of a gumma. The history of the case does not afford any evidence that the tumour had proved quite unaffected by a prolonged course of anti-syphilitic remedies, and it is impossible to accept Küster's limitations of the power of iodide of potassium to induce absorption of gummata when either degenerated or encapsuled. And as to his argument of the danger attending gummatous growths in this region, even admitting its truth and force, it is impossible not to feel that the perils of the operation of excision are vastly greater. The operation must always be a desperate one, demanding great operative skill and experience and a complete mastery of the aseptic treatment of wounds, and even then it will be justified only in cases where it is the sole means of obtaining relief from serious disease, and there is a fair prospect that the relief obtained will be permanent.

URINE TESTING.

At two of the London Medical Societies recently demonstrations of methods of urine testing were given, and our columns recently contained an account of two other demonstrations on the same subject by Dr. Pavy and Dr. Oliver. It is a platitude to insist on the importance of this branch of clinical investigation, and yet we do not exaggerate when we say that no part is more generally neglected or perfunctorily made. Sometimes inquiry is limited to a question as to whether the urine is clear or turbid, or it may be enlarged by an inspection of the excretion and the dropping into it of a piece of litmus paper, while if the specific gravity of a specimen be taken and it be boiled to test for albumen, and Fehling's test for sugar be

also applied, most physicians regard the examination as complete. It cannot be too well known that although such an examination gives useful information, it is far from being complete or satisfactory, and its results may be most misleading. The specific gravity of a single specimen of urine is of hardly any value; the total daily quantity should be always examined as well. And, in like manner, to test the acidity or alkalinity of one specimen only of urine without regard to the food taken and the time of the last meal, and to the total daily quantity, is as inadequate as it would be to make a fever chart of a case of ague from a single daily observation of the temperature.

All this is perfectly well known, and yet it is daily ignored in practice, and we hardly hope to produce much effect by again drawing attention to it. At the Pathological Society, recently, Dr. Ralfe, who has already done very valuable work in pathological chemistry, pointed out that it is necessary to go further than determine merely the presence of albumen in urine. The new tests introduced by Roberts, Johnson, Pavy, and Oliver, are all of them valuable, as they enable us to detect very minute quantities of albumen, but unfortunately they do not distinguish between the various forms of albumen. Dr. Ralfe showed that for this it was necessary to supplement them by boiling the sufficiently acidulated urine; this precipitates serum albumen, and at once distinguishes between it and the other varieties. Dr. Ralfe proved the following points:—1. Urine precipitated with Dr. Oliver's ferrocyanide test-paper, and coagulated by heat, contained serum albumen. 2. Urine precipitated by ferrocyanide of potassium, and not coagulated by heat unless a citric acid paper was added, contained alkali albumen or casein. 3. Urine precipitated by ferrocyanide of potassium, but not coagulated by heat till a sodic carbonate paper was added, contained acid albumen or syntonin. 4. Urine precipitated by ferrocyanide of potassium, and not coagulated by heat, and which gave a red coloration on the addition of an alkaline solution of cupric sulphate contained para-peptone. The importance of the heat test is undoubted, and Dr. Ralfe showed how readily and simply this could be employed. For carrying reagents Dr. Oliver's test-papers appear to be the most convenient form yet introduced, and if he would add to those he already makes a sodic carbonate, a cupric sulphate, a sodio-potassio tartrate paper, and litmus paper, his book of papers would be complete. With these can be carried very handily a little square of wire-gauze.

Dr. Southey testified to the value of Dr. Johnson's picric acid reaction for albumen, and stated that its delicacy had been of value in demonstrating the presence of minute traces of albumen as a normal physiological constituent of the urine. We believe that there are no facts to support Dr. Southey's assertion, although we now know that under comparatively slight physiological distur-

bances, and apart altogether from organic change in the kidney, albuminuria may be temporarily produced. Had he limited himself to the statement that albuminuria is not in itself a proof of organic disease of the kidney, he would have been perfectly correct. A long run, a cold bath, or a heavy meal, are among the physiological disturbances that in some will lead to this temporary albuminuria. By this statement he laid himself open to Dr. Mahomed's obvious retort that, if minute traces of albumen are normally present in the urine, delicate tests which prove their presence are misleading to the clinical observer, and should be abandoned in favor of some simple coarser reaction which shows the presence of albumen in morbid quantities only.

Dr. G. Johnson demonstrated at the Clinical Society that his picric acid test may be used not only to detect the presence of minute quantities of sugar with great ease, but also for a quantitative analysis; and his saccharimeter is a convenient apparatus. The test is so delicate that it may be readily used to estimate the saccharoid matter normally present in urine.

We can only hope that the pointed attention called to this matter at our two most practical Societies will have some good effect in assisting practitioners in general to understand better both the exact methods and the great importance of urine testing.

A "BILL OF MORTALITY."

PERSONAL health is as important to the community as to the individual. A nation of sick persons or of infirm invalids would quickly cease to be a nation at all. It may seem superfluous even to assert so obvious and trite a fact, but it has a corollary not less true and not less obvious, the importance of which is far from being practically realized. All sickness and all infirmity entail a national loss, actual and definite, in consequence of which the nation is not only weaker, but is also poorer. We are so accustomed to the presence of disease that we imperfectly appreciate its influence on national prosperity, although we realize to the full its blight on the individual life. Pity stirs benevolence to acts of charity for the relief of suffering, and alarm dispels for a moment the apathy which hinders sanitary progress; but compassion is a limited, and fear an evanescent, motive, compared with the self-interest which, whatever ought to be, unquestionably is the ruling force of public action. The national purse is the only weight which surely excites and persistently maintains the national energy. If the nation realized the extent to which it is impoverished by preventable disease, rendered poorer by definite loss of that wealth of which money is the token, it would bestir itself in the cause of sanitary science in a manner that would quickly yield results, of which at present an approximate conception can scarcely be formed. The loss is not realized be-

cause, like indirect taxation, it does not obtrude itself in its naked simplicity. It is one of the drawbacks to charitable institutions for the treatment of disease that one part of the cost of preventable disease is unperceived. If the whole expense of the treatment of such disease were defrayed by separate taxation, its purpose distinctly specified, the eyes of the public would be opened in an effectual manner to one of the elements, and that the smallest, of the loss which they sustain from this cause. The cost to the community of the treatment of those suffering from preventable disease is not inconsiderable, but it bears a small proportion to the loss entailed by the temporary withdrawal of adult sufferers from the production of national wealth, and by the absolute loss of present and future workers in consequence of the fatality of those diseases. Of the sum to which that total loss amounts, no accurate conception can be formed, but an approximate estimate will certainly startle unreflecting persons. A curious attempt has recently been made in France to assess the loss from one disease. In the course of the discussion on typhoid fever, which still drags its slow length along at the Paris Académie de Médecine, M. Rochard presented an estimate which he had made of the loss entailed by typhoid fever in Paris. Although some of the bases of his calculation are hypothetical, the estimate is of much interest as one of the most careful attempts yet made to ascertain and state the money loss to the nation involved by one of the most common, most formidable, and most certainly preventable diseases.

During the year 1882 typhoid fever caused in Paris 3,276 deaths, out of a total number of 58,674. In 1881 the deaths were 2,120, out of a total of 56,820. Thus, the mortality from typhoid fever was greater by 1 per 1,000 in 1882 than in the preceding year. Moreover, during the past ten years, the total number of deaths has presented a progressive increase. Ten years ago the mortality oscillated between 21 and 23 per 1,000, in 1881 it was 25·37 per 1,000, and in 1882 it was 26·55 per 1,000. Of the 3,276 deaths due to typhoid fever last year, 1,449 occurred in the hospitals and 1,827 at home. The number of cases in the hospitals was 9,361, equal to a mortality of 15·47 per cent. The total cases treated were in hospital for an aggregate period of 240,083 days, giving an average to each of 25 days. Each day's treatment costs the authorities 3 francs 10 centimes, making a total cost of 744,257 francs for the whole number. But it is manifest that the three weeks' treatment in the hospital does not represent more than a part of the time during which the patients would be withdrawn from their occupations. It is not too much to estimate the total incapacity resulting from an attack of typhoid fever at two months—one month of illness, and one of convalescence. Now the municipal statistics of Paris show that more than a third of the victims were men between

fifteen and thirty-five years of age, the exact proportion between these ages being 39.43 per cent. It cannot be an excessive estimate to value the labor of these men at 2 francs a day, taking one with another. The two months each would give a total of 563,660 working days lost by the 9,361 patients; and correspond to a sum of 1,127,320 francs to add to the 744,257 francs expended by the authorities in their treatment, making a total for the hospital cases of 1,871,570 francs.

There are, further, the cases which died at their own homes. If the mortality was the same as in the hospitals, an assumption the least favorable for the calculation, this number of deaths would correspond to 11,830 cases. It cannot be supposed that the cost of the treatment of these patients was less than that of the cost to the authorities of the hospital cases, nor that the total period of incapacity would be less. On the same basis of calculation, we have, for these patients, a loss of 2,360,157 francs, which, added to that for the hospital cases, gives a total loss of 4,231,727 francs.

So much for the bill of the disease. But what of its mortality? Fifteen per cent. of the cases were fatal. That is to say the individuals were lost to the nation, not for two months, but for whatever may have been the probable duration of their lives. It is obvious that such a loss must be incomparably greater than that occasioned by the mere illness. But how can it be assessed? That some estimate is possible cannot be denied. It is true the life of a man, morally regarded, is of incalculable value; but the loss to the community of his productive energy is calculable, had we only the adequate data for the estimate. The value must vary in every country and in every race. By a method which he does not specify, and for another purpose, M. Rochard had arrived at the conclusion that it is not too much to estimate the money value to France of the life of every man of the age of twenty years at 12,000 francs (£480); but as all the victims of typhoid fever do not present these conditions, and as it is necessary to include the lives of little or no money value to the community, he takes 6,000 francs (£240) as the average value of each of the 3,273 lives. These represent, therefore, the enormous sum of 19,656,000 francs, which, added to the cost of the disease, gives a definite total of 23,887,727 francs, or very nearly £1,000,000.

It is evident that the bases of this calculation are to a considerable extent uncertain. Moreover, there are some distinct errors which may reduce in a slight degree the total sum. From the estimate for the month of convalescence, for instance, M. Rochard has omitted to deduct the proportion of fatal cases, to which convalescence never came. But the reduction from these corrections would be comparatively small, and the element of uncertainty does not prove that the figures are too high; they may be below instead of above the true sum. Moreover, it does not follow that by any practi-

able means the whole of these deaths could have been prevented; but that many of them might be certain; and if we consider how large is the mortality from other diseases as preventable as typhoid fever, it is evident that the pecuniary saving which sanitation has the power to effect is enormous. M. Rochard makes, for instance, an assumption which is certainly a modest one. He supposes that, by a combined effort of endeavor and capital, it may be possible to reduce the mortality in Paris from its present figure to that at which it stood ten years ago—21.58 per 1,000, the average of the three years 1872, 1873, and 1874—instead of that which was reached last year. This would be the saving of 11,182 lives, equivalent to an annual saving of 67,092,000 francs. Even if he has taken too high a figure, and estimated each life at double its actual value, there would still remain an annual saving of 33,546,000 francs a year, a sum which represents a capital of no less than 670,920,000 franc (£26,836,800); and this estimate is for Paris only!

The practical lesson is that, whatever be the figures taken, an enormous outlay on efficient sanitary measures may prove to be an actual and great economy, and result in a saving not only of life but of wealth. "Nothing is so costly as disease, excepting death; no waste is so extravagant as the waste of human life."

New Inventions

POCKET MEDICAL EMERGENCY CASE.

UNDER the above title, Dr. T. Frederick Pearse has devised a case which strikes us as a very creditable invention. It consists of a cylindrical box, made of ebony or boxwood, which in shape and size resembles a large drawing-pencil. At one end is lodged a specially contrived and neatly packed hypodermic syringe; the other end is made up of a series of compartments, fitted into one another somewhat like the pieces of an object-glass belonging to a microscope. Each of these compartments is intended to contain discs and perles of certain drugs likely to be required on an emergency, the name and dose of each drug being distinctly marked on the outside of each compartment. The substances thus provided for are morphia, apomorphia, nitrite of amyl (in perles), ergotine, ether (in perles), and pilocarpine. Thus the chief materials for hypodermic medication likely to be required on an emergency—whether for the relief of pain, the induction of vomiting, the arrest of hæmorrhage, or the production of sweating, are supplied; and the addition of nitrite of amyl and of ether is also a necessary provision for sudden attacks of angina, asthma, syncope, etc. The whole forms a most compact case, which can be very readily carried in the pocket, and we can heartily commend it to the notice



of the practitioner as being most useful for cases of emergency not requiring surgical treatment. It has been constructed for Dr. Pearse by Messrs. Arnold & Sons, of London.

Reviews and Notices of Books.

L'Étude et le Progrès de l'Hygiène en France de 1878 à 1882. Par MM. H. NAPIES et A. J. MARTIN. 8vo., pp. 546. Paris: Masson. 1882.

THIS volume was prepared at the request of the Council of the Société de Médecine Publique et d'Hygiène professionnelle de Paris, by its two secretaries, with a view to bring under the notice of the International Congress of Hygiene at Geneva in September last, the progress of sanitary science in France during the four years which had elapsed since the Congress met at Paris in 1878. Considering that the time available for its preparation was little over two months and a half, the great number of subjects brought under consideration, the careful manner in which they have been treated, and the extent of knowledge required for the production of such a sketch, the reporters must be deemed entitled to high praise for their labors, and to have added to their already established reputations as scientific hygienists. The first chapter treats of the hygiene of childhood from earliest infancy through the school period, and under this head the arrangement of the class rooms and the principles on which they should be lighted, the best forms of school furniture, and the system of school gymnastics are discussed. Mention is made, as an instance of true progress, of the formation of a swimming bath at the Lyceum of Vanves—a valuable addition certainly to a school, but one which we should imagine, from the notice taken of it, to be a novelty in France. If we may judge by the recommendations made in 1878 by the Society of Public Health on the subject of "measures of an immediate and general application" required for the schools in France, and which do not appear as yet to have been adopted, we are forced to conclude that they are very far behind this country in their arrangements for the health and comfort of the children, many of those now in operation being very objectionable. The second chapter is devoted to the hygiene of food, and gives an account of the establishment, in 1878 and following years, of municipal chemical laboratories for the analysis of articles of food. The necessity for these laboratories is shown by the fact that of 6,258 samples of food and drink analyzed in the laboratory at Paris during the last ten months of 1881, upwards of 50 per cent. were pronounced bad. In subsequent chapters the hygiene of trades and professions, and of the navy and army are discussed, and under the latter head the necessity for improved barrack accommodation is enforced; the conditions necessary to ensure the health of towns, including the important questions of water-supply and sewerage, and the hygiene and sanitary requirements of the country, are also brought under review. The reports of several commissions appointed by the Minister of Agriculture and Commerce, by the Prefect of the Seine and by the Prefect of Police of Paris, to inquire into the sewerage of Paris and into the effect upon public health of several manufactories in the environs, bear evidence to the existence of a most unsatisfactory condition of affairs in that capital, and fully justify the statements recently made on that subject by our Commissioner in his report upon the typhoid epidemic. The measures neces-

sary to remedy these serious evils have been clearly pointed out by the Commissions above referred to, by the engineers of the municipal service of Paris, and by the members of the Society of Public Medicine, but as yet with little effect. There is evidently a great want of a strong administrative body to carry out the necessary measures of improvement and to enforce sanitary regulations.

A long chapter is devoted to hospitals and similar establishments, and in it an account is given of all the new hospitals erected during the four years included in the Report, illustrated by drawings. In connection with the hospitals for children, there is an interesting account given of an experiment made at the Maternité of Paris. Dr. Tarnier, struck with the success which attended the artificial incubation and rearing of chickens at the Garden of Acclimatization in Paris, conceived the idea that the principle might be applied to the preservation of infants prematurely born. He therefore had an apparatus constructed on the same principle as the "couveuse," with certain modifications, and used it in thirty-five cases in 1881-2. The prematurely born infant was placed in this, and retained for periods varying from one to forty days, the mean being five days. Of the thirty-five infants five died, and the condition of the remainder, on being taken out of the "couveuse," is described as very good in five and good in twenty-five cases. During the four years under review, special carriages for the removal of infectious cases were established in Paris, but on a scale totally inadequate to the services required; and schools were organized for the training of male and female hospital nurses.

A chapter is devoted to the subject of the causes and prevention of epidemic and contagious diseases, and includes the regulations for the sanitary police of animals and the measures of disinfection requisite when contagious diseases occur among them. An account is also given of the steps which have been taken to promote and improve the organization of the public health service in Paris and many of the large towns of France, and a notice of the most recent French works on hygiene. We do not think the book would have suffered by the omission of the programmes of lectures on hygiene delivered at various educational establishments.

It would be impossible in the space at our disposal to enter upon the numerous subjects treated in the Report. We must content ourselves with recommending it to the attention of those interested in the various topics. But they must remember that it professes only to be a study of the progress of hygiene during the last four years in France. It does not lay claim to be a complete treatise on the subject, nor does it make reference to the sanitary conditions of any other country. To those who will take the trouble, it affords the means of an interesting comparison between the conditions bearing upon public health in France and England—a comparison which may furnish useful hints both as to what to do and what to avoid. The volume is illustrated by 229 drawings, which serve to elucidate the various subjects to which they refer, but of which we cannot say much from an artistic point of view.

Medical Diagnosis. A Manual of Clinical Methods.

By J. GRAHAM BROWN, M.D. Edinburgh: Bell & Bradfute. London: Simpkin, Marshall & Co. 1882.

THE author of this manual deserves the thanks of all clinical students (and we may add of teachers

also) for the excellent work he has produced. We have been extremely pleased with the accuracy of the statements it contains, no less than with the careful and methodical way in which the whole book is planned; and we may predict for it considerable popularity in a field which has been long occupied by works far inferior to it in thoroughness and exactitude. One deficiency strikes us—viz., the comparative paucity of illustrative diagrams, which are of great assistance in works of this class, and we may call the author's attention to Eichorst's manual as indicative of the extent to which such illustration may be legitimately and usefully carried. Still, it must be admitted that illustrations are not absolutely essential, and it would be a pity if by their introduction such a book as this, on account of its cost, should be placed beyond the reach of students. As a slight indication of the plan of the work, we may add that, commencing with a chapter on the general aspect, condition, and circumstances of a patient, it passes to symptoms concerning the alimentary system, and then successively deals with the examination of the abdomen, the hæmopoietic system, and the circulatory, respiratory, integumentary, urinary, reproductive, nervous, and locomotory systems; and the author has fully availed himself of what are known as "modern methods" in the description and use of instrumental aids to diagnosis.

▲ *Study of the Tumours of the Bladder.* With Original Contributions and Drawings. By ALEX. W. STEIN, M.D., Surgeon to the Charity Hospital, New York. New York: William Wood & Co. 1881.

TUMOURS of the bladder are of such infrequent occurrence that it does not fall to the lot of any surgeon to see a large number, and himself to acquire such experience as to form a sufficient guide to his fellows. Dr. Stein has had the good fortune to meet with certainly two, and probably four, cases of vesical tumour within a few years, and this has naturally excited in him a considerable interest in this important subject. He has therefore searched for all the recorded cases of bladder tumour, and not the least valuable part of the work before us is the extensive bibliography with which it commences, in which the references are given in chronological order. The tumours are classified into papillomata, myxomata, fibromata, myomata, carcinomata, and sarcomata, and the anatomical characters of each group, with certain etiological and clinical features, are first discussed. A satisfactory microscopical examination of a number of the recorded specimens is unfortunately wanting. The sections on symptomatology and diagnosis contain a large amount of useful information. In the chapter on Treatment a brief account of every recorded attempt to remove a vesical tumour is given, the cases being arranged in chronological order and grouped into females and males. The fact which Dr. Stein insists upon is that these records show that the operation of removal of a tumour of the bladder is a very successful proceeding in the female, and far more successful than is usually imagined in the male. He has been able to find twenty-three cases of this operation performed upon females, in seventeen of which the growths were removed through the previously dilated urethra, and in six by means of an incision of the urethra or of the vesicovaginal septum; of this total, thirteen recovered, two patients were improved, and eight died. The tumours removed included papillomata, myxomata, myomata, and sarcomata. The male blad-

der has been similarly operated upon eleven times; eight times through the perineum, once above the pubes, and twice by supra-pubic and perineal cystotomy. Six of these operations proved successful and five were fatal. The six successful cases include five in which the perineal operation was performed, and Billroth's well-known case of the double incision. The author thinks the perineal operation the more generally available, but also speaks in warm praise of the supra-pubic operation, chiefly because by it the parts are freely exposed to view, and also because it affords facilities for dealing with very large tumours.

▲ *Treatise on the Theory and Practice of Medicine.* By JOHN SYER BRISTOWE, M.D., F.R.S. Fourth Edition. London: Smith, Elder & Co. 1882.

THE steady demand for new editions of this text-book affords sufficient testimony to its worth, and the author himself has been careful to improve each succeeding edition by the introduction of new matter and careful revision of the old. He has thus endeavored to keep abreast with the growing progress of medicine, and we find incorporated in this edition such subjects as an account of the bacillus of tubercle, the mitigation or attenuation of contagion, as well as a summary of Dr. Sanderson's lectures on the power of inflammation, delivered last year at the College of Physicians. The chapter on Ophthalmoplegia has been revised and expanded, and a new article added upon the interesting disease, acute ascending paralysis. We note, also, a considerable increase in the number of illustrations. There is no need to commend this work to students, for it has obtained a well-deserved success, and now holds a firmly established position amongst our text books.

▲ *The Contagiousness of Pulmonary Consumption, and its Antiseptic Treatment.* By I. BURNES YEO, M.D. London: J. & A. Churchill. 1882.

Dr. Yeo has reprinted with several additions, in the form of appendices and notes, the text of two lectures delivered at King's College Hospital last summer. The lectures are written in a clear and comprehensive style, and they review the arguments in support of the notion that tubercular phthisis is communicable, as derived from experimentation on animals, from a certain amount of clinical experience, and, lastly, from the discovery of Koch, which may make the past year memorable in the history of pathology. We think, however, that until more clinical facts are available of the actual transmission of pulmonary tuberculosis from one individual to another, it is somewhat premature to deal with the subject, except as a matter for speculation, and we do not think Dr. Yeo would go further than that at present. It is encouraging to learn from him of the value of antiseptic inhalations in phthisis, for the mode of administering which he gives ample details.

▲ *Pharmacopœia of Selected Remedies, with Therapeutic Annotations, etc.* Arranged as a Handbook for Prescribers. By EDMUND A. KIRBY, M.D., M.R.C.S. Eng., late Physician to the City Dispensary. Sixth Edition, enlarged and revised. London: H. K. Lewis. 1883.

Dr. Kirby's book has, in this edition, been entirely remodelled, and several changes have been introduced which tend to make it even more useful to practitioners engaged in private practice.

than it was in the older editions. The *ateria medica* has been compiled from the British and American Pharmacopœias, and, in addition, includes many valuable non-official remedies which are largely employed, and have gained considerable reputation, in English and American practice. An Index of Diseases and Remedies is also appended—a plan followed in all the most practical works on therapeutics. The object which the author had in view—viz., to supply the private practitioner with therapeutical data as to some of the more important remedies used in the metropolitan hospitals, and to put into his hand the most efficient formulæ of remedies for the general treatment of disease—has been fully attained. The book is well written, well arranged, well got up, and eminently useful and practical.

Injuries of the Spine and Spinal Cord. By HERBERT W. PAGE, M.A., M.C. London: J. & A. Churchill, 1883.

In all, save 7, of the 234 cases of railway injury tabulated by the author at the end of this interesting volume, there was no evidence of injury to the spinal cord or its membranes, so that it can hardly be expected that the work throws much light on the nature of the obscure troubles which follow "concussion of the spine." The genius of the author is destructive rather than constructive, and although he urges many objections to the views put forward by previous writers, he does not add much to the symptomatology or pathology of his subject. Glancing through the outline of the cases which he has tabulated, one cannot but be struck with the fact that the clinical picture drawn by previous writers, and especially by Mr. Erichsen, is strongly supported by them. We encounter again and again cases in which the sufferer who has been in a collision begins by thinking he is not hurt, and very possibly has assisted relieving others, or has walked some distance. Then perhaps he vomits, and in a day or two finds himself unable to work, and takes to his bed. He complains of pain, stiffness, and hyperæsthesia of the back; cannot bear the light, becomes hysterical, grows thin and haggard, and has perhaps numbness in the legs, difficulties of vision, and aching pains throughout the body. No less than 145 out of the 234 cases complained of their backs or their spines. Mr. Page doubts whether the symptoms referred to the back indicate trouble of the spinal cord. He is inclined to think that this may all be due to sprain of the vertebrae and their ligaments, or the spinal muscles, and he would use the term "traumatic lumbago" in preference to "concussion of the spine." Persistent tenderness of particular vertebrae, pins and needles, numbness and weakness of the legs, stiffness and hyperæsthesia of the back, and even difficulties of micturition and defecation, may all be accounted for by direct injury to bones or muscles, and in Mr. Page's opinion are more often due to this cause than to troubles of the spinal cord or its membranes. Possibly Mr. Page may be right, but it must be confessed that he does not appear to have been at much trouble to prove what he asserts. Recent pathologists and physiologists have taught us that many symptoms—such as vomiting, failure of nutrition, troubles of vision, vasomotor disturbance, joint troubles, and other symptoms not hitherto supposed to be commonly connected with derangement of the central nervous system—are in reality dependent upon definite lesions of definite tracts of the spinal cord, and modern methods of investigation have shown us how we may detect lesions of the cord long before

they become gross and palpable. Mr. Page has but a poor opinion of modern methods of investigation. He does not think that the dynamometer is of any use in detecting the consistence or inconsistency of paralysis true or false; the electric test is so often ignorantly used and requires so much care and knowledge that he scarcely thinks it worth while to ascertain whether adjoining or corresponding muscles vary in irritability; skin reflexes and tendon reflex are barely mentioned by him; the careful examination of derangements of sensibility and their limitation or otherwise to particular nerve areas is a matter hardly worth inquiring into, and we cannot gather that the ophthalmoscope has been methodically and systematically used by him. "Common sense," in Mr. Page's opinion, is the best and surest guide in the examination of railway injuries. "Common sense" has so long been in the habit of displaying its uncommon ignorance in the witness box that we trust it will soon give way to men of the modern school who have tried to make themselves familiar with the symptoms accompanying diseases of the spinal cord and the best means of investigating them. We have long felt that a fruitful field is open in this direction, and Mr. Page has left it open. His speculations may be right, but if so he might have done much more to prove them right.

Notwithstanding our unwillingness to receive without question all that Mr. Page professes to teach, we confess to having been much interested in his book, and we should advise all who are working at the subject of which it treats to read it, for it is well written and is full of literary research. In the second chapter, on Concussion of the Spine, the author runs a tilt at Mr. Erichsen. This chapter is in very doubtful taste, and does much to weaken the book. Polemical writing belongs to the worst traditions of a bygone age, and is wholly out of place in a scientific discussion.

Bulletins et Mémoires de la Société Médicale des Hôpitaux de Paris, 1880. Paris: Asselin et Cie. 1881.

THE Paris Society, composed of physicians and surgeons of the various hospitals, publishes its official record in the pages of *l'Union Médicale*, just as the Société Anatomique has its Proceedings recorded in the *Progrès Médical*. When completed, these Proceedings are issued in the form of a volume, and that now before us comprises the session of 1880. One of the chief features of this Society is its quarterly reports on prevalent diseases, which, as regards Paris, are contributed by M. Ernest Besnier, and form a very valuable record. There are also similar reports from some of the principal towns, as Lyons, Bordeaux, Marseilles, Toulouse, Rouen, and Havre. Amongst the most notable papers are those on Strumous Ulceration of the Velum Palati associated with Pulmonary Tuberculosis, by M. Laboulbène; Multiple Sarcomata, by M. Millard; a memoir on Salicylate of Soda in Typhoid Fever, Facial Erysipelas, and the Symptomatic Fevers, by Dr. Hallopeau; Pulmonary Tuberculosis and Scrofula, by Dr. Grancher, a subject further treated of by MM. Féréol, Labbé, Cornil, Damaschino, Thaon, Ferrand, and Rendu, in separate papers during the session. Amongst the memoirs appended to the volume is one on Cerebral Syphilis, by Dr. Fournier; on the Treatment of Typhoid Fever by Calomel, Salicylate of Soda, and Sulphate of Quinine, by Dr. Hallopeau; on Ulcerative Endocarditis, by Dr. Ferrand; and on the Parasite found in the Blood in Malarial Fevers, by M. Damaschino.

The Student's Handbook of Forensic Medicine and Medical Police. By H. AUBREY HUSBAND, M.B. Fourth Edition. Edinburgh: E. & S. Livingstone. 1883.

THE rapidity with which the three previous editions of this little book have been exhausted is a sufficient proof that Mr. Husband by writing it has met a want which is felt by a great number of students. The facts contained in it are as varied as they are numerous, and comprise the whole range of medical jurisprudence, toxicology, hygiene, and sanitary government, if we may be allowed to use such an expression. The book is a most praiseworthy collection of facts extracted from the writings of a great number of authors. It will form a handy book of reference, but we doubt whether it is a good book to place in the hands of a beginner. A man with a good memory might by diligent application master all the facts contained in it, but he would run a risk, we think, of being little more than a parrot at the end of it. Students require not only facts but illustration of facts, and every student's book should be planned so that it will cause him to be interested in the subject in hand and to reason upon it. To those who have already mastered the subjects treated of, Mr. Husband's work will prove a valuable book of reference, and its utility in this respect would be increased, we think, if the matter, instead of being classified according to subject, were arranged alphabetically so as to form a sort of dictionary.

The Germ Theory of Phthisis verified and illustrated by the increase of Phthisis in Victoria. By WILLIAM THOMSON, F.R.C.S. Melbourne: Sands & McDougall. 1882.

THE author of the present brochure has raised many important questions—important not only in relation to medical knowledge, but also to the welfare of a young and thriving colony of the British Empire. The writer appears to us to be altogether too positive in most, if not all, of his assertions. It is also a matter for regret that the paper should have been written with such evident bitterness.

In 1876 Mr. Thomson published a pamphlet, entitled "The Histo-chemistry and Pathogeny of Tubercle," in which he advocated the doctrine that the proximate cause of phthisis was a micro-zyyme. We gather from the present essay the notion that Mr. Thomson claims priority of discovery over Koch. It is true that Mr. Thomson also professes a large amount of modesty; but his modesty is so obtrusive in its reiteration that one may fairly doubt whether an undercurrent of jealousy does not permeate the whole. We shall have occasion to quote a few passages which seem to warrant the conclusions we have above stated. "While never dreaming to undervalue the noble work done by Koch, or hint about priority and originality, the writer merely states what is a plain matter of fact, that in 1876 his pamphlet was sent addressed to very many medical savants and university libraries in Germany." When the pamphlet of 1876 was published, it would appear to have been received with violent animosity by nearly everybody in Victoria; and no doubt the author had been subjected to many remarks likely enough to make him retort in an equally vehement spirit. But we must allow that Mr. Thomson has opened up matters in relation to the communicability of phthisis which are full of pregnant meaning, for the Victorians at least.

We may say at once that the author is a firm believer in the bacterial origin of pulmonary con-

sumption, as well as in its contagiousness; and in the latter part part of the brochure he instances many examples of supposed transference of phthisis. After stating that of all deaths from all causes that occurred in adults in Victoria in 1880, between the ages of fifteen and forty-five, one in three was from common consumption, the author observes, "Surely this high death-rate gives the highest importance to the discovery [of the tubercle bacillus] for the people of Victoria, particularly as the cause can be so readily attacked, and its ravages entirely prevented." This last sentence will probably not quite concur with the ideas of many; and the view of which it is the expression is one of the noteworthy points in the essay.

Mr. Thomson seems to have entertained the idea for some years that phthisis was contagious. In 1870 he wrote an article in which he incorporated nearly all the aspects of the question which he now so strenuously advocates; and which he believes to see so remarkably verified by the latest discoveries of Koch, Baumgarten, and others. If we entirely give ourselves up to the doctrines, which are now considered to be very plausible, we may go with Mr. Thomson so far as to believe that phthisis has been imported from England into the Victorian colony, where it has devastated the ranks of the aborigines, in very much the same manner as measles is allowed to have done under similar circumstances in various places. That accusations of a weighty nature are thus levelled at the heads of the physicians of the mother country, as well as at those of the authorities in Victoria, including among them the Board for the Protection of Aborigines, there can be no doubt. And if we view the statistics, presented by Mr. Thomson, in the light he would have us read them, then the accusations will be seen to be fair and honest. The numbers show that, in the decade immediately above puberty, there is an alarming increase in the death-rate from phthisis not only of the new arrivals, but also of the native-born inhabitants; further, the number of individuals dying of consumption is shown to be absolutely and relatively larger in the years ending with 1881 than in the years beginning with 1871. It was thought by many, and seemed to be the general opinion of the Institute of Actuaries,¹ that Mr. Thomson's statistics, garnered from the hospitals of Melbourne, were not properly representative. It was alleged that Mr. Thomson forgot that almost all the cases occur in Melbourne, probably not only from the reason that they originally lived there, but because sick people naturally go where hospital and medical aid can be most readily gained. To these objections Mr. Thomson replied that he had been careful to sift the cases, and had made the proper deductions and allowances. The latest Victorian year-book, which we presume is an authenticated document, shows conclusively that the number of deaths assigned to phthisis has increased, and that not in one part, but over the whole of Victoria. Mr. Thomson is much struck with the increased rate of mortality from phthisis occurring just after puberty; he advances his explanation of the phenomenon in a positive manner.

This leads us to notice another feature of the contents of this paper. The physiology and pathology therein contained appear to us to be of a crude kind; the author endeavors to be more explicit than we believe physiological doctrine warrants. Of this sort are such opinions as are next indicated. Nicotine, as present in smoke, and in alcohol as taken in ordinary drink, are alleged to be destructive of the bacilli of tubercle; the author states that meat, from animals dead of bovine tuber-

¹ See Insurance Record, April 14th, 1882.

culosis, would cause tubercle in man and does produce it, except where alcohol is likewise taken. Further, *climate* is emphatically denied to have anything to do with the production or prevention of consumption. The author perhaps eclipses himself when he gives the *rationale* of the increased death-rate of phthisis, just after puberty. This explanation is not to be found in a hereditary tendency, but consists in an anatomical alteration, whereby a pus cell (laden with bacilli) which could not get into a pulmonary alveolus in childhood, is able to penetrate to that chamber when the advent of puberty shall have widened up the passage thereto? The most interesting and important food for our mental digestion is unquestionably the subject of the possible importation of phthisis into the Victorian colony.

Medical Annotations.

"Ne quid nimis."

DANGERS OF AERATED WATERS.

It is our duty once more to direct our readers' attention to the danger of common aerated waters. The aeration has of course no effect on the quality of the water, and as the consumer cannot judge for himself in the matter, he is exposed to most serious risk if, as sometimes happens, bad water has been used in the manufacture. There is comparatively little danger with aerated waters made in large towns, because as a rule the town water-supply will be used, and the town water-supply is seldom very bad. But in country places supplied by streams or shallow wells there is constant risk that the maker may have chosen the most convenient source without regard to its quality. If the only available water-supply is doubtful in quality, it should be carefully purified before aeration, either by distillation or at least by prolonged boiling and filtration.

OLFACTORY MEASUREMENTS.

VERY interesting facts have been ascertained regarding the time required for the stimulation of the various organs of special sense, and for the perception of the results of the stimulation. The time is measured from the commencement of the stimulation to the moment at which the individual makes a signal that he has perceived it. The measurement has been made for auditory, tactile, visual, and gustatory sensations; but until recently no observations have been made on the sense of smell. This defect has now been supplied by two independent investigators, Dr. Buccola, of Turin, and Dr. Beaunis, of Nancy, who have arrived at results almost identical. The conclusions of the latter have recently been published in the *Gazette Médicale de Paris*. In these experiments the odorous substance was placed in a closed bottle. If not a liquid, it was dissolved in alcohol or water. Two holes were made in the cork of the bottle, and through these two tubes were passed, one reaching nearly to the level of the liquid, the other ending in the upper part of the flask. The end of the former was connected with an india-rubber injector, and the end of the latter tube was fitted with a suitable extremity for introducing into the nostril, stops being placed so that the odor should not escape until a desired moment. The compression of the injector drove a current of air from the interior of the bottle into the nostril. Another tube of the same length, communicating

with the cavity of a tympanum and writing lever, serve to register the exact moment at which the wave of air reached the nostril, and an electrical signal was registered by pressing down a button at the moment when the sensation was perceived. A considerable time was necessary between different observations with the same substance, because otherwise the moment of sensation could not be accurately determined. The interval which elapsed was as follows with the several substances enumerated:—Ammonia, .37 sec.; acetic acid, .46 sec.; camphor, .50 sec.; assafetida, .52 sec.; sulphide of ammonium, .54 sec.; chloroform, .56 sec.; sulphide of carbon, .59 sec.; valerian, .60 sec.; mint, .63 sec.; carbolic acid, .67 sec. Doubtless the different substances have a different mode of action on the olfactory nerve, and thus the variations are explicable.

WOUNDS OF THE HEART.

THE surgery of the present day is undoubtedly aggressive. The intra-thoracic organs had been long beyond the pale even of minor operations, but excision of the lung has recently been proposed on experimental grounds as an operation practicable, at least in certain cases; and now the principle has been maintained by Block, on the same grounds, that wounds of the heart should receive surgical treatment, similar to that which would be given to a wound of an external part. He recently pointed out, to the German Surgical Society, that death from wounds of the heart is usually due to asphyxia from effusion of blood into the pericardium, or to the loss of blood, or to damage to the motor ganglia of the heart, or to obliteration of the coronary artery. Hesitation in opening the thoracic cavity leads the surgeon at present to allow the patient to die when he might be saved from death by asphyxia by a simple incision into the pericardium, and from death by hæmorrhage by an equally simple suture. He has endeavored to show by experiments on dogs and rabbits, that the suture of wounds of the heart is a relatively inoffensive operation, which can be successfully carried out in the space of three or four minutes. In four animals the two pleural cavities and the pericardium were opened for a short time, and all survived—a proof that such interference can actually be borne by animals. The opening of the right and left ventricles and the compression of the entire heart necessary to close the wounds was also borne for some time. A laceration of the cardiac muscle, the opening of the three thoracic cavities, and a suture of the lung to close the openings into the pleura, were also borne by a dog, which, in a vigorous state of health, was presented to the Society. In order to hinder the escape of blood during the suture the apex of the heart was seized and pulled so strongly that the pulse and respiration ceased, so that it was possible to operate, the heart being completely at rest. Not a single animal died in consequence of this manipulation. A less degree of traction, insufficient to affect the pulse or respiration, suffices to close the wound, so that the hæmorrhage ceases. Three animals were shown which had undergone this treatment.

ALKALOIDS IN HUMAN SALIVA.

DURING recent years the influence of saliva in the domain of experimental pathology has been one of considerable prominence. We need only refer to the researches of Pasteur and other French observers to confirm the truth of this. In 1881 Gautier believed he had discovered some chemical bodies resembling alkaloids in the healthy human

saliva. These bodies, when injected into the tissues of animal organisms, produce effects, best seen in birds, like those caused by the venom of serpents. Odo Buiwid has attempted to verify and extend the observations of Gautier, but without success. He does not directly dispute the presence of the alkaloids, but inoculations performed on pigeons, moles, and frogs have been productive of singularly negative results.

BODY-SNATCHING IN AMERICA.

We regret to learn that the horrible practice of body-snatching is carried on in some American cities. There was quite lately a painful discovery of this kind made in Philadelphia, and a criminal action was brought against the demonstrator of anatomy at one of the leading medical schools in that city. Now we learn that there is great excitement in Baltimore, owing to the discovery that vaults and graveyards all round that city are devastated, and the bodies of the recently buried carried off to the schools for dissection. There is of course only one method of stopping this revolting practice, which can commend itself to thoughtful persons, and that is to grant proper facilities for the supply of subjects for dissection. The experience of all the enlightened communities who have adopted this practice shows that it is quite efficient in abolishing altogether the crime of body-snatching.

NEPHRECTOMY IN ITALY.

DR. SPADARO reports (*Gazzetta degli Ospitali*, Feb. 18th, 1883) that five operations for removal of the kidney have been performed in Italy: the first by Urbinati, of Cesena, the second by Raffa, of Rovigo, the third by Clementi, of Catania, the fourth by Novaro, of Turin, and the fifth by D'Antona, of Naples, the three last being successful. Professor D'Antona's operation was performed Dec. 20th on a married lady aged twenty-six, by a curvilinear incision in the left loin. Pus was found around the kidney, which was changed into a bag containing matter. The artery and vein were secured in one ligature, the ureter in another, while a third ligature on the proximal side of the others included all those structures. Perchloride of iron was applied to the stump, and iodoform sprinkled into the wound, which on the suggestion of Professor Palasciano, was not sutured. According to the last report (twenty-fifth day after operation), the wound was granulating rapidly, and the patient progressing to complete recovery.

CRUELTY IN SPORT.

MR. ANDERSON, Sir Frederick Milbank, Mr. Samuel Morley, Mr. Jacob Bright, Mr. Passmore Edwards, and Mr. Buchanan, have brought in a Bill (which has just been committed *pro forma*) to amend the Cruelty to Animals Acts, 1849 and 1850, so that the provisions of those statutes may be extended to the prohibition of cruelty in sport to "any vertebrate animal, whether of domestic or wild nature, kept in confinement or captivity." The principal aim of the projected measure lies against pigeon shooting from traps or liberated by the hand; but there can be no question that, as the Bill is drawn, it will interdict the hunting of "carted deer" and "bagged foxes." These secondary prohibitions are much deprecated by Lord Walsingham and others, and efforts are being made to influence the "Press" and, through it, public opinion against the measure. With the keenest appreciation of the pleasures of sport in its true sense we most heartily support the Bill as it stands. Trapped pigeon shooting and hunt-

ing carted deer are not sport. We see nothing to qualify in the measure, and we should be glad to see retained the second clause—which defines the word "animal" to include any vertebrate animal kept in confinement or captivity—and which it is proposed to omit. The shooting of scared pigeons let loose from traps has long been a scandal, and by the decision of the Legislature is now doomed. In the interests of true sport—that is, the shooting and hunting of wild animals—it is of the highest importance that false "sport," wrongly so-called, and debasing to the public mind, should be abandoned; and, as it would seem, the only way to bring about its abandonment was to move Parliament to interdict it by law. This has now been attempted, and our best wishes are with the promoters of the measure, albeit we should have been glad to see the names of Members of the House of Commons known in sporting circles at the back of the Bill. Probably Lord Walsingham's alarm lest the Master of the Buckhounds should hereafter be fined five pounds for breaking the law, under the proposed new Act, is shared by gentlemen, who must surely sympathize with the main purposes of the measure, although they may demur to certain of its collateral effects.

VAGRANCY.

THE difficult question as to the treatment of vagrants has again arisen; and though perhaps the revelations disclosed at the Croydon Petty Sessions with regard to the management and conduct of the inmates of the vagrant ward at the Croydon Union may result in the establishment for a time of better discipline and more efficient supervision of the casual wards of our workhouses, still it is to be feared that the improvement will be only temporary and superficial. The law regarding the subject of vagrancy needs thorough amendment, and some better means of distinguishing between the *bonâ-fide* homeless wanderer or traveller and the professional vagrant and mendicant requires to be established. That a large army of able-bodied but idle and dissolute men are housed and fed daily at the expense of the ratepayers is a scandal which ought to be suppressed with a strong hand. The actual number of wanderers on the road that are really deserving of substantial aid is, we believe, inconsiderable; but it is a great misfortune that those whom temporary necessity obliges to travel on foot from one place to another should be compelled to herd at night with debased and profligate companions; and no proceeding is more likely to increase the number of vagrants already in existence than the present arrangement for the reception and treatment of casuals. There ought to be no difficulty for people whom temporary distress or want of employment compels to roam in search of work to obtain from their last employer, or from some respectable and responsible person to whom they are known, a certificate stating the circumstances under which they were driven to seek for shelter during an enforced pilgrimage. Were such a certificate endorsed by the police, and allowed only to remain in force during a period simply sufficient for the accomplishment of the journey, many of the present evils might be removed. The certificate should entitle the bearer during its continuance to a clean and decent night's lodging and a substantial evening and morning meal at any workhouse on the route, and the testimony of the master of each workhouse to the good conduct of the sojourner should be attached to the document before his departure the next day. Such a wanderer might, we think, be excused the usual task-work of stone-breaking. The professional vagrant, on the other hand,

ought in all cases to give an account of his antecedents for at least a fortnight beforehand, and have his conduct at the various unions recorded on a certificate. If after a definite period he were found still wandering about the country, he ought to be handed over to police authority and dealt with as an incorrigible rogue and vagabond. Whether it be practicable or not thus to separate the two classes of vagrants we are not in a position to determine, but are certainly of opinion that the present system of allowing persons to roam without control and without supervision from village to village and from parish to parish is one full of danger to society generally, both from a moral and a sanitary point of view. The latter aspect of the case has not been considered as fully as its importance deserves, but very slight reflection shows how likely infection is to be disseminated by these nomads. In the case of the spread of cattle disease we believe this has been recognized. At the present moment, when restrictions are being placed on the removal of cattle, it seems anomalous that this human agency for spreading disease has not been controlled.

LIME-LIGHT FOR TEACHING PURPOSES.

At the meeting of the University of Durham Medical Society, held on the 7th of February, a demonstration was given on the adaptability of the lime-light for teaching purposes. The objects shown were diversified in order to bring out the capabilities of the instruments, which comprised the asphengoscope, the lime-light microscope, and the lime-light sciopicon. The screens used were one of tracing-paper for transmitted light (for the asphengoscope), one of linen (for the sciopicon), and one of chalked linen (for the higher powers of the microscope). By means of the asphengoscope (for the projection of solid and opaque objects), an image four or five feet in diameter could be thrown upon the screen when the object was placed in the focus of the lens of the instrument. Some of the objects were selected as being too small to be shown to a class under ordinary circumstances; others as indicating how plates from books, drawings on cards, photographs, etc., might be substituted for the large and costly diagrams usually employed in teaching. Coins, the works of a watch, the surfaces of the astragalus, the palate bone, preparations of the internal ear, calculus vesicæ on section, crystals and minerals, moths and beetles, pencil and pen and ink sketches on cards, crayon drawings on slate (appearing as on a black ground), plates in books on chemistry, operative surgery, and ophthalmology, and photographs were exhibited. It was shown how a set of diagrams for a full course of lectures could be carried in a pocket-book. The chief drawbacks to the instrument are its cumbrousness and its inadaptability for objects of more than 3 in. square, or of unequal surface. The lime-light microscope was next shown, the apparatus consisting of an ordinary objective which was supported by an arm on a carrier fitted with diaphragms, etc. (like the stage of a microscope), screwed into the front of the lantern in place of the lantern lens, as nearly as possible in the focus of the condenser. The light took the place of the mirror of the microscope; no tube or eye piece was used. With a No. 4 Hartnack a brilliant disc eight or ten feet across was obtained, and the details of histological and botanical slides were clearly brought out; a $\frac{1}{4}$ in. objective was also used, a smaller disc being obtained. Lastly, the sciopicon was utilized for the demonstration of transparencies, its chief advantages being its compactness, its wonderfully brilliant light, and

more especially its arrangements for the placing of the object and for focusing. The transparencies included pencil, crayon, and pen and ink drawings, and water-color sketches on glass. Fine ground glass was used for drawing on, and was subsequently rendered transparent by coating with Canada balsam. It was shown how by the superposition of several slides of this kind successive layers in an anatomical region could be shown either separately or in combination. As, for example, the relations of the thoracic wall and the heart, lungs, and great vessels. This instrument was shown by Mr. Williamson, F.R.C.S., and the asphengoscope and microscope by Dr. Mears, the apparatus being kindly arranged by Mr. Dunn, M. Sc., of the Durham University College of Physical Science.

ICHTHYOL.

DR. P. G. UNNA, of Hamburg, has lately been experimenting on the dermatotherapeutic uses of a substance called ichthyol, obtained by Herr Rudolph Schröter by the distillation of bituminous substances and treatment with condensed sulphuric acid. This body, though tar-like in appearance, and with a peculiar and disagreeable smell of its own, does not resemble any known wood or coal tar in its chemical and physical properties. It has a consistence like vaseline, and its emulsion with water is easily washed off the skin. It is partly soluble in alcohol, partly in ether with a changing and lessening of the smell, and totally dissolves in a mixture of both. It may be mixed with vaseline, lard, or oil in any proportions. Its chemical constitution is not well established, but it contains sulphur, oxygen, carbon, hydrogen, and also phosphorus in vanishing proportions, and it may be considered comparable with a 10 per cent. sulphur salve. Over ordinary sulphur preparations it has this advantage, that the sulphur is in very intimate and stable union, so that ichthyol can be united with lead and mercury preparations without decomposition. Ichthyol when rubbed undiluted on the normal skin does not set up dermatitis, yet it is a resolvent and in a high degree a soother of pain and itching. In psoriasis it is a fairly good remedy, but inferior to chrysarobin in *P. inveterata*. It is useful also locally in rheumatic affections as a resolvent and anodyne, in acne, and as a parasiticide. The most remarkable effects, however, were met with in eczema, which was cured in a surprisingly short time. From an experience in the treatment of thirty cases of different kinds—viz., obstinate circumscribed moist patches on the hands and arms, intensely itching papular eczema of the flexures, and face, infantile moist eczemas, etc.—he recommends the following procedure. As with sulphur preparations, he begins with a moderately strong preparation, and as he proceeds reduces the strength of the application. For moist eczema weaker preparations (20 to 30 per cent. decreased to 10 per cent.) must be used than for the papular condition (50 per cent. reduced to 20 per cent.), and the hand, for example, will require a stronger application than the face, and children a weaker one than adults; but ichthyol may be used in any strength from a 5 per cent. to a 40 to 50 per cent. application or undiluted. For obstinate eczema of the hands the following formula is given as very efficacious. R Lithargyri 10,0; coq. c. aceti, 30,0; ad reman, 20,0; adde olei olivar., adipis, of each 10,0; ichthyol 10,0. M. ft. ang. Until its internal effects are better known caution is advised as to its very widespread application, although Herr Schröter has taken a gramme with only some apparent increase of peristalsis and appetite.

"CRAMMING" AT SCHOOL.

THE subject of "cramming" at school has occupied a large share of public attention lately. The setting of home lessons, which, besides over-tasking the pupil, have usually to be prepared under the direction of the parent and not by the teacher, is the feature which causes most dissatisfaction. The practical outcome of the discussion so far has been the issuing of a circular by the Glasgow School Board, which, as it is an eminently common-sense document, may be commended to the attention of other boards. It is too long for quotation here in full, but we may say that it admits that "by far the greater portion of the work of education should be discharged within the school itself" and not at home. It directs that home-lessons should be given steadily throughout the year, and not specially before the annual inspection, and that they should be proportioned to the age of the scholar and his home opportunities for study. When a scholar is under several masters it is to be seen that the home work prescribed by any one of them is not excessive. A respite in the middle of the week is recommended, the suggestion being that the work for Wednesday evening be lighter than that for any other evening. No extra lessons are to be set for Friday evening. The detention of scholars after time-table hours, either as a punishment or for the preparation of lessons, is condemned. These regulations should have some effect in lessening what everyone admits to be an abuse, and one of the most serious evils connected with our present system of education. May it not be the case, however, that the secret of the matter lies deeper, in the principle on which the Education Act is framed—namely, the payment of masters by results? Under such a system it is not in human nature to resist the temptation to work scholars hard, and so to get as much as possible out of them.

THE ACTION OF MUSCARIN.

FRANZ HÖGYES, in a paper on the action of muscarin on the circulatory system, shows that muscarin lowers the functional activity of the central nervous system, and after a short time paralyzes it, whilst it at the same time slowly lowers the excitability of the peripheric nervous system. He demonstrates that the dilatation of the vessels after injection of the muscarin is an immediate consequence of the paralyzing action of this poison on the vaso-motor centre. At a later period there appears to be diminution in the excitability of the smooth muscular tissue of the body. Muscarin inhibits the action of the heart, because it lowers the excitability of the automatic nerve centres in the organ, and in fact abolishes it; and with this action it causes a gradual diminution in the excitability of the muscular tissue of the heart itself.

A SCIENTIFIC CENTENARIAN.

PERHAPS never in the history of science has a distinguished career equalled in its length that of M. Chevreul, whose name is best known in this country in connection with his investigations on color; and it is probably altogether unique for a *savant* to be able, at one of the most distinguished scientific Societies in the world, to refer to remarks which he made before the same Society more than seventy years previously. A few days ago M. Chevreul made a communication to the Académie des Sciences, and at its close he observed: "Moreover, gentlemen, the observation is not a new one to me. I had the honor to mention it here, at the meeting of the Académie des Sciences, on the 10th of May, 1812!"

TUBERCLE BACILLI IN THE URINE.

THE presence of the bacilli of tubercle in the pelvis of the kidney has been demonstrated in the dead body by Lichtheim, but they have not until now been found in the urine during life. Prof. Rosenstein, of Leyden, has described, in the *Centralblatt für die Med. Wissenschaften*, a case in which the bacilli were found in the urine in considerable numbers, and it is an instance in which the discovery is regarded as of diagnostic importance, since the symptoms of uro-genital tuberculosis were otherwise equivocal. The patient was a man thirty-seven years of age, of healthy family, previously of good health himself, who at the age of thirty-three began to suffer pain before and after micturition. During two years induration had been noticed, first in the right and afterwards in the left epididymis, which became enlarged until it attained the size of a small walnut. The testicles themselves were free. There was no enlargement of lymphatic glands, and no indication of lung disease could be discovered. The patient's general condition was good; the temperature normal. Micturition was frequent, a small quantity of urine only being passed each time; the whole amount in twenty-four hours varied between 800 and 1,660 cubic centimetres; the specific gravity was between 1,012 and 1,018; it contained much albumen, was acid, slightly turbid when passed, with small white flocculi in it, and the deposit was abundant, whitish-gray in color, consisting chiefly of pus-corpuscles with a little blood. The urine was investigated for bacteria in the following manner. It was received in a solution of thymol and allowed to stand; a small quantity of the sediment was then placed on a cover-glass, dried in the gas flame, and treated after Ehrlich's method, when it was found that the flocculi contained numerous tubercle bacilli. The observation is of much interest, but at the same time rather by way of suggestion than of proof. The question of the diagnostic value of tubercle bacilli is still in the region of probable rather than of certain knowledge. Much more work will have to be done before their presence in an isolated excretion can be accepted as absolute proof of a tubercular process. No surgical examination of the bladder appears in this case to have been made.

THE TREATMENT OF SNAKE-BITES.

AT a recent meeting of the Lower Rhenish Philosophical and Medical Association, held at Bonn, Professor Binz described an interesting series of experiments carried on under his direction, with a view of testing various antidotes to the poison of serpents. He remarked that numerous specifics are heard of amongst the native population of India, which, as a rule, are found to be of themselves inoperative. Professor Binz stated his opinion that when a real Indian poisonous snake has bitten a person in the usual manner, spirits can only serve to prevent or to alleviate the spasms of suffocation which are induced by the action of the poison on the respiratory nerves. Atropine and other specifics against imminent results of an analogous character, caused by narcotic influences, have been found ineffective against this deadly virus. The most favorable tests made were with chloride of lime, a filtered solution of which was injected into the same place where the fatal virus had previously been introduced. In seventeen trials, made in succession, the poisoned animal survived without the slightest disturbance of its healthy condition. In five succeeding experiments, when a relatively insufficient dose of the antidote was administered, or when animals suffering from disease were operated upon, the

chloride of lime served only to retard the fatal effects of the poison. The suggestion was made by Professor Binz that the adoption of this treatment in cases of the bites of dogs suffering from rabies might possibly be attended with favorable results, inasmuch as chloride of lime has been shown to have much greater power than any of the caustic substances now usually applied to dog-bites, which have been proved to be scarcely, if at all, effective against the consequences of snake-bites.

Correspondence.

"Audi alteram partem."

RHEUMATIC ENDOCARDITIS.

To the Editor of THE LANCET.

SIR—To one or two points in connection with the above subject, touched on in Dr. Sansom's Lettsomian Lectures, published in recent numbers of your journal, I would, with your leave, direct attention.

In speaking of rheumatic endocarditis, Dr. Sansom quotes and endorses the two practical reasons which I give for the failure of the salicyl compounds to control the cardiac, as they do the arthritic, inflammation: first, that the cardiac mischief has generally commenced before the patient comes under observation; and, second, that rest, which is so essential to the recovery of an inflamed organ, and which is easily got in a joint, is unattainable in the heart. The first reason makes prevention impossible, the second is a bar to successful treatment. But though this is true, it does not express the whole truth. That a joint generally recovers from rheumatic inflammation, and that the heart does not, is a statement which expresses the broad results of clinical experience, but expresses them in a manner which, from a pathological point of view, is bald and misleading. The truth is (and striking as the statement may appear, it is absolutely correct), that *everything which recovers in a joint recovers also in the heart*. The one structure in the heart which does not recover, the endocardium, is also the one which has no analogue in any of the structures of a joint. In studying the pathology and treatment of rheumatic endocarditis it is essential that this fact should be kept before us, for unless we do keep it in view we are sure to fall into error. The parts which suffer in a joint in acute rheumatism are the fibrous ligaments and tendons and the synovial membrane. The parts which suffer in the heart are the fibrous rings and valves, the endo and pericardial linings, and occasionally the muscular substance. The fibrous rings and valves are similar in nature and function to the fibrous structures of a joint. Each is apt to be the seat of rheumatic inflammation, and in both this inflammation is generally recovered from. The pericardium finds its analogue in the synovial membrane; each is a very vascular membrane; each secretes a lubricating fluid; and each has for its function the facilitating the movements of a solid body; each, too, is apt to be the seat of rheumatic inflammation; in each the inflammatory process tends to spread, and in both the tendency is to recovery. The endocardium has no analogue in a joint. There is nothing in a joint which bears the least resemblance to it, either anatomical or physiological. It is a non-vascular membrane, in which inflammation cannot, and, as a matter of fact, does not, spread. In nature

and function it is identical with the lining membrane of the bloodvessels, with which it is structurally continuous. When it is affected in acute rheumatism there is no general inflammation of its surface such as is found in the pericardium and synovial membranes; the mischief is limited to a small portion of one surface of the affected valve. I have elsewhere¹ shown that the occurrence of the lymph deposit which constitutes the endocardial lesion in acute rheumatism, and its limitation to one particular portion and surface of the valve, are to be explained, not by the direct action of the rheumatic poison on the endocardial lining, but by the mechanical rubbing against each other of valvular ligaments whose deeper fibrous structures are the seat of rheumatic inflammation and thickening. This thickening of their fibrous structure it is which makes the valves rub, and the rubbing it is which irritates and roughens the membrane which covers them externally. The inflammation and thickening of the fibrous structure of the valve may be recovered from. What is not recovered from is the roughening of, and lymph deposit on, its non-vascular and endocardial covering. This is not recovered from because the continued action of the valve keeps up the rubbing and mechanical irritation, and because the want of bloodvessels in the endocardium prevents absorption. This is a condition over which no drug could possibly exercise any control. It is directly of mechanical and only indirectly of rheumatic origin. But it is by no means certain that we may not in some cases, by the early and free administration of the salicyl compounds, prevent the inflammation and consequent thickening of the fibrous texture of the valve, which are the origin of all the mischief. If we see a case early, and give these compounds freely, we may prevent the heart from suffering as we undoubtedly do prevent joints from suffering. In no given case can we be sure of having got this result, for the absence of heart mischief can never be demonstrated to be due to the treatment. The possibility of such a result, however, is worth striving for, especially as the means of attaining it are also those called for in the interests of the joints. What is wanted is the speedy arrest of the rheumatic process. This object can be attained only by giving salicin or salicylate of soda in large and frequently repeated doses.

This leads me to remark that my recommendations in this respect have not been acted up to. Why I cannot say, for I have pressed the point over and over again. What I recommend is that from twenty to forty grains should be given every hour for six hours, or until pain is relieved (which it generally is within that time); that the same dose should then be given every two hours till the pain is gone and the temperature at or near the normal, which is generally the case within twenty-four hours. After that the same dose is given at widening intervals of three, four, and six hours for ten or twelve days. But instead of giving it thus freely and largely, most observers are content to give from fifteen to twenty grains every three or four hours. That is quite an inadequate dose, and not nearly enough to get the full curative effects of the drug. I would again, through your pages, urge the giving of the dose which I recommend. I do not exceed my right in asking that my treatment should be carried out in all its details before its results are subjected to criticism. Salicin is the preparation to which I give preference, not because I regard it as superior to salicy-

¹ On Rheumatism; its Nature, its Pathology, and its Successful Treatment, by T. J. MacLagan, M.D. London: Pickering & Co. 1881.

late of soda as an anti-rheumatic, but because it may be given in large and frequent doses without causing such disturbance of the system as not unfrequently follows the use of the salicylate, and necessitates its suspension. My experience, too, is that those treated by salicin (which is a bitter tonic) convalesce more rapidly than those treated by the salicylate. There is an impression abroad that it is very expensive. It is not so. Two of the chief English manufacturers of it have told me that they are prepared to supply it to hospitals and dispensaries at 10s. 6d. a pound. Convalescence is so much more rapid under its use that I am not sure it would not, in the long run, prove cheaper than salicylate of soda. But whichever is employed, let it be given in large and frequent doses. I make this appeal in the interest of the heart as well as of the joints. Let every case of acute rheumatism be regarded and treated as one in which heart complications may possibly be prevented, and it is probable that in some cases they will be prevented. But every hour is of importance; for it needs no argument to show that the danger to the heart is less in a case in which the course of the disease is arrested within twenty-four hours than it is in one in which three or four days are expended in the process. The fact has never been accepted by the profession that the course of acute rheumatism may in many cases be arrested within twenty-four hours of the time that treatment commences. The recognition of that fact is the key-stone to all possible success in the prevention of cardiac complications.

I am, Sir, your obedient servant,
T. J. MACLAGAN, M.D.

February, 1883.

POISONING BY STRAMONIUM.

To the Editor of THE LANCET.

SIR—Some time ago I reported to you a case on the above subject, in which the inhalation of chloroform was very successful.

Last week I was called to a boy, aged seven years, who had swallowed part of half a drachm of extract of belladonna six hours before. He had become drowsy at first, but was now wildly delirious, biting and kicking those who approached him. Mustard emetics had proved powerless, and the boy appeared to be getting worse. Thinking it now too late to employ emetics, I administered chloroform for about a quarter of an hour, and left the boy in a quiet slumber. On calling next morning I found my patient at play, and learned that he had awakened quite recovered, after a quiet sleep of seven and a half hours.

I am, Sir, yours truly,
ERNEST RAWSON, M.R.C.S.E., Etc.

Wellington, N.Z., Dec. 28th, 1882.

NEW YORK.

(From our Correspondent.)

I ATTENDED the special meeting of the Medical Society of the County of New York on the 29th ultimo, which was convened for the purpose of deciding whether the "New Code" adopted last year, which permits the allopathic physician to meet in consultation his brother of the homœopathic persuasion, should be cancelled or maintained. About 300 members were present, and every seat in the lecture hall of the College of Physicians was occupied. The special feature of the new code which was the subject for discussion was the following rule governing consultations:—

"Members of the Medical Society of the State of New York and of the Medical Societies in affiliation therewith may meet in consultation legally qualified practitioners of medicine. Emergencies may occur in which all restrictions should, in the judgment of the practitioner, yield to the demands of humanity." This clause of the new code, it may be observed, makes no reference to any particular school of medicine, and on the face of it presents no objectionable feature; that two legally qualified practitioners should meet in consultation appears perfectly justifiable and calls for no censure. To appreciate the full value of this clause it must be understood that the State of New York recognizes the existence of all the ultra schools of medicine, permits them to teach their several dogmas and to issue diplomas to those thus initiated as legally constituted medical practitioners. The State gives no special authority to any school of medicine, and thus no "regular" school exists. The allopathist, homœopath, eclectic, etc., all stand before the public authorized to practice by diplomas of equal value and importance before the law. As I understand the case, in England the law recognizes but one school of medicine, the regular allopathic system; this forms the only means of entrance into the profession. The barrier once passed, however, the holder of a diploma can take up with any system he may select, but a homœopathic diploma cannot be obtained. On the contrary, in the United States any half-dozen men can form themselves into a corporate body, and become possessed of the power to confer diplomas. They may teach anything they please, or can confer degrees without any instruction whatever, and their diploma is just as good as that issued by the College of Physicians of New York. All presenting the same credentials, the American public have gradually lost special faith in the so-called regular school of medicine, and have given a large share of their patronage to the holders of dogmatic views, homœopaths, eclectics, electricists, or otherwise. Much of this loss of confidence has been incurred by the regular school of medicine by reason of their granting diplomas to half-educated boys, who are daily thrust upon the public, armed with all the powers of physicians and surgeons, without the necessity of having attended or seen a single case, and in Massachusetts without the necessity of having studied an hour or passing any examination. It will therefore cause no surprise when I state that 157 medical practitioners voted to throw down the last frail barrier between themselves and the advertising quacks who rely on their own dogmas for public support. In vain such a man as Dr. Austin Flint, senior, raised his voice of warning, and reminded his hearers that under the old code the profession had prospered and become respected in the past; that those with whom consultations were now advocated constituted a body of men who held absurd dogmas, and who had organized themselves in opposition to the medical profession, taking a special name of their own, and practicing with exclusive dogmas, which ignored the accumulated experience of the past. No regular physician can fraternize with such men, said he, and maintain his self-respect. The eloquence of Dr. Flint was in vain. One member who was cheered expressed a wish to abolish all codes of ethics and claimed perfect freedom of action. Practically, the majority of those present were of the same opinion, and but sixty votes could be secured, from a list of nine hundred members, for the maintenance of the separate individuality of the regular allopathic medical profession.

To-day the State Medical Society, at Albany, confirmed the action of the County Society, and declined even to appoint a committee to investigate

and report in the matter. Thus, the medical profession of the State of New York have secured the freedom of action they desired, at the cost of being isolated from the American Medical Association, who will probably close their doors on the New York delegates at the next meeting, as they did at the last, for similar reasons.

I have endeavored to learn, what is called here, the true inwardness of this movement. It is a pretended concession to the outsiders of the medical profession. My own opinion is, that so far from being a concession, the movement is an aggressive one—a forward march on the enemy's camp. "This is no question of drugs," shouted Dr. St. John Roosa, at the New York meeting. "No," whispered a physician who sat on my right, "Dr. Roosa is right, it is a question of dollars and cents."

New York, Feb. 10th, 1883.

FIBRINOUS COAGULA IN THE RIGHT SIDE OF THE HEART AND PULMONARY ARTERY.

To the Editor of THE LANCET.

SIR—During my seven years' service in India in the Indian Medical Department, I came across several cases of the kind. I observed it to be the cause of early and unexpected death in pneumonia. At the commencement of the Afghan campaign in November, 1878, the 14th Sikhs were attacked with what seemed to be an epidemic of pneumonia of such severity as to necessitate the sending back of the regiment to India. The cause of death in many of these cases seemed to be the formation of ante-mortem coagula in the right side of the heart. In January, 1879, a case occurred among the Bengal Sappers and Miners, with whom I was doing duty at Jellalabad. The lung affection, of no great severity, had lasted above forty-eight hours, when word was brought to me that the man was dying. I found him suffering from distressing dyspnoea, for which all remedies proved unavailing. Having, with considerable difficulty, obtained a post-mortem examination, I found a firm coagulum filling the right ventricle and auricle, and extending "like the branches of a tree" into the subdivisions of the pulmonary artery.

I am, Sir, yours obediently,

H. MALLINS, M.B.,

Late Surgeon, Indian Medical Service.

Watson, February, 1883.

VEGETABLE *versus* ANIMAL DIET.

To the Editor of THE LANCET.

SIR—I forward you the result of an experiment I have just made. Last year about this time I determined to abolish fish, flesh, and fowl from my dietary, and see how I got on without them. I found at first that the ordinary vegetables, when eaten by themselves, were almost tasteless, and after a dinner consisting of them only I did not feel the satisfaction that I did after a meat meal. In the course of a few months my taste improved, and I learned to like them; and now I can eat them just as cooked. In the same way I have lost my taste for pickles, spices, pepper, and mustard; I still retain salt in small quantity. Now my meals satisfy me every way, and I do not experience the heaviness that I did after a meat meal. I used to suffer at one time from indigestion, but I have lost that since trying my experiment. I am very fond of mental work, and I find I can work better on my new diet. My bodily powers have not decreased, for I can run and walk as well as ever.

Alcoholic drinks I have lost a taste for, and even the smell in some cases is disagreeable; the same with tobacco. My bowels are as regular almost as clockwork. I was constipated once only for a month, and that was because I was travelling and could not well get whole meal bread. I was threatened with rheumatism, and had rheumatic pains in my joints, but all those have gone. My urine was very often loaded with lithates, but now it is always clear and never deposits any; this has been so since a fortnight after beginning. It smells sweet at times, and occasionally has a mild, roast meat odor. I have gained about seven pounds in weight during the year. My diet consists of brown bread, fruit, and a cup of coffee for breakfast. Two vegetables, brown bread, and a pudding or pie for my dinner. Tea consists of a cup of milk-and-water, brown bread, and jam. If I eat supper I take a little bread and water, or bread and jam, cold pudding, or boiled onions. I do not eat peas, beans, or lentils above once a month. I do not eat more food as a non-flesh eater than I did as a mixed feeder. Butter, cheese, eggs, and milk enter sparingly into my dietary. In the warm weather I eat more green stuff, and in autumn plenty of ripe fruit. My spirits are improved, and bad temper now rarely troubles me. My senses have increased in acuteness. I shall be pleased to give any information or willingly answer any queries. I am, Sir, yours, etc.,

T. R. ALLINSON, L.R.C.P. Ed.

Kingsland-road, E., Feb. 16th, 1883.

PERSISTENT HICCUGH.

To the Editor of THE LANCET.

SIR—Can any of your readers assist me in the treatment of the following case, which has already been seen in consultation by two other medical men of position?

Mr. S—, aged sixty-eight, in good health until last spring, when he had a sharp attack of bronchitis. In a few weeks he was at business again, and went on well until July, when hiccough set in, and from that time to this this troublesome complaint has continued. In December he again took bronchitis, and this disease now seems to alternate with the hiccough; but the latter is so distressing, and has exhausted my patient so much, that he is now in danger of death. I may mention that all the various functions of the body are normal, and he has not an ache or pain over and above the hiccough.

I have consulted all the latest authorities on this complaint, and I find it invariably treated as of little or no importance. I may mention that I have tried all the known anti-spasmodics, counter-irritation, firm pressure around waist, pressure on phrenic nerve, and galvanism; I have also tried quinine and arsenic in large doses, bromide of potassium, cannabis indica, etc. Every fresh remedy seems of service for a dose or two, but the complaint then returns with renewed vigor, and continues without a break for hours at a time.

I am, Sir, yours truly,

M. D.

January 31st, 1883.

AMPUTATION AT THE HIP-JOINT.

To the Editor of THE LANCET.

SIR—The Clinical Society, at its last meeting, did me the honor to give much of its time to the discussion of a method of amputation at the hip which I have devised. The personal element is unimportant, the mode of executing the largest operation on the body is very important. The operation I described, in *THE LANCET* first of all,

differs in momentous particulars from the continental methods which it is said to resemble. If the head of the bone be disengaged *first* and the vessels be divided *last*, at right angles, and *low* down in the thigh, the question of hæmorrhage is shorn of all anxiety. The operation has, within a brief period, almost supplanted the rough-and-ready flap method with its vast cut surfaces. It has already saved many lives in desperate cases where competent and impartial surgeons have held that no other treatment was possible. When the operation is said to be tedious, its steps have not been well considered. When it is rejected on the score of a few moments of time, there is something wanting in the surgical conscience.

I remain, Sir, your obedient servant,
FURNEAUX JORDAN.

Birmingham, Feb. 20th, 1883.

BEDSIDE URINARY TESTS.

To the Editor of THE LANCET.

SIR—Dr. Oliver has omitted to mention metaphosphoric acid as one of the tests for albumen. It was recommended by Dr. Grigg in 1880. A piece about the size of a split pea dropped into the urine in a test-tube affords, he says, on the application of gentle heat, a ready and certain test. As the acid dissolves, the albumen forms a white cloud around it. I am, Sir, your obedient servant,

F. P. ATKINSON.

Kingston-on-Thames, Feb. 7th, 1883.

IDIOSYCRASY IN FOOD.

To the Editor of THE LANCET.

SIR—I had the opportunity of witnessing the most interesting case of acute urticaria and spasmodic asthma I have ever seen the other evening whilst dining, showing how idiosyncrasy in certain articles of food affects certain individuals. A young lady was sitting at dinner, apparently in perfect health. She partook, amongst other things, of some rabbit, and in about ten minutes or so after she had eaten of it she was attacked with acute urticaria, showing large erythematous patches and wheals very prominent on the face and neck. She then was seized with violent attacks of spasmodic asthma, which obliged her to leave the table. I inquired if she had ever suffered this before, and she informed me she had after eating hare. I have seen several instances of urticaria, and one case in conjunction with spasmodic asthma, after eating hare, showing this peculiar idiosyncrasy in individuals to certain articles of food. I am, Sir, your obedient servant,

JAMES STARTIN.

Sackville-street, Piccadilly, Jan. 31st, 1883.

Medicus.—The payment of the fees should be insisted on. If erysipelas followed vaccination, *a fortiori* it would have followed small-pox, and probably in an aggravated form. Study the sequelæ of small-pox.

News Items, Medical Facts, &c.

"TRUTH THROUGH ERROR."—Under the above heading an American contemporary relates that a busy doctor sent in a certificate of death the other day, and accidentally signed his name in the space for "Cause of Death." The registrar says he wishes the profession would be as accurate generally.

GASTROTOMY IN THE SEVENTEENTH CENTURY.—The *Berliner Klinische Wochenschrift* of Feb. 12th contains a quaint account of a gastrotomy performed in the year 1635 at Königsberg. The subject was a countryman, who had six weeks previously swallowed a table knife seven inches long. Dr. Daniel Schwaben was the operator. He made an incision just below the left costal margin, exposed the stomach, and at once felt the knife; cut down upon it, and drew it out. The stomach wound at once contracted, and does not appear to have been sutured in any way. The wound in the belly-wall was sewn-up and dressed with a complicated array of balsams, lotions, and compresses, in which we may recognize a blind and imperfect antiseptic dressing. With the exception of hæmaturia, the man recovered without any troublesome symptom.

ARTIFICIAL HUMAN MILK.—The *Physician and Surgeon* says that Professor Frankland's method of preparation of artificial human milk is as follows: Let one-third of a pint of fresh cow's milk stand twelve hours, then remove the cream, and add to it two-thirds of a pint of new milk as fresh from the cow as possible. To that one-third of a pint of blue (or skim) milk left after taking away the cream, add a piece of rennet (about one square inch in size), which, after it has served its purpose, can be taken out and used daily for a month or two, and allow the vessel holding the skim milk to be placed in warm water, and there remain for from five to fifteen minutes, until curdling is affected. Break up the curd repeatedly, and carefully separate the whole of the whey, which should then be rapidly heated to boiling in a small tin pan, placed over a spirit or gas-lamp; during this heating a further quantity of casein (technically termed "fleetings") separates, and so straining after this, through fine muslin, is then required. Now dissolve one hundred and ten grains of powdered milk sugar in hot whey, and mix it with two-thirds of a pint of new milk as before prepared with extra cream. This gives one pint of artificial human milk, which should be used within twelve hours of its preparation. All vessels, and apparatus concerned in the manufacture must be kept scrupulously clean.

COUNTRY PRACTICE.

LUCKLESS he whom Fates urge on
To practice as a country surgeon,
To ride, regardless of the weather,
Encased in waterproof and leather;
And oft at two points diametric
Summoned to render aid obstetric,
Or sent for to a broken limb,
When Lady Blank, with nervous whim,
Or some imaginary fever,
Calls him a savage if he leave her.
A day and night in some lone cottage
He shares the lowly laborer's pottage,
And kicks his heels with wearied brain,
Yet watching o'er the wife's slow pain.
And that task over, happy he
If e'er he get's the well-earned fee.
Now comes the night; with toil oppressed,
Tired he seeks his place of rest.
Vain hope! his slumber is soon o'er,
Loud sounds the knocker at the door.
A farmer's wife, at nine miles' distance,
Needs his immediate assistance.
Grumbling and groping in the dark
To find the matches for a spark,
And, yawning as he heaves his breeches,
Envies his neighbor who hath riches. E.

THE LANCET.

A Journal of British and Foreign Medicine, Physiology, Surgery,
Chemistry, Criticism, Literature, and News.

JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

PUBLISHED MONTHLY.

No. 6.

NEW YORK, JUNE, 1883.

Culstonian Lectures

ON

STERILITY IN WOMAN.

*Delivered in the Royal College of Physicians, London,
February, 1883.*

By J. MATTHEWS DUNCAN, M.D., F.R.C.P.L.,

Physician-Accoucheur and Lecturer on Midwifery at St. Bartholomew's Hospital, etc.

LECTURE I.

ITS NATURE AND AMOUNT.

MR. PRESIDENT, VICE-PRESIDENT, AND GENTLEMEN—Sterility is generally considered to imply the condition of woman who, under ordinary favorable circumstances for reproduction, does not bring forth a living and viable child. But the term is used with many other meanings, and I shall not state a definition, because I have no right or power to enforce adherence to it, and because, meantime, it is indispensable to have the word for various uses, and with the use of appropriate qualifying words ambiguity may be avoided.

Fecundity is a condition unique in gynecology in this respect—namely that it requires the combined matter and forces of two duly developed individuals to produce it. Sterility, therefore, may depend on error in one or in other, or in both.

The sterility of man as compared with that of woman is a simple matter. It depends on failure to produce semen, the production of semen more or less incomplete or imperfect, or of morbid semen (that is, semen conveying disease), or on failure to deposit the semen properly. With a view to investigation, the semen can be subjected to chemical and microscopical analysis, and the depositing organ can be examined and the conditions of deposition can be to a great extent ascertained. In woman the coördinate substances and functions are hidden and much more complex, and in her there are great organs and functions which have in the male no equivalent representative.

In the present lectures the sterility of man is not a subject for consideration, but one point in it cannot be passed over without some discussion and estimation—namely, its numerical amount. Much of our knowledge of the sterility of women

consists in numerical statements of amount under various circumstances, chiefly in marriages; and all such statements have a positive value for the physician, and still more for the political economist. But it is plain that, inquiring into the amount of sterility due not to unions but to women, we must exclude what is due to the male. Some good notion of the amount of this latter sterility is therefore indispensable.

Several investigators have attempted the solution of the question in recent times; but I refer only to the new work of Gross on Male Sterility. "It is not at all uncommon (says he) for physicians to assume that a man who is potent, and who is able to ejaculate, is capable of procreating. As a result of the omission to examine the emitted fluid, and carefully to explore the male organs, little is known of the relative frequency of sterility in the two sexes; and gynecologists, with the exception of those mentioned below, do not appear to have made any contributions to the solution of this important subject. I have been able (he continues) to collect one-hundred and ninety-two cases in which examination of both the husband and the wife demonstrated that the former was at fault in thirty-three, or in seventeen per cent. Of this number Manningham records one in thirty; Pajot seven in eighty; Mondot one in ten; Kehrer fourteen in forty; Courty one in ten; Noeggerath eight in fourteen; and I myself have found that the male was deficient in one example in eight. The cause of the sterility was azoospermism in thirty-one, and aspermatism in two. These facts show that the husband is at fault in about one case out of every six."

The matter is, however, still in a very insecure state, as may be shown by the statement of facts and considerations which must have important bearings on the question, but which have, so far as I know, been entirely neglected. Thus, it is assumed that by examination of the male and female we can decide whether one or other or both are at fault. Now, no doubt impediments or complete barriers to reproductiveness may be found in individuals of either sex; but in the great majority of cases of sterility no impediment or barrier can be discovered by the most careful and minute investigation; and this is verified by comparative observations in animals and in plants, wherein such inquiries can be carried to a completeness not attainable in the case of men and women. It is held that the man is not at fault if he duly ejaculates microscopically perfect semen, but this

is certainly not a warranted conclusion, as facts in human and comparative physiology, to be hereafter stated in these lectures, will show. In making estimates of male sterility, no account is taken of the fact that the faulty condition of a man's semen may be only temporary. It is forgotten that sterility may be due to faults in the semen, even though conception has taken place, and pregnancy been established; the foetus fading and dying prematurely from inscrutable causes, or being monstrous and not viable, or perishing from disease implanted in it by the male. It is forgotten that both parents may be simultaneously at fault, and this with or without discoverable cause, generally without discoverable cause.

Speaking of the sterility induced by domestication and that of hybridity, Darwin remarks that in both the sterility occurs in various degrees, and in both the male element is most liable to be affected, put sometimes the female more than the male. In another place, speaking of the liability of plants to be affected in their fertility by slightly changed conditions, he says it is the more remarkable, as the pollen, when once in process of formation, is not easily injured; a plant, he adds, may be transplanted, or a branch with flower-buds be cut off and placed in water, and the pollen will be matured. Pollen also, when once mature, may be kept for weeks, or even months. The female organs are more sensitive, for Gärtner found that dicotyledonous plants, when carefully removed so that they did not in the least flag, could seldom be fertilized; this occurred even with potted plants if the roots had grown out of the hole at the bottom.

Whatever may be the causes of sterility in women, there is a universally prevalent belief, which no investigations have shaken, that in the human species the paramount source of sterility is in the female. I know no scientific statement worthy of confidence as to the comparative influence of the two sexes; and the data of Gross, which I have quoted, contributing as they do towards the settlement of this question, are of importance and value in themselves, though they are far from substantiating the conclusion as to the amount of male sterility which he enunciates.

Of the sterility of women in whom, from gross and well-known causes, conception is impossible, these lectures take no account. Among such are cases of absence of uterus, and of imperforate vagina; conditions so rare that, in the present imperfect state of our knowledge, they do not affect statements as to women generally.

In describing sterility it is common to qualify it as absolute or as relative. No author on human sterility uses the term, without qualification, as including relative sterility. But when used without qualification it includes at least absolute sterility.

Absolute sterility, sometimes called congenital, including all cases where there is no child, no miscarriage, no abortion, however early, comprises two sets; first, those where there is no conception, and, second, those where the impregnated ovum disappears in the tube or in the uterus without leading to what is recognizable as an early abortion. Some cases of women aborting every month are known; there is discharge of a highly developed decidua vera every four weeks, and there may be no trace of an ovum in it; and this monthly discharge is arrested by suspension of cohabitation. But there may be many abortions earlier than this without these conditions, and of such practically nothing is known; they are classed along with those cases of absolute sterility where it is supposed that no conception takes place. In cases where there is no conception there may be no possibility of conception from the failure of

the ovary to prepare and mature an ovum. These varieties of absolute sterility are well illustrated and easily made out in the history of animals, and still more of plants.

Sterility, not absolute, implies the failure to produce a viable child, while there may be evidence of conception—that is, of the commencement of the production of an embryo. A woman may be sterile because the ovum perishes in utero or becomes unnaturally developed, as in myxoma of the chorion and some monsters; and this premature death or unnatural production may be owing to ovuline imperfections derived from the male or from the female. A woman may be sterile because the womb does not afford to the ovum due accommodation, or nourishment, or neither; or because the womb ejects it prematurely from its cavity; and these unnatural conditions and events may arise from either local or constitutional causes.

In absolute sterility and in sterility not absolute there is no production of a viable child, no addition made to the population; and all such sterility is sometimes, especially by economists, considered absolute; for indeed, in the point of view of population, it is so. But it appears to me desirable to restrict the term absolute sterility to those cases where there is no evidence even of conception. Sterility indicates a larger group, including that of absolute sterility, and all those other cases where no addition is made to the population.

There is another great department of sterility no less important than the kinds just mentioned, where a woman may produce one or even several living children, but, in number, not according to her conditions of age and length of married life. This is called relative or acquired sterility. The gardener may have a plant, producing not a single flower, absolutely sterile; or producing flowers, and setting seeds, but bringing none to maturity, or if to maturity not to perfection—a sterile plant which cannot continue its species; but he may also have a plant which produces flowers and matures perfect fruit, but in such small number as not to save it from the charge of sterility; and this is relative sterility. In woman it is often seen in cases of production of a single child—an only child sterility, if such a seeming contradiction in terms can be permitted, of which we often hear. A woman may be relatively sterile from producing, according to her age, only a small number of children with ordinary intervals between successive births, or from the number being rendered small by the extraordinary delay or loss of time between successive births, and in other ways.

All kinds of sterility may be congenital or may be acquired. It is therefore undesirable to use these terms as indicative of distinctions. For instance, an absolutely sterile woman, one who never conceives, may be so not merely from congenital causes, but also from disease acquired in advanced life; or, again, a relatively sterile woman may be so, not from an acquired cause, but from conditions which were congenital in her.

The amount of sterility in women (including the relative kind) is found by counting the number of productive and of unproductive marriages of women within the reproductive age, or from fifteen to forty-five. Lever, giving no numerical details, says that 5 per cent. of married women are wholly unprolific. West found the average of sterile marriages among his patients at St. Bartholomew's Hospital to be 1 in every 8.5. Hedin, a Swedish minister, noticed that in his parish of 800 souls one barren woman is not met with for ten fertile. Frank and Burdach roughly state that only one marriage in fifty is unproductive. Simpson made an inquiry into the sterility of married women in Grangemouth and Bathgate. Of 210 marriages in

Grangemouth 182 had offspring; 27 had none; or about 1 marriage in 10 was without issue. Of the 27 unproductive marriages all the subjects had lived in wedlock upwards of five years, and in all the female had been married that period before she reached the age of forty-five. Of 402 marriages in Bathgate 365 had offspring; 37 had none; or about 1 marriage in 11 was unproductive. There was at the same time living in the village 122 relicts of marriages, and of these 102 were mothers; 20 were not mothers; or about 1 in 6 had no family. In all, of 467 wives and widows 410 had offspring; 57 had none; or about 1 marriage in 8 was unproductive. Of these last 57, 6 had not been five years married, and there were other 6 above the age of forty-five when married. If we subtract these 12 we have of 455 marriages 410 productive, 45 unproductive, or 1 in 10.1-9 without issue. Simpson found that among 495 marriages of British peers which had lasted five years or more, and in which the husbands were under fifty-seven years of age, 81 were unproductive, or 1 in 6.1-9. Ansell found that among 1,919 marriages of spinsters in the upper classes at an average age of twenty-five years, and not counting as childless those who had merely stillborn children, there were 152 without issue, or 8 per cent., or nearly 1 in 12. In this collection all the parents survived the childbearing age, and he considered that there was no further chance of childbearing if the female was

Over 48 and had had no child for 2 years.

" 47	"	" 3	"
" 46	"	" 4	"
" 45	"	" 6	"
" 44	"	" 8	"

Under 44 " " 10 "

I have taken the registers of Edinburgh and Glasgow for 1855, and have found the number of first living children in that year. With this I compare the number of marriages in that year. It is evident that the number of first children only should be counted, for they indicate all the wives who are not sterile. If one living child is born to a marriage, that marriage is not sterile. Further, it is evident that, although the first births in 1855 will not all pertain to the women married in that year, it may be assumed that if the marriages be nearly the same in number for a few contiguous years, the first births in one year will give the fertility very accurately of any of the contiguous years. From this fertility the sterility can be easily computed. Now in 1855 there were, in Edinburgh and Glasgow, 4,447 marriages, and 3,722 first deliveries of living children, leaving 725 marriages sterile, or 1 in 6.1. But in these figures are included 75 marriages which did not take place till after the women had passed forty-four years of age, and these will damage the physiological value of the statement, as these 75 women could not be expected to be fecund. Of women between the ages of fifteen and forty-four inclusive there were married 4,372; among women of the same ages 3,710 had first living children, leaving 662 marriages sterile, or 1 in 6.6. In other words, 15 per cent. of all the marriages between fifteen and forty-four years of age, as they occur in our population, are sterile. But this final estimate from the Edinburgh and Glasgow data has to be corrected for the dead born, these being not counted.

We have thus fairly good statements of the amount of sterility which are not very different from one another:—

Patients in St. Bartholomew's Hospital	1 in 8
Inhabitants of Grangemouth	1 in 10
Inhabitants of Bathgate	1 in 10
British peers	1 in 6.1-9
Upper classes (Ansell)	1 in 12
Inhabitants of Edinburgh and Glasgow	1 in 7

Omitting that of British peers, the highest estimate is the last, and it is probably the only one in which living children are used, to the exclusion of dead, as the index of fecundity. Were dead children included, there would be a great reduction—at least 4 per cent. The lowest estimate of sterility is that of Ansell. In it a woman having a stillborn child is held as fertile, and the women are the very best in the community, those living in easy circumstances and making use of the protection of life insurance; were it otherwise, the estimate of sterility would no doubt be higher. We have thus estimates of sterility varying from 1 in 7 to 1 in 12, and may have considerable confidence in laying down 1 in 10 as very nearly the true amount.

I know no estimate of those who are absolutely sterile—that is, who do not conceive, or who, if they do conceive, give birth to not even an abortion. But there are a large number in the better classes, for within the last five years there have consulted me at my house, mostly on account of sterility, 504 absolutely sterile women, married between the ages of fifteen and forty-five, and of these 337 were more than three years married. Though this shows a large number in existence, it gives no ground for an estimate of frequency among the married. The following table gives a classification of these 504 married and absolutely sterile women, according to age at marriage and number of years married:—

TABLE I.
Case-book Table of Sterility.

Age at Marriage.	Years Married.							Totals.
	Und. 3.	4 to 8.	9 to 13.	14 to 18.	19 to 23.	24 to 28.	29.	
15-19	12	19	15	4	7	2	1	60
20-24	70	66	37	24	13	9	—	219
25-29	47	51	20	8	8	—	—	134
30-34	26	20	8	4	1	—	—	59
35-39	6	13	4	—	—	—	—	23
40-45	6	3	—	—	—	—	—	9
Totals...	167	172	84	40	29	11	1	504

It is certain that all populations are relatively sterile; and the economist makes many estimates, such as the deficiency of offspring of the actual marriages, or the deficiency of the actual births below what they might have been had all the women in the population been married at the most favorable time for childbearing. The solution of these and similar questions is an object of greater interest to the statesman than to the physician. They demand, for their solution, much calculation, and need not be entered on here.

The degree or amount of relative sterility of the average individual varies, of course, according to the age at marriage, and it is not to be estimated by the deficiency below what is possible in childbearing, but below the average amount of fertility in marriages at the various ages, or below what is not excessive, what can be done without injury to the average mother's health.

The average individual woman must be found and considered, for individuals vary extremely. It is not a rare observation, and I have one before me where the easy birth of a single child exhausted the fecundity of a healthy woman of twenty-five years of age at the time of the birth, and completely ruined her general health during the remaining childbearing period of life. This woman was examined by many physicians, and all concurred in finding no cause of the weakness and inability but the childbearing. On the other

hand, Ansell records the case of a woman married at twenty-one, who in twenty-seven years gave birth to twenty-five children who all reached adult age, and the mother died of old age at eighty-eight.

Only-child fertility or one-child relative sterility occurs in two forms; as an exhaustion of the fertile energies leaving the general bodily health vigorous, or as an exhaustion of both sexual power and general constitutional strength. It is a relative sterility which is familiar to the public from its frequency and its importance in social respects. Ansell, in 1,767 fertile marriages, with a mean age at marriage of about twenty-five years, and allowing ample time for the exhibition of fecundity, as we have already stated, found 131 cases of one-child relative sterility, or 1 in every 13 fertile marriages. The degree of this relative sterility may be approximated by comparing it with the average fertility of the same women, which was nearly 6; or, in other terms, the relative sterility of these 131 only-child fertile women was 655. Instead of having 131 children, they would have had 786 children if they had even reached the average fertility of their 1,636 sisters, and they would have had still more if they had reached a normal fertility instead of this average fertility, meaning by normal fertility what they might have had without injury to health, judging them by other women.

There are several tests of relative sterility secondary to that implied in the paramount question, How many did she bear? These subsidiary tests are based on the ascertained course of natural fertility, and show the deviations from this course of the relatively sterile. Inquiry made by these tests implies a knowledge of how many children a woman will naturally bear, or is likely to bear, and of the natural order of births. They are as follows:—

1. When after marriage did she begin the career of childbearing? 2. How rapidly did the children follow one another? or, what was the interval between successive births? 3. When did childbearing cease? or, what was the age at the birth of the last child? 4. How long was the childbearing period of life? or, what was the interval between the beginning of the first pregnancy and the end of the last?

In studying population, these subsidiary matters are little regarded, for the statesman has direct interest only in the mutually related questions, How many are born? How many might have been born? What is the health of those born? The answers to these inquiries give him the actual relative sterility of the population, and in the case of a population this includes the absolute sterility. He may now attempt to increase or diminish the sterility of the people, not neglecting the health of the progeny, so far as it is related to fertility; and this control he will effect by raising or lowering the age at marriage. On the other hand, the physician, having care of individuals, not of a people, and advising each from year to year of life, has his chief interest in these subsidiary matters, which the statesman may not utterly neglect, but may leave to the care of the medical philosopher.

The importance of the question, How soon after marriage does a woman bear her first child? is self-evident, and it will be found to be more a test of sterility than it appears at first sight to be. Whitehead, founding on the observation of 541 married women of the average age of twenty-two years, makes the average interval between marriage and the birth of a first child to be eleven months and a half. Sadler says that married females do not become fruitful, on the average, during the first year of their nuptials, but nearly so. A great number of cases, he says, which he

has collected, with a view of determining this point, gives three-fourths of them as producing their first child at the average of one year after marriage.

From the Edinburgh and Glasgow registers for 1855 I was able to make out this point in 3,722 cases. But in these extracts from the register there are two sources of error, which prevent an exact comparison with the results of Ansell's more valuable table, for twins are excluded, being placed in the column of secundiparae, not of primiparae. (See Table II.) And, still more important, the great number of mother's whose children were stillborn is excluded. Now, twins affect specially young, immature, and quickly breeding mothers; their omission, therefore, from the column of primiparae will tend to delay the estimated time of primiparity. Again, a similar delay will result from the omission of women having dead children from the primiparous column, for such women, when they bear a first living child, which may be in reality a second, third, or other child, will appear in the primiparous column with an over-estimated and erroneous retardation of primiparity.

TABLE II.

Showing the interval between Marriage and the Birth of a First Child.

Years married.	No. of Births.
Less.	608
1	2390
2	437
3	133
4	61
5	32
6	27
7	12
8	5
9	5
10	1
11	3
12	4
13	2
14	—
15	1
16	—
17	—
18	1

Total.....3722

TABLE III. (from Ansell.)
Showing the Interval between Marriage and the Birth of First Children.

Year after marriage.	No. of first children.
1	3159
2	2163
3	421
4	137
5	69
6	26
7	21
8	11
9	7
10	7
11	5
12	4
13	3
14	2
Total....	6035

The Edinburgh and Glasgow table gives a mean interval of about seventeen months between the marriage and the birth of a living child. It shows that fecundity is not demonstrated by a living child in the majority of cases till a year of married life has passed; nearly two-thirds of the whole beginning their families in the course of the second year of marriage. It also shows that there is no ground for presumption of sterility till the fourth year of married life is entered upon; for while of those three years married and less than four 133 bore a first living child, there were only 154 who did so in all the subsequent years taken together. Of the whole 3,722 only about one twenty-fourth part began bearing living children after four years of married life had elapsed.

Ansell's table includes first stillborn children, and is corrected for twins, and gives us the data in 6,035 cases. It is therefore better than the preceding, and better than any other of which I know regarding this point.

Ansell's table gives a mean interval of nearly

sixteen months between marriage and the birth of a child. The majority of the women in Ansell's table bore their first children before the first year of married life had elapsed—nearly seven-eighths before the expiry of two years of married life. It also shows that there is no good presumption of sterility till the fourth year of married life is entered upon; for while of those three years married and less than four 421 bore a first child, there were only 292 who did so in all the subsequent years taken together. Of the whole 6,035, only about 1-21st part began bearing children after the third year of married life, and only 1-39th part after the fourth year.

It may therefore be held that married women delaying the commencement of fertility beyond sixteen months are already exhibiting a degree of relative sterility; and this conclusion is quite in keeping with the rest of our knowledge of this subject.

The second question proposed is, How rapidly do the children in a family follow one another? or, What is the interval between the births of successive children? Great authors on population used to hold that breeding women never exceeded, in rate of prolificness, a child every two years; but, like many of the other principles on which Malthus and the rest based their theories, this has proved to be false. With our present knowledge, we can assert that Malthus erroneously endowed woman-kind with a degree of relative sterility; for women who breed do so at an average rate of a child every eighteen months, or nearly so.

I here give a table compiled from the Edinburgh and Glasgow registers, which makes the average interval between successive children nearly twenty months. But this requires several corrections, which will, on the whole, tend greatly to reduce the amount. Twins are included, and counted as two children. But a source of greater error is the exclusion of dead children, whether one or more. This last error might not be grave, or even an error at all, in the view of an economist such as Malthus; but reckoning for it would make his actual error comparatively much greater. Table IV., like Table V., made up from Ansell, is not

TABLE IV.

Showing the Average Duration of Marriage at Birth of each Successive Child, and the average Interval between the Births of the Successive Children.

Number of children.	Number of mothers.	Duration of marriage in months.	Average interval between successive births.
1	3722	17	—
2	2893	38	19.0
3	2534	64	21.3
4	1982	90	22.5
5	1543	115	23.0
6	1221	137	22.8
7	848	162	23.1
8	641	181	22.6
9	425	203	22.5
10	222	225	22.5
11	152	235	21.4
12	61	246	20.5
13	34	263	20.2
14	11	281	20.1
15	6	280	18.7
16	2	336	21.0
17	2	252	14.8
18	1	252	14.0
19	1	204	10.7

Average.....19.9

correctly described as giving the average interval between births, but as giving the average interval between the marriage and the birth of the child, divided by the number of children born, which is a near approximation to what is wanted.

TABLE V. (from Ansell.)

Showing the Mean Time after Marriage of Successive Births, and the average Interval between them.

Order of birth.	Mean time of birth after marriage.	Average interval between successive births.
1st child	1.32 years.	—
2nd "	3.02 "	18.0 months
3rd "	4.83 "	19.0 "
4th "	6.69 "	20.0 "
5th "	8.53 "	20.0 "
6th "	10.28 "	20.5 "
7th "	11.92 "	21.0 "
8th "	13.47 "	20.0 "
9th "	14.93 "	20.0 "
10th "	16.33 "	20.0 "
11th "	17.65 "	19.0 "
12th "	18.85 "	19.0 "
13th "	19.87 "	18.0 "
14th "	20.71 "	18.0 "
15th "	21.41 "	17.0 "
16th "	22.01 "	16.5 "
17th "	22.54 "	16.0 "
18th "	23.02 "	15.0 "

Ansell's table does not require correction for twins or for dead-born children, and its value may be judged by the statement, indefinite though it is, that it is based on more than 25,000 observations. The average interval, as calculated from them, is eighteen months. Ansell's table may be studied, further, with a view to a statement of the average interval in those who have not excessive families, but families of natural or normal number. For those mothers who have shown excessive intensity of fertility, either by a high number of births or by excessive rapidity so long as childbearing continued, are mixed up in each successive row of figures with those that are normal, or nearly so. Now, looking at the rows of figures of families varying from four to ten, which show intervals of twenty to twenty-one months, we are safe in stating the average interval for normal families as above twenty months, yet, probably, considerably under two years.

It may therefore be held that a married woman who, during childbearing life, does not have a child every twenty months is exhibiting relative sterility.

The third question is, When did childbearing cease? or, What was the age at the birth of the last child? Now, it is the rule to confuse the childbearing period of life with the period during which a woman menstruates, and this is a great mistake. It is only a part of this that, in married life, is occupied by childbearing, except in rarest cases, such as have never come under my observation. When a woman begins childbearing she generally, under favorable circumstances, continues her career of fertility steadily till her last child is born.

The registers tell us when women actually begin to have children, and I have already made use of such information, but we have no data nearly sufficient to decide what is the average age of commencing fertility; we may, however, be sure, from what we do know, that it is not the age of puberty or of commencing menstruation, and that it is not the age of nubility or age at which procreation is

commenced with the greatest advantage to mother and progeny. It is evidence of good conduct in the race that we cannot get sufficient data, there being very few unions permitted in early life. The great mass of our women are, fortunately, married within the limits of nubility, or the marriageable age. Nevertheless, it is very desirable that we should find out what is the mean age of commencing childbearing.

Regarding the time of cessation of childbearing we have more exact information, and it shows well the distinction that must be made between the cessation of menstruation and the cessation of procreation. Menstruation ceases at from forty-five to fifty years of age, but childbearing ceases at an average age of thirty-eight. This cessation arises from no imperfection or decay of organs, that has been demonstrated, but it may be due to that nevertheless. It is highly probable that its main cause is a cessation of functional vigor or activity, for it is delayed in women who have begun their fertility late in life.

On the subject of the cessation of childbearing our best information is derived from Ansell, whose calculations are based on 4,899 observations, restricted to those in which both the father and mother survived the childbearing age of the latter, a point which was determined as regards each case in accordance with a scale already given, whose chief governing rule is not to suppose a woman under forty-four years of age to have borne her last child until she has been for ten years barren. The quinquenniad 39-43 is that at which the largest number ceased to bear children. Thirty-eight years is the mean age of mothers, married at the mean age of twenty-five, at the date of the birth of their last children in cases where childbearing was not prematurely terminated by the death of either parent.

The productive period begins earlier, and it is protracted to a later age, in cases where the children are numerous than where they are few. This protraction is shown by the following table:—

TABLE VI. (from Ansell.)

Showing the Mean Age of Mothers at the Birth of their last Child in Families of different numbers.

Number in family.	Mean age of mothers.
1	31.08
2 or 3	34.21
4 or 5	37.04
6 or 7	39.21
8 or 9	40.61
10, 11, or 12	41.74
13, 14, or 15	42.83
16 or more	44.32

Women have, in their career, and with a view to our present subject, many stages in life. There is the age of puberty or of commencing menstruation, and this is to be distinguished from the age of commencing childbearing, regarding which we have no data adequate for a decision. But the age of commencing childbearing, though it may be identical with that of commencing menstruation in individual cases, is certainly not nearly so in the mass of women, being fortunately considerably delayed. Then, after the age of commencing childbearing comes the age of nubility or marriageable age, that at which a woman can enter on married life with the best chances of having a healthy and not excessive family. After the age of nubility comes the age of cessation of childbearing, which, as already said, is thirty-eight for women married at twenty-five years of age. A woman may bear children after this age, or even after the cessation of menstruation, but such cases

are exceptional and rare. The last stage in their career is usually the cessation of menstruation at an age of forty-five to fifty.

There is a mean age of puberty and of commencement of possible procreation, a still further advanced mean of commencing procreation, a still further advanced mean of nubility or fitness for procreation, a still further advanced mean of cessation of procreation, and lastly comes the mean of cessation of menstruation and of possible procreation. Most of these stages of woman's life have their analogues in the female life of the lower animals which are best known to us, and some of them have analogues in the life-history of plants. There can be no doubt that they all have their coördinate physical states of the genital organs, and in this department there has been much successful anatomical investigation, especially as regards puberty, nubility, and the cessation of menstruation.

Writing regarding the age of cessation of childbearing, Whitehead makes the following pertinent remarks: "The sum of the ages of the individuals (38) recorded in the preceding table, at the time of their last delivery is 1,586, giving an average of 41.73 years; the average age of the same individuals, at the time of their last menstruation, is 47.54 years; so that a period of nearly six years is here indicated, during which, although the menstrual function continued to be more or less efficiently discharged, and the health good, aptitude for procreation did not exist. They were all placed under equally favorable circumstances for the continuance of childbearing so far as regarded their matrimonial position. . . . A like period of uterine quiescence," he adds, "is observed before childbearing begins."

The average cessation of childbearing is for all women no doubt between thirty-five and forty years of age, and a woman in whom this career ceases earlier shows relative sterility.

To the question, How long does childbearing continue? it is easy to give some answer; for if the average age at the commencement of childbearing is twenty-six years, and the mean age at termination is thirty-eight, the average duration of childbearing is twelve years. The duration of fertility will be the number of pregnancies multiplied by nine (months) added to the number of intervals multiplied by nine (months). It will vary therefore from a case of one-child sterility, with nine months of the childbearing period of life, to a case of ten-child fertility, with a childbearing period of life of 171 months, or about fourteen years; and to a case of twenty-child fertility, with very much less than thirty years of childbearing life; very much less, because women of this great and excessive prolificness do hurry their children into the world to get through the high number.

From Ansell's table of 4,899 married women, whose ages at the birth of their last children were known, and where both parents survived the childbearing age of the mother, I have constructed the following table to show the nearest figures I can give to the actual lengths of childbearing life in families of different members. The commencement of childbearing at twenty-six years of age is, in all cases, assumed, because it really was very nearly the mean age in Ansell's collection.

Table VII. affords us further valuable information as to the duration of childbearing in families which reach the normal limit of about ten, and we see that it is about fifteen years. A woman then may be regarded as relatively sterile who, married within the years of nubility (about 20-25), ceases to have children within fifteen years from the birth of her first child.

We must now try to answer the last and compre-

hensive question, How many children does a woman bear? On the answer to this depends the settlement of the amount of relative sterility. It cannot be satisfactorily answered directly, on account of the paucity of data, but such answer as we can give is corroborated by the various subsidiary answers which we have just furnished. We shall not enter on subjects important politically, such as the numbers in actual families, the number to a marriage, etc., because these are foreign to our present inquiry.

In the district of St. George's-in-the-East the Statistical Society found, among the poorer classes, eighty mothers who had been married at ages varying from fifteen to nineteen, and who had lived in wedlock at least thirty-one years, or all the childbearing period of life. These fertile wives had borne on an average 9.12 children. Considering the undoubted existence of evident sources of error, all tending to unduly diminish the average amount of fertility, we may safely say, using the data of St. George's-in-the-East, that ten is about the average fertility of fertile marriages lasting during the whole childbearing period of life. The average age of marriage in England is twenty-five, and consequently the production should be less than ten, the women living in fruitful wedlock from twenty-five till the end of the childbearing period of life, not all the childbearing period.

TABLE VII. (from Ansell.)

Showing the Average Age at Cessation of Childbearing in Families of different numbers, and the Time occupied in Childbearing, estimated at the rate of eighteen months for each child, in families of less than ten children: the mean age of mothers at commencement of childbearing being twenty-six years, and the parents both surviving the childbearing age of the mother according to the scale of Ansell (p. 50).

Number of family.	Number of cases.	Mean age of mothers.	Time occupied in childbearing.
1	244	30 years & 6 months.	1 year & 6 months.
2	401	32 " 11 "	3 years — "
3	425	34 " 5 "	4 " 6 "
4	485	35 " 10 "	6 " — "
5	565	36 " 11 "	7 " 6 "
6	494	38 " — "	9 " — "
7	490	39 " — "	10 " 6 "
8	467	39 " 8 "	12 " — "
9	387	40 " 6 "	13 " 6 "
10	312	40 " 10 "	14 " 10 "
11	239	41 " 1 "	15 " 1 "
12	170	41 " 7 "	15 " 7 "
13	115	42 " 5 "	16 " 5 "
14	43	41 " 10 "	15 " 10 "
15	34	42 " 8 "	16 " 8 "
16	10	43 " 6 "	17 " 6 "
17	10	43 " 5 "	17 " 5 "
18	6	44 " 7 "	18 " 7 "
19	1	45 " — "	19 " — "
20	1	45 " — "	19 " — "

The actual fertility of fertile marriages in England, if only nine in ten wives have living children, is, according to Farr, 5.2; but with a view to contrast with the data of St. George's-in-the-East and of Ansell this figure needs correction; for in making it up, the condition of living in wedlock till the end of the childbearing period of life is omitted. If that condition were not omitted, there would of course be a large increase of fertility of wives in England. Ansell's collection includes

1,767 spinsters married to bachelors at a mean age of twenty-five, and living in fruitful wedlock till the end of childbearing, as calculated by a scale already given, and the production was 5.7, or nearly 6, a figure which I regard as indicating a less fertility than that of Englishwomen generally.

The fertile wives of England, without the condition of persistency in married life till the end of the childbearing period of life, bore 5.2 children. Ansell's mothers in the upper classes, married at a mean age of twenty-five, and living in wedlock till the childbearing period of life was passed, bore on an average 6 children. The fertile wives of St. George's-in-the-East, a poor class, living in wedlock all the childbearing period of life, bore above 9 children. Each of these statements yields some corroboration of the others; and, keeping in view some further evidence, they seem to justify us in holding that a healthy woman, living in wedlock all her childbearing life, under the most favorable circumstances for natural procreation, should have a family of 10; or women, under such circumstances, bearing fewer than 10 are relatively sterile, and the sterility is inversely as the number. Further evidence to the same effect is got by referring to the data derived from the registers of Edinburgh and Glasgow for 1855. There (Fecundity, p. 125, 2nd ed.) I found that, in fertile wives married at various ages, there was a fertility of between seven and eight after the lapse of fifteen years of marriage, counting to the birth of the last child; and fifteen years is full allowance for persistence in fertility. Now, as many women are married some years after the best period for commencing childbearing, we may, by making allowance for such delay, raise the number from between seven and eight to ten.

There are many women who bear families above ten in number, and it is desirable to devote to them further special consideration. Such families are, on the whole, abnormal or excessive. For

TABLE VIII.

Showing a Comparative Percentage of Deaths in Successive Labours.

Number of pregnancy.	Number of mothers.	Number of deaths.	Percentage.	Or 1 in
1	3722	254	6.82	15
2	2893	60	2.07	48
3	2534	64	2.52	39
4	1982	39	1.97	51
5	1543	31	2.01	49
6	1221	28	2.29	43
7	848	16	1.88	53
8	641	15	2.34	42
9	425	13	3.06	32
10	222	9	4.05	24
11	152	5	3.28	30
12	61	1	1.64	61
13	34	4	11.77	8
14	11	—	—	—
15	6	1	16.66	6

many an individual woman a family less than ten is excessive. We have, indeed, spoken of the occasional calamitous character of only-child fertility. But there is a mass of evidence tending to show that a family, in the average female, rising above ten, begins to be excessive and increasingly so as the figure increases. It may seem paradoxical to bring the consideration of excessive families into a lecture on sterility, but in the next

lecture the paradoxical character of this proceeding will disappear.

The bearing of a first child is well known to be very dangerous, often fatal to the mother. After this she comes into a period of childbearing which is the safest, and which continues while she has a natural or ordinary degree of fertility. The danger of primiparity is, for a fertile woman, inevitable, but the special danger of multiparity is incurred only when a family is excessive; and I hold this danger to be good evidence (along with other) of excessiveness. It is, at the same time, to be kept in mind that danger has been demonstrated to rise with increasing elderliness; but elderliness of the mother is an essential element in a question of excessive family. I extract from my work on Fecundity, etc., Table VIII., whose composition is there stated. It does not give actual mortalities, but only such mortalities as may be compared with one another with a view to making out the peril attending confinements of different numbers.

In the sequel I shall give further and varied evidence as to the excessiveness of families above ten. This evidence is based not on the danger to the mothers only, but on the nature of the production—that is, on the occurrence of twins, of weakly children, and of idiots.

Croonian Lectures

ON

MODERN THEORIES AND TREATMENT OF PHTHISIS.

Delivered at the Royal College of Physicians, London,

By JAMES EDWARD POLLOCK, M.D.,

Consulting Physician to the Hospital for Consumption and Diseases of the Chest, Brompton.

LECTURE I.

MR. PRESIDENT AND GENTLEMEN—When your kindness committed to me the charge of laying before you in these lectures some subject of more than passing interest to our practical profession, I had to consider whether I should attempt an addition to the knowledge we already possess, or taking the standpoint of critical experience, and placing you upon it, I might not with more advantage review the labors of others, and the ever-varying feature of opinion. In the former case I should have been able to add but little to the great mass of knowledge contributed by many observers, and by several whom I see before me, whereas in the latter I should but make an appeal to the experience and judgment of all, and if fortunate might not only give expression to the doubts and difficulties of some, but possibly afford more firm ground for conclusions on subjects of grave import to every practitioner of our art. This method of reviewing and taking stock of our knowledge has much to recommend it, provided it be not too frequently practiced. There are transition periods in which it is a wise, almost a necessary, act of mental impartiality to look back and see both what has been *done* and *thought* by our predecessors. There is a natural proneness to a belief in the superiority of our own views to those who have gone before us. We are in fact their critics, and the critic always fancies himself higher than the criticised. We are the inheritors of their labors and their intellectual accumulations, and our first step as heirs is to value at what we think a just estimate the legacy of their knowledge. Of course every student has to place himself on a

level with the past of that branch of Science or Art which he proposes to acquire; but every impartial critic has not only to know what has been observed and thought, but should study the causes which led up to the various opinions which he will find recorded. The art of which we are ourselves students is essentially transitional; it has derived its form and color from the errors as well as the wisdom of past generations, while occasional great leaders have stamped upon it the impress of their own genius and individuality. To see with any degree of clearness, as the great observers of the profession saw one or more generations back, we should, like them, emerge from the comparative darkness of the age in which they lived, and from the mists of false teaching and imperfect science in which they were trained, into the light which emanated from their own genius. Around everyone who has added something real to knowledge, there is a luminous atmosphere which enables him to see what others did not recognize, and to us living in the far distance of time, it is not always easy to distinguish this increased illumination shed by genius from the more steady light of gradually increasing knowledge. What I mean is that the discoverer and propounder of a new theory or observations tending to reverse the opinions of the time is surrounded by a halo, into the zone of which we may scarcely enter, but which largely affected the results of his teaching at the time. Our medical knowledge, but especially our medical theories, have, as we know, received the impress of many a great name, and as successive generations continued to teach these doctrines the whole community of the profession became impregnated with the views of certain great masters. The advance of medical knowledge has ever been, as is indeed the case with all the sciences, a record of the work of many observers and laborers, but illuminated here and there by the genius of a few who from time to time stood out from the crowd generalizing the knowledge and opinions of the many, and thus became the representative of theories which were to bear their name, and give form and color to the knowledge of the day. It is, indeed, well for us that our art is transitional, and that we hold to no teaching which can be disproved, but these masters did a good work in crystalizing and so transmitting definite propositions for our reception or refusal.

Now, it is because our knowledge is essentially transitional and progressive that I venture to think I may occupy your time not unfruitfully in reviewing some of the changes of opinion through which we have passed, and are passing. I believe that we are now exactly in one of those periods of thought when some think that all old things are passing away, and "that all things must become new before we are nearer truth." I believe that the wisdom of past observers, which is only a synonym for their knowledge, is being slighted because it is old, and that the *eureka* of modern observers and theorists threatens to disturb much that is venerable, not alone from its age, but from its deep foundation in truth. I see in much of the present day a tendency to generalize from a few facts instead of accumulating great stores of evidence from which to deduce something like a general law. We cannot but recognize a tendency to refer all morbid influences to a few observed microscopical objects in diseased matter, and from these to rush to a conclusion affecting the very roots of our social life that all such matter is transferable, and may be propagated from individual to individual. Much that was believed—nay, much which was proved—is brought up into the focus of argument, where theories are sometimes more prevalent than facts. We are almost asked to believe

that all diseases have a common nucleus. In the midst of our modern light a disbelief has crept in of ancient lights, which, not the less, "were lights shining in darkness."

It may be that the tendency of the hour is not to incredulity, indeed it is rather to an over-advanced faith in some things, but it is shaky on some ascertained points, and, as all young life, is mixed with imaginative speculations which tend to error. We have discovered some things, and much that is great and useful; we can prevent germs of disease from entering the system; we can prevent secondary infections, but it does not follow that all disease is of germ origin or that all secondary disorders are from septicæmic sources. We have by careful pathological work made it clear that many broken-down lungs have never had a trace of tubercle, while that many tubercular deposits have never broken up the lung structures, yet it does not follow that every case of phthisis is of inflammatory origin, or that innumerable cases do not progress from tubercle to caseation and softening and cavity with their known train of events. The contagiousness and inoculability of phthisis are now the received faith of many, and the treatment proposed has of course varied with the theory of the proposer. Some are sent to snowy heights, others to relaxing river beds. Disinfectants and antiseptic remedies are more in vogue than nutrients, and surgical principles are applied to cavities in the lung. I mention these not to disparage them, but to justify my assertion that we are actually in one of those transitional periods when thought is rife on the subject of phthisis, its cause and its extirpation. In the days, Sir, when you and I were students we found it difficult to get a word spoken about phthisis. It slew then, as it slays now, about one-fifth of the adult population, but few lecturers spoke of it, and no student was examined on it. We never asked then if hæmoptysis were a cause or a consequence of any of the other events of phthisis; of the nature of its peculiar fever and waste; of the cause of its secondary disorders; of the retarding structural alterations which nature erects as barriers against its local mischief. But those have become subjects of investigation, and inquiry is awake, and good, and not evil, must be the result. There is doubtless no disease so hopeless in its progress and results that we shall not find it to be capable of alleviation or prevention, and the prospect is not bad for an improved knowledge where there are so many inquirers. It is from stagnation of opinion, hopelessness of more knowledge, that the thoughtful mind recoils as from the death of all improvement in our art.

These form some of the considerations which have weighed with me in selecting "Phthisis, its Modern Theories and its Modern Treatment," as the subject of these short lectures. The young among us will not hesitate to reconsider the researches and opinions of former great men, while the older may excuse a reconsideration of questions with which they are already familiar, from the vast importance of the results, if results we are to have from newer teaching. It is also evident, as is indeed the case with all medical subjects, that this disease does not stand alone, that it is impossible to isolate it from considerations of general pathology, and that the laws which regulate its progress and results are conditions common to many diseases. There is here no special pathology, as there should be no special treatment; and we may well quote the well-known saying of one of the most thoughtful of our predecessors, that "it demands a higher discipline than any mere knowledge of auscultation rightly to comprehend it." I propose to consider briefly, then,

the older doctrines of phthisis, and to compare them with the later; to point out the morbid changes, their causes, and their relation to the progress of the affection; to inquire into the causes of the secondary disorders, and to consider what has been advanced as to the germ origin of phthisis, and the evidence in existence as to its contagiousness. I shall also ask, as arising from these considerations, how its treatment is to be guided; on what principles we should advise the various climates; and whether the local disease in the lung be the main condition to combat, or if we are to rest contented with remedies of a nutrient and general character. If in this review I should appear to generalize rather than to descend into too much detail, you will, Sir, I hope, attribute it to the largeness of the subject, and to a desire to bring before you such salient points as come in prominent relief before each of us in daily practice. I am also addressing, and with much secret diffidence, an audience most highly informed on this very subject, many of whom are the advanced pioneers of our knowledge.

Reviewing the literature of phthisis from the earliest times of which we have any record, we may say that the Greek word for *waste* expresses the idea of the disease when it was uppermost. The wasting of the bodily tissues was the earliest, the latest, and the most marked symptom of the disease throughout. It became evident before cough and expectoration, it fluctuated with the patient's other conditions, and it ended by exhausting him to the grave. We know now from auscultatory signs that this waste is greatest when the morbid product in the lung is breaking up, but before stethoscopes were invented the fact could only be proved by the increased amount of expectoration which then occurred. Fever, indicated by chills, heats, and sweatings, also coincided with increased waste of tissues. The correlation of these symptoms with waste was not understood. We now know that the waste itself and the débris of tissue poured into the blood are direct causes of the high temperature, and that there is a strict coincidence between three conditions—(1) active lung irritation, (2) tissue waste, and (3) high temperature. But we may take it that the ancient view before stethoscopes was that waste was the leading and most incorrigible symptom.

It remained for Laennec, Bayle, and their followers to describe and map out by physical signs the nature and amount of lung disease. We are familiar with their teaching. The grey milky tubercle deposited sparsely or thickly in portions of the lung underwent degenerative changes. The masses caseated, ran together, softened, and in their softening broke down the surrounding tissues of the lung, strangled its nutrient bronchial as well as the pulmonary proper vessels, cut off the circulation, and caused the death of the part. A cavity more or less irregular in size and shape, resulted. Inflammatory products surrounded, and were a consequence of, this softening and disintegration. The secondary congestion so commonly observed in advancing cases of disease at the base of the same or opposite lung were fresh deposits of tubercle, only to be accounted for by the lowered constitutional state of the patient—the tubercular cachexia, as it was called. He got an unhealthy inflammation, involving all the tissues of the lung, though why he should have had any affection of the opposite lung does not appear from Laennec's reasoning. In like manner the well-known changes in the intestines causing tubercular inflammation of the mucous glands took place, and diarrhoea precipitated the fatal issue. The constitution or diathesis in which this

occurred was called scrofulous, and glandular swellings tending to slow inflammatory change and caseation took place in the cervical, mesenteric, and other lymphatics. These, like the tubercle in the lung, were the secondary results, so to speak, of a primary cachexia or constitution and of the tubercular habit. I take it that this is a fair description of the theories of Bayle and Laennec. After an investigation of many thousands of cases of phthisis I do not think it can be taken to account for all the phenomena of that disease, but this I shall again notice. What the discoverers of auscultation did prove was this. They recognized certain morbid changes in the lung which they called tubercle. They noticed its physical alterations and its tendency to degenerate, and they gave us a means of defining and even measuring the progressive destruction of lung tissue, which resulted as these masses softened and involved the surrounding parts. I do not know that auscultation has added much to what Laennec taught us about phthisis. He was wonderfully accurate and perfected physical examination in a marvellously short time. What more do we know now of the signs of cavity or of pneumothorax than the knowledge he left us? We have refined on his teaching no doubt, especially in the diagnosis of incipient disease, and some phenomena of effusion into the pleura and pericardium, but he gave us a masterly method of identifying changes of lung structure. Nor was his pathology at fault. He did not go far enough. So far as his description of tubercle goes it is verified by daily practice, but it was all tubercle with him. He did not allow cases of phthisis which were originated in inflammatory change, and in which there was no tubercle at all. It would be unjust to the memory of Addison not to point out that he in England was the first to hold that inflammation is an occasional and common cause of phthisis. His beautiful illustrations are accurate pictures of the results of inflammatory change. There is, then, a phthisis without tubercle, and in many post-mortem examinations no tubercle is to be found. Again, the secondary deposits of tubercle, which often surround old inflammatory products breaking up in the lung, do not appear to have a fair place in Laennec's descriptions. The secondary congestions in the base of the same or the opposite lung were regarded as fresh tuberculous attacks, and the mechanical theory of morbid matters carried and deposited on the pulmonary tissue is modern, and found no place in his work. The influence of hæmoptysis, as now recognized by many, cannot be said to have been noticed fairly by the French school. The mechanical effects of effused blood insufflated into the pulmonary tissue, and forming clots which lose color and become encysted or undergo the changes of caseation, were no doubt often mistaken for tubercle.

Again, in criticising the French school of that period by the light of experience at the bedside, I fail to discover in their teaching the division of cases according to their progress and duration and according to the structure of lung invaded, and the changes of a fibroid nature undergone. This, I hold, to be entirely due to the modern English school. In Laennec's time a cavity in the lung meant the third stage, the final consummation of the disease, the almost immediate death of the patient, and the abandonment of all hope. We now sit down to treat cases of cavity, to promote their shrinking, to diminish their secretion, to attack them surgically and drain them, and some of the most prolonged instances of invalid life with which I am acquainted are in persons with a single cavity in the lung. I had one such case

under my notice for thirty years, many for periods of ten and fifteen years; and I have no doubt that the experience of all of us will bear out this statement.

Again, the whole series of chronic changes in lung tissue which have been called fibroid, and in which the lung is condensed and contracted and fresh fibroid tissues developed throughout its structure, extending in bands from the thickened pleura, closing up old cavities, strangling its bloodvessels, and leaving, in fact, only bronchial tubes which undergo dilatation, this condition, which supervenes more or less in every case of chronic phthisis, and which often prolongs life indefinitely after the patient has undergone thickening of the lung, softening of tuberculous or inflammatory deposit and cavity, had not been described till modern English observers depicted it.

In contrasting more recent views and observations with those of the Laennec period, there is one of surpassing importance which seems to pervade the theories of all lung affections, and its consideration leads us to review the modern German pathology. There was so much of form, consistency, and precision in the French doctrines. It was so convenient to have found one single element, tubercle, with definite form, and history which underwent changes uniform and calculable, to each of which a stage of disease might be assigned, and from which the duration and result might be calculated, that it is easy to see now why it was accepted both by pathologist and practitioner. To the former it was a concrete idea, a unique morbid product, recognizable by its history and its appearance; it had a definite life or underwent changes, sooner or later, which converted it either into cheesy or chalky matters, and if a new crop appeared a like process could be predicted; while to the practitioner it was also a definite quantity; he could explain it to his patients' friends, and appear to be precise where, perhaps, he was not quite true! But to the whole profession, and to the public, its very precision and the known and invariable course which tubercle follows when once established in the lung, stamped it as incurable and hopeless. Now, this state of things was the death of all progress in medical knowledge and the stagnation of all hope of a remedy. The very precision with which the malady was known rendered investigation useless and advances impossible. It will be in our memory, however, that out of this hopeless mass of cases, all of one gloomy aspect, there stood out certain ones which refused to follow the given course to death, in whom, if there were tubercle, it neither killed nor prostrated them. Persons were known to live for years with cavity in one lung, and eventually, perhaps, to die of something else. Was it, then, possible that if this tubercle always runs a certain course there may not be other morbid products in the lung giving rise to the symptoms and signs of phthisis, which run a different course, some of which may tend even to recovery, and others simply to alter lung structure, but not to destroy it? I doubt not but that some such reasoning as this struck anxious observers who were sick of regarding the sphinx of phthisis, and, unable to answer its questions or account for all its phases on the old French theory, were not content to be absorbed by the problem, but rather received a new impulse towards its solution. The modern German mind, pretty commonly in opposition to the French, rushed at once to the conclusion that if there be such a thing as tubercle its presence was only an occasional result, and not a primary cause of phthisis. Tuberculosis is a danger incurred by the phthisical, but the diseased is seldom initiated by it. All Laennec's teaching

was wrong. Tubercle was not a new growth of specific nature which formed the essence, so to speak, of phthisis. The cheesy transformation so commonly found in consumptive lungs did not result from tubercle; they might be due to many causes, but chiefly to inflammatory products. That bronchial, peribronchial and pneumonic deposits often pass for tubercle; that the miliary form is the only tubercle; that those masses of infiltrated lung which Laennec called "stuffed" with tubercle are really masses of inflammatory products, the result of catarrhal pneumonia; that in many cases there is not a single tubercle in phthisical lungs. Then as to the origin of the disease, Laennec had been precise in assigning it to a constitutional cause; it never arose out of acute or chronic pneumonia; hæmoptysis is never a cause, though a frequent result, of phthisis. It never arose out of a catarrh or neglected cold, a bronchitis developing phthisis being not a primary genuine cold, but catarrh caused by irritation of the lung from already existing tubercle. His mistake was not that tubercle is a new growth, but that condensations of lung which have quite a different origin are also products of a development of tubercle. In enunciating these startling propositions the well-known German, Niemeyer, naïvely remarks that "pathological anatomy is in advance of clinical medicine." Well for its truth if it be not sometimes in opposition to it! In estimating the influence of the various theories of phthisis on its treatment, I shall have occasion to call your attention further on to this opposition in views, and to ask you whether, in your observation, phthisis arises from neglected colds, or whether the catarrhal symptoms have become developed in the course of the phthisis?

The well-known teaching of the modern school is that the primary block of the lung is due to pneumonia or inflammatory products, and I beg your patient hearing if I briefly describe it.

Catarrhal pneumonia begins in catarrh of the smallest bronchi, extending to the alveoli, which become packed with exudation rich in young round cells. The acute cases are a frequent result of measles and whooping-cough. Under favorable circumstances the cells fill with fat-globules and disintegrate, and the contents of the alveoli become fluid and are absorbed or expectorated. In less favorable cases, the lung tissue becomes consolidated, the cellular element increases in the alveoli, fatty changes are incomplete, the cells lose their rounded form, and shrink into irregular shapes; this represents cheesy transformation. Every form of pneumonia may end in this necrosis of the cells and caseation. In this process the walls of the alveoli are pressed on, their bloodvessels become compressed and the walls are broken down, and the form of destruction of lung tissue with which we are familiar takes place. In chronic catarrhal pneumonia a formation of connective tissue fills up the collapsed cells, so that the lung becomes tough and impermeable to air. The pleura is thickened and adherent, and from it bands extend throughout the lung, contracting its volume as the tissue shrinks; the whole side is drawn together, and the bronchial tubes become dilated, giving rise to the phenomena of cavity. These are the more chronic and favorable cases. The diaphragm is drawn up and the heart displaced in their advanced stage.

But the two points on which the German and French schools are at issue are the influence of cheesy transformation of the morbid products in the lung and the secondary eruption of tubercles in chronic cases of phthisis. It seems acknowledged on all sides that cheesy deposits, in breaking up, give rise to or are followed by an eruption of miliary

tubercle, either in the neighboring part of the lung or in the opposite lung. Daennec described this, and it was known that it is at the period of softening of such masses that the appearance of fresh tubercles occurs. Thus cheesy transformations in some part or other originate tuberculous, which is in this instance a secondary disease. Cheesy masses in some way infect the system. Buhl says that miliary tubercles constantly depend on pre-existing cheesy products. Tuberculosis is an infectious disease caused by reception into the blood of the tubercular poison. He compares it to pyæmic septicæmia. Laennec knew that a secondary eruption of tubercle takes place in a lung already broken down by primary disease: he called it "secondary;" Niemeyer called it a "complication;" but both referred it to a previous caseation of the mass in the lung, which the German said was inflammation, but the Frenchman "tubercle." In either case we see it was regarded as an infecting agent, and this is important as leading on to more modern views still. I must beg your patient indulgence in this recapitulation. We are taking note of the successive theories of phthisis; we are watching the evolutions of thought in observers at different dates; and we must remember that all this time phenomena other than those of tubercle were being equally studied, and old doctrines of disease overturned.

In examining the relations of scrofula to phthisis, we shall find that cheesy transformation of the products of slow inflammations of lymphatic glands is held to be an infecting agent, and that such matters carried in the blood, or by the lymphatics, are deposited in distant parts, and there, as in the lung, originate phthisis, or in another lymphatic far from that originally affected. Thus, we have a step in the direction of blood-poisoning—septicæmia—or at least that morbid products are so carried and deposited, for septic they are not. If this be the origin of phthisis, the inflammation theory is interfered with; but, again, what is it which has originated the scrofula which started the lymphatic enlargement? Are we then driven back to the old "diathesis," or "constitution," which covered so much ignorance on our parts? In pursuing this line of thought, we are compelled to ask why some persons get catarrhal pneumonia—that is, a block of a portion of lung by inflammatory products which will not liquefy nor be absorbed, but undergo cheesy degeneration—and others get croupous or sthenic pneumonia, by which a fibrinous exudation is poured out into the alveoli of the lung, nay, of a whole lung, and in the course of fifteen or twenty days is wholly liquefied or cleared out, leaving the delicate structure of the alveoli unimpaired? These two diseases are so unlike in their morbid products, in their symptoms, and in their results and sequences, that they have no right to the same name. Indeed it was in an evil hour that such identity was stamped on them, for they do not possess any point in common, excepting that of their seat. They both affect the lung, but this may be said of several other disorders.

The German school will not acknowledge "constitutions," or delicacy of system, leading to those deposits which will not clear up, but go on to poison the system, and produce like localization in other organs. They say such persons have a "vulnerability;" that tuberculosis is "not heritable," but that "the disposition to it is." But we know that lung attacks leading to cheesy infiltrations occur chiefly in delicate and badly nourished persons, whose inflammations tend to an abundant production of cells, and thereby to cheesy metamorphosis, and that cheesy metamorphosis anywhere may lead to tubercle. So much for the

nature of the product which blocks the lung, and which is known to end in phthisis. We ought to distinguish four kinds: (1) The inflammatory exudation, which is not tubercle; (2) the miliary tubercle, which is secondary and rare, as the Germans say, but primary and common according to Laennec; (3) the cheesy transformation, which is common to all; and (4) the developed connective tissue, which contracts and hardens the lung into a fibroid state.

There is another consideration to which I must draw your attention, and that is the localization of the morbid product in the lung; and it does not appear that this has received sufficient attention. I do not allude to the lobar or lobular arrangement of deposits, nor to the interesting question why the apex of the lung suffers most in phthisis, but rather to that portion of the lung structure which is the seat of the morbid product, be it inflammatory or purely tubercular. I take it that here will be found points of difference in the purely inflammatory as compared with the other forms of structural injury to the lung. Perhaps we may make this more clear by asking why it is that lung mischief is so productive of ultimate injury to the individual, giving rise to fever and wasting and all the pernicious results of phthisis? If it were due merely to the amount of pulmonary space lost, the ordinary croupous pneumonia which blocks with the greatest rapidity a large portion of the lung would give rise to these symptoms. But the phenomena of acute pneumonia are altogether different from those of phthisis. We have a sudden attack, very high temperature, and an exudation of a fibrinous character into the alveoli of the lung, in many cases blocking the entire organ—even the opposite lung may be attacked in sequence, and the respiratory space be lost over almost the whole of both sides—and yet the patient recovers. In practice we say that if the heart be strong enough to drive the blood through the obstructed lung, and does not fail in the effort, the patient may get well. Especially is this the case in that turn or crisis of the disease when the exudation begins to break up and liquefy. The case might almost in practice be called a heart, and not a lung, problem; and those who support the circulating force at the heart will have the greatest number of cures. The lung is not diseased in its structure during such an attack, its terminal cells are filled up, but that is all, and we know that perfect recovery may and does daily take place, the delicate elastic structure of the alveoli being found entirely unimpaired after the exudation has been removed.

Now compare this with the smallest exudation or product of inflammation which has broken down the alveolar walls and infiltrated the peribronchial and interlobular tissues, and we shall see at a glance wherein the difference lies. So long as the alveolar walls are not broken down there commonly is recovery, but infiltrations into the proper lung tissue are not so recovered from. The results in the latter case are not liquefaction and absorption of the exudation, but first mechanical pressure on and strangulation of the nutrient vessels of the lobule, causing the death of the part, so that the infiltrated material is compressed, the alveolus collapses, and those changes are initiated which end in cheesy transformation. How is it that a pneumonia which is not resolved after about two months becomes a phthisis? We believe that it is because in the very earliest phase, that of exudation, the interalveolar tissue has been invaded by the inflammatory product, and that we are not dealing with a portion of lung which has its alveoli filled up with fibrin, but a portion where the alveolar walls have given way and a diffused de-

posit has solidified the whole lobule and its surroundings. This is not a croupous pneumonia at all, it is an insidious deposit in the lung tissue, and will have a different ending from that of sthenic pneumonia.

As I have commented on the errors of the French school as seen from one point of view, so it must be remarked that the German has fallen into errors easily pointed out. Having the great task of enunciating new and true doctrines regarding the inflammatory nature of many products in the lung hitherto called tubercle, it was not unnatural that they should have been led into the common exaggeration of making all phenomena of phthisis harmonize with the new theory. Thus the common origin in catarrh was implied when the name was adopted; the term was no doubt given just as pneumonia was forced into the service in order to inform the medical mind once for all that the exudation in the lung was of inflammatory origin, and must have originated in the ordinary causes of irritation of the air passages of which cold and exposure are the chief agents. But we have seen how unlike a true pneumonia is to the so-called catarrhal variety in its seat, the nature of its products, and in its termination; and so we may say of the term catarrhal, which has misled many a practitioner, and induced a prognosis not verified by the result. Its influence on treatment must also be remembered, and the question will arise whether what is suited to a catarrh is applicable to a phthisis. In adopting this word we appear to have gone back to the old vulgar idea that all consumption came from a neglected cold, and that hot and close rooms and means to relieve bronchial irritation are the best remedies to adopt.

There is another statement of this school to which I must advert, and it will be remembered that my object is not to subvert any doctrines, but, as will be seen later on, to show by a study of the changes of opinion on phthisis how a gradual evolution of the most modern teaching has taken place, and to follow the line of thought in the minds of successive masters. Is hæmoptysis ever a cause of phthisis? Is it ever actually the first in the train of symptoms, the one which initiated the disease? Laennec and Louis lay it down that hæmoptysis indicates that tubercular mischief is already established in the lung. The irritation of the tubercle causes congestion, and hence the hæmorrhage. Niemeyer says that capillary hæmorrhage, bronchial or pulmonary, often induces phthisis even where there was no tubercle, and that in the majority of cases irritation of the lung follows hæmoptysis. The blood which remains and coagulates in the bronchi and alveoli becomes a cause of phthisis. In some rare cases he says hæmoptysis is not a cause, but a consequence, of pneumonic processes which lead to consumption; but the rule is otherwise, and hæmoptysis is most ordinarily a cause of the disease which is to break up the lung. Thus, as regards the earliest stages of phthisis, we have two sets of conflicting opinions. As regards clinical observation, we see a large number of cases initiated by an hæmoptysis. Every practitioner will endorse this observation. The theory of course is that the blood retained in the alveoli, together with pneumonic infiltration, undergoes cheesy change, and this is followed by breaking down of the lung, or by an eruption of miliary tubercle. We cannot forbear from asking the question why the hæmoptysis should occur at all if there be no preceding disorder of the lung. Is it within our clinical experience as a fact? Why should a portion of lung suddenly permit of hæmorrhage? We know that the pulmonary structures are capable of undergoing immense strain from sudden and prolonged exertion, and, further,

that when a hæmorrhage occurs from such causes, or from cardiac valvular disorder, that lung disease, and especially phthisis, does not follow. It is true that hæmoptysis is in a vast number of cases the earliest symptom of phthisis to which the attention of the medical attendant is called, but do we not almost always find that for weeks or months previously the patient has been slightly losing flesh, has felt unusual weakness, has had some suspicious febrile symptoms, or has had slight dry cough? Taking the German theory of a pneumonia as the ordinary cause of phthisis, we can see how the influence of hæmoptysis as a primary cause came to be insisted on. If there was anything morbid in the lung before the hæmoptysis, it was most likely to be what Louis and Laennec said it was—tubercle! And it was necessary to combat this, and to account for the hæmoptysis as the first evidence of the congestion and the inflammatory exudation which were to follow. Here, again, pathology was in advance of clinical observation, for the facts of practice do not bear out the theory. People do not get a consumption because they spit blood, but they spit blood because they are consumptive; and insurance offices and those who advise them are right in attributing that meaning to the symptom. But, in truth, the Germans want to prove too much—their statement that inflammatory products often passed for tubercle is abundantly proved without this attempt to account for a symptom which seems to tell against them. Hæmoptysis is commonly due to something already wrong in the lung, be it tubercle or not, and all experience proves it. In those cases where it is not, it is harmless, and probably due to cardiac causes, or general fragility of the whole vascular system. I have myself records of about three hundred cases of hæmoptysis which did not originate nor result in any disease of the lung.

I venture to recall your attention to that remarkable and able debate on the connection of tubercle with phthisis in 1873, at which, Sir, you yourself presided. At that time we had not fairly reached the doctrines of infection, nor had bacilli been discovered in the sputa of phthisis. The medical mind of this country, which had long reposed on the doctrines of Laennec and Bayle, had been roused by the strong assertions of the German school which I have described, and the result was a declaration of faith on the part of some of our ablest inquirers. The solid observing English mind, which is conservative of old opinions while impartially open to every novelty; which is little given to belief in the dogmas of any school as such, but waits for their verification by evidence, was ably represented by the leading speakers on that occasion. As in surgery it used to be said that operations were invented in France but made safe in England, so the lighter and more ephemeral part of German theories are often reduced here to the level of facts which have been proved by investigation, and if found to bear such crucial test are assimilated with medical science, but, if weighed and found wanting, are rejected. I take it that in no country are the names and doctrines of great names so worshipped as in Germany; but I must maintain that no country is so practical as England.

I will venture briefly to recapitulate a summary of the views of the prominent speakers on that occasion, in so far as they were not contradicted. It was recognized that under whatever name, tubercle or otherwise, it might pass, that a product of known anatomical appearances was found in the lung in phthisis; that caseation is not invariably tubercle, but often results from inflammatory products; that a new growth takes place in the walls of the alveoli in all cases of phthisis, leading to

destruction of their nutrient vessels; that this does not take place in ordinary acute pneumonia; that caseation was not due solely to inspissation of inflammatory products, but to a new growth in the walls of the alveoli, with which destructive changes in the lung are associated almost uniformly; that if this growth dies quickly, a rapid caseous change takes place, but if slowly, a fibroid change, leading to the well-known alterations in the lung structure that bear that name; that all these changes are manifestations of the disease, and that all occur in the most typical form of acute tuberculosis; that tubercle may occur without inflammation of surrounding tissues, or that it may be secondary to inflammation.

Dr. Wilson Fox states that implication of the alveolar wall is the most constant and typical appearance in the process of tuberculization. As regards the dispute about inflammation and tubercle, he considers that both may arise simultaneously and that inflammation may give rise to secondary growth in the alveolar walls, which is a main cause of phthisis, and that the causes of tubercle may be the causes of inflammation. As regards the nature of the so-called tubercle, he is borne out by Dr. Burdon Sanderson, in considering it to be a lymphatic overgrowth, produced by irritation under special circumstances, anatomical or constitutional, and he believes that adenoid or lymphatic tissue is found in the walls of the air-vesicles, and that as lymphatic irritation may prevail in any part of that system, so it may show itself here. The boundary line between tubercle and inflammation cannot be accurately defined, but there is no doubt that the tubercular growth precedes the caseation. We come now to another element in the case, and that is that certain constitutional conditions are essential to the production of tubercle. Any irritation of the tissue may, in the presence of local or constitutional predisposition, give rise to secondary growths, diffused or circumscribed, which constitute tubercle, and which may be the source of further infection, and that with or without antecedent caseation, although this stage, and that of softening, appear to be most favorable to the change. The real agent in infection is the small-celled growth in the walls of the alveoli.

Again, attention was called to the fact that irritants introduced under the skin of the rodentia give rise to lymphatic deposits in the lungs, liver, and spleen; even the irritation of a seton has done so. It was considered that over-crowded corpusculum in any organ may give rise to similar processes elsewhere, but Dr. Moxon thought that there was no phthisis without caseation, and that tubercle was another phase of inflammation, which latter can cause caseation, and so enter the system. I believe it may be stated with truth that no speaker upheld that common catarrh can originate caseation, and in this view it was pointed out that the initial stage of phthisis is local and not diffused as catarrh. Finally, it may be said Dr. Wilson Fox spoke the sentiments of the majority of those present when he said, "Tubercle tends to multiply, but can it be produced in the human subject by indifferent caseous products or by any inflammatory change not associated with a peculiar liability of constitution? I strongly doubt both."

It will be seen, Sir, that the tone of this debate was broad as regards the foreign schools, but accepted the data of neither. You will have noticed also that the whole debate turned both on the nature of the product in the lung and the changes which it undergoes, but also very much on the part of the lung which was so injured. If the doctrine is no caseation or no tubercle, then no

phthisis, it is also no less strongly that if there be no new cell-formation crushing and destroying the walls of the alveoli, then also there is no phthisis. The recoverable cases are those which after inflammatory or tubercular or catarrhal attacks remain with the alveolar walls intact. Destruction of alveoli is never recovered from, there are collapse and thickening of that part of the lung, but there is no restitution of structure and no vesicular breathing in that part again. Localization of disease rises into great importance. We used to think that the consumptive died of a constitutional irritative fever, but, tracing their symptoms alongside of the physical signs, we now know that their fever and their waste are coincident, and that it is just then that the tissues around the alveoli and in the peribronchial spaces are filled with a new cell-growth, which rapidly proceeds to caseation and softening. We also know that at this very time a mass of detritus of inflammatory or tubercular products is being carried into the blood and lymphatics, and deposited in other parts of the system, and that high fever wastes the patient while other organs or the opposite lung is being infected. Whatever initiates the disease this secondary result seems as manifest as the spreading of a fire in a dwelling, while, like the latter, the mystery remains of the originating causes of the combustion.

Clinical Lecture

ON

A RAPIDLY SUCCESSFUL TREATMENT OF ERYSIPELAS.

Delivered at Charing-Cross Hospital.

By RICHARD BARWELL, F.R.C.S.,

Senior Surgeon to the Hospital.

GENTLEMEN—We are at this institution fortunate in being almost entirely free from those diseases which have been called "hospital plagues"—pyæmia and erysipelas. Since this building has been reconstructed I have had to do with but one case of pyæmia originating in the wards. Some cases from without have been received, and those of you who have been with us long enough to remember those instances will also remember that the disease was not communicated to any other patient. Within the last two months I have had three cases of erysipelas here and two elsewhere, the treatment of which has been peculiar, while its very rapid success must cause much thought and consideration upon the relationship between its *modus operandi* and the morbid cause of erysipelas. I will shortly relate these cases, only premising that the plan I adopted in Case 1 is not that to which I desire to direct your attention—it merely led me to it.

CASE 1.—Miss —, aged thirteen was brought to me in October, 1882, with a diseased metacarpal bone. I found a large portion of the shaft necrosed and the hand a good deal swollen. On Oct. 19th, I removed the sequestrum (the greater portion of the shaft) through an incision a little under an inch and a half long. On the 23rd, a spot of erysipelas, with the usual dusky hue and hard boundary of cessation on the skin appeared—not at the wound, but a little above the ulnar styloid process; this was rapidly spreading. I painted the part and surrounding healthy skin with glycerine, and dusted over it boracic acid, making a tolerably thick crust, directing that more be applied wherever it flaked off. The inflamma-

tion disappeared in nine days—viz., she was well on Nov. 1st. But during the treatment I found that the paste did not keep on well, becoming detached in flakes, and that where this detachment took place the inflammation did not clear up as elsewhere, although there was on the skin a considerable dusting of the antiseptic boracic acid. This led me to think of some more sticky material, and my memory reverted to twenty years ago, when I think it was Mr. French, then of Marlborough-street, who told me he used white lead paint. I confess I attached at the time little importance to the matter, and it had apparently faded from my memory. However, since the above case seemed to show that it was not the "germicide" drug, but the exclusion of air, which produced the benefit, I determined to try a thick coating of paint on the next occasion. As chance would have it, this soon occurred.

CASE 2.—George F—, aged six, had fallen, five days before I saw him, on some sharp object, cutting his knickerbocker stockings and inflicting a pretty deep wound over the patellar tendon; this had been poulticed. On Nov. 22nd, at 6.30 P.M., I was sent for to see the child. I found the wound dry and harsh-looking. Over the tendon of the biceps and in the popliteal space was an erysipelatous blush, with hard sharp edge and rather considerable swelling. The child was fretful, irritable, and evidently in pain; tongue rather foul; temperature 103.2°; pulse 117. I sent for a pound of white lead paint, and painted the whole part inflamed and a little beyond, leaving out the wound, which was dressed by pressing into it a little cotton-wool soaked in a 5 per cent. solution of boroglyceride. Two grains of grey powder and five of rhubarb to be given at once.—23rd (9.30 A.M.): About three-quarters of hour after I left the child had become quiet, and asked for some bread and butter, which with a cup of milk was given; he then fell asleep and passed an excellent night. Bowels have not acted. Temperature 99.7°; pulse 90. Where in a few places the paint had cracked it was renewed. There is nothing more to remark in the case. The temperature became normal the next evening, and did not again rise. In seven days the epidermis was desquamating, bringing away the paint gradually and in patches.

CASE 3.—George F—, aged thirty-nine, was in the hospital with a fractured tibia. On the outer side of the leg was a wound, which did not communicate with the fracture. On Dec. 12th, having been in the hospital five weeks, he had some shivering, and his temperature rose to 101.8°. On the next morning erysipelas was found in the neighborhood of the wound; the part invaded was at that time about two inches and a half in diameter. On the 14th, when I saw the man I found him undergoing a severe attack of cutaneous erysipelas, which by this time occupied the whole leg, but did not extend above the knee. He said he was in considerable pain, and that his leg felt as if it was on a slow fire. Tongue slightly furred; temperature 102.1°; pulse 108. He had already been ordered a purge. I directed his limb to be coated with white lead paint. On the 15th he told me that in half an hour after this application the pain entirely ceased. Temperature normal; pulse 98. In this case my then house-surgeon misunderstood my wishes and removed the paint with turpentine. I saw him the same afternoon, and ordered its reapplication, as the skin, either from the action of the turpentine or by non-cessation of the disease, was a little red. He did unremittently well.

CASE 4.—Jane McK—, aged five, has pathologic dislocation of the hip, with necrosis about the

head and neck of the femur. The sequestra had been removed, and a drain through to the back of the thigh established.—Dec. 19th: She had shivering and vomiting, with a temperature of 103.6°.—21st: Erysipelas¹ of the thigh and buttock; the whole part painted. In the evening the temperature was 99.4°. She went on perfectly well. In eight days the paint was peeling off, and the skin quite normal.

CASE 5.—Robert L., aged thirty, received a scalp wound over the lambdoid suture of the right side on December 26th. He was treated as an outpatient. On Jan. 15th he came back with severe erysipelas of head and face, which appears to have been going on some days. A purge was ordered.—16th: I found him with his head and face wrapped in absorbent cotton-wool. This was removed. His hair had been already cut from both head and face. Both were much swollen, the eyelids were so large that they could hardly be parted sufficiently to see the eye, the lips and the *alæ nasi* also were generally swollen. Temperature 103.8°, pulse 114. Complaints of much pain. Ordered to be painted; no other remedy to be used.—17th: Mr. Wyborn (house-surgeon) found before painting some boggy patches on the scalp; these he punctured evacuating pus. I directed that the head as well as the face be now painted. The man, however, is much better, the temperature lower. He is free from pain.—18th: The patient appears convalescent, his temperature is normal, his pulse steady (98), and he is desirous of more food. The man assured me that within half an hour of the application the previous severe pain entirely disappeared.—22nd: Patient very anxious to go out but I keep him a day or two that the paint may come from the hair.

The temperature chart ran thus:—

	Morning.	Evening.
January 16th . . .	103.8°	102.1°*
" 17th . . .	99.8	100.2
" 18th . . .	99.9	98.0
" 19th . . .	97.7	97.9
" 20th . . .	96.6	97.1

* Between these times paint applied.

And so on, the thermometer never rising again beyond 97.3°. I do not know why the temperature was so low, unless it was a personal peculiarity; the man was certainly not feeble.

These cases² are, I think, sufficient to show that a very great effect is produced upon erysipelas and its congeners by covering the surface with white lead paint. This is, I believe, entirely due to exclusion of air; the lead of that compound is in an insoluble condition; nor do I believe that the inflamed skin is in a state to absorb any material applied on its surface; by the time that it has recovered the lead is separated from the living tissue by a tolerably thick layer of desquamated and dead epidermis.³ Moreover, lead as a solution of the acetate has been applied from a very early period, and as far as I know without any appreciable benefit to erysipelas.

Now, gentlemen, I began this lecture by speak-

ing of erysipelas as one of the so-called hospital plagues; it has long been known both in an endemic and epidemic form. Since the germ theory of disease has been propounded this has been considered, by those who accept in full that hypothesis, to be a typical germ-produced disease. It certainly comports itself after that fashion. Nor need I insist upon all the evidence to be found in every medical and surgical work that erysipelas is a blood disease, not merely a local cutaneous inflammation, but an infection by putrescent or other morbid poison of the whole system; that in this particular medical and surgical erysipelas do not differ, although it is certain that the idiopathic form of the malady very often begins in the fauces, while the traumatic variety has a tendency to commence in or near the wound; but that this marks not any difference in the sort or action of poison, but only a diversity in its place of entrance. And yet here, in a number of well marked cases, you see this disease yield to a mere local application—to simple occlusion of air; yielding, that is to say, not hesitatingly or doubtfully, but at once and unmistakably. I will not now take up your time (for clinical teaching should concern itself not with speculations, but with facts) by attempting to show you how this may perhaps happen, but must nevertheless tell you that I am by no means prepared to discard the blood-poison etiology of erysipelas; yet why a general systemic disease should be thus cured by local treatment is very curious, and of course many more trials and successes must be realized before so strange a doctrine can be accepted. Fortunately our opportunities of seeing erysipelas are very few; it may be months before any, even slight, cases occur. I hope other surgeons may soon report to us their experience in this matter.⁴

P.S.—Since the above lecture has been in the printer's hands, I have had, through the kindness of Dr. Bruce, the opportunity of treating a case of idiopathic erysipelas, with equally rapid success. A lad, aged nineteen, presented himself on Feb. 16th, with erysipelas of the face, in its early stage. The fauces were much inflamed, red, and swollen; the inflammation passing forwards along the nares, and up the lacrymal duct, had spread to the *alæ nasi*, as also to the lower eyelid, which were red, hard, swollen, and still were enlarging. Temperature 102.4°; pulse 120. He was sent to bed, a purge was administered, and his face was painted with white lead paint. This application was renewed twice; no other remedy was used. In six days the lad was well. Mr. Wyborn was good enough to examine the urine. It was quite normal. Tested with hydrochloric and with hydrosulphuric acid it gave no precipitate, showing the absence of lead.

—It is stated in the *South London Press* that in the Newington Infirmary there are thirty-two beds on the basement, and the patients in some cases are obliged to step from their beds on to the bare asphalt; that there is no nurse for the place, and the patients have to do the best they can for themselves, without assistance from others; and that there are altogether in the infirmary eighty cases above the certified number.

¹ The inflammation, though it included the skin, was evidently also deep; the disease might be called either cellulitis or phlegmonous erysipelas.

² A girl at the Cripple's Home, affected with erythema nodosum in unusually large blotches, was treated in the same way with like benefit and similar mitigation of pain.

³ Dr. Mitchell Bruce, to whom I showed the last of the above cases, has been good enough to call my attention to the following passage in Wood's Therapeutics, p. 39: "Plumbi carbonas as white paint is a most efficacious dressing for fresh burns. Care must be taken when a large surface is involved, as lead colic has been caused by its absorption."

⁴ White lead paint, obtainable at any oil and color shop, is made by rubbing up the carbonate of lead with linseed oil, and for the purpose in question, as indeed also for ordinary use, is mixed with turpentine as a "drier." When applied over hairy parts the surface should be shaved, or at least the hair cut very close. When growth takes place the dried paint is pushed off in little patches, and if patience be taken for two or three days, until the hairs are long enough (about one-tenth of an inch) to admit between the skin and the little flake of paint the blade of a pair of scissors, removal is easy and painless.

Lumleian Lectures

ON

URIC ACID: ITS PHYSIOLOGY AND ITS RELATION TO RENAL CALCULI AND GRAVEL.¹

Delivered before the Royal College of Physicians,

By A. B. GARROD, M.D., F.R.S., F.R.C.P., etc.,
Consulting Physician to King's College Hospital.

LECTURE I.

MR. PRESIDENT AND GENTLEMEN—On being requested to deliver the Lumleian Lectures for the present year at our College, I naturally felt much gratified by the honor, but, none the less, I should have hesitated to accept the responsibility of addressing you in my present capacity, had it not so happened that I was at the time engaged in completing some investigations which I had begun many years before. As these had relation to the production of uric acid in the animal economy, and to its morbid manifestations—subjects of deep interest to the physician—I thought that the results of these researches might not be altogether without attractiveness to my professional brethren, if they were made the subject matter of the present course of lectures.

Having, therefore, a subject to bring before you which contains some little novelty, and, as it were, breaks new ground, I put this fact forward as my excuse for appearing to-day in the capacity of your Lumleian Lecturer.

Let us imagine a partition separating the blood from the urinary excretion, such as, in nature, is found in the walls of the renal vessels; then uric acid, free or in combination, may exist either on the one or on the other side of this membranous partition; if on the one side—that is, in the blood—it originates symptoms which are referable to various organs; it may be deposited in the articular tissues, and produce the typical form of joint-gout, with chalk-stones; or it may affect the skin in the shape of eczema, or cause cramps, neuralgic pains, dyspepsia, etc., according to the part particularly selected. On these I shall not touch in this course of lectures, having had full opportunities of setting out my views and researches elsewhere. But uric acid is also to be found on the other side of our imaginary partition, that is, in the urinary excretion, and under certain circumstances, it forms morbid deposits, such as go by the names of gravel and calculi, and it is to these that I shall confine my attention, with special reference to their pathology and treatment.

In some animals, as the mammalia, including man, urea [$\text{CO}(\text{NH}_2)_2$, or $\text{CH}_4\text{N}_2\text{O}$] is the chief nitrogenized principle, and it is the one which is richest in nitrogen, containing as much as 44.66 per cent. It appears that the average quantity of urea excreted in the twenty-four hours is 512.4 grains, and that, for each avoirdupois pound, 3.33 grains are eliminated daily. It is in the form of urea, therefore, that the chief part of the nitrogen in a very large and important class of the animal kingdom is eliminated.

The next principle to be mentioned is uric acid ($\text{C}_5\text{H}_4\text{N}_4\text{O}_6$), which was formerly called lithic acid, and has recently been synthesized. This acid, combined with more or less ammonia, forms the chief part of the nitrogenized excretion of birds and

reptiles, as also of almost all invertebrate animals, and a small part of that of man and the other mammalia. It contains 33.33 per cent. of nitrogen, but, if estimated as urate of ammonia, as much as 37.83 per cent. Its properties, especially as regards solubility in water or the animal fluids, differ greatly from those of urea, for it is with the greatest difficulty that it is dissolved, requiring, when pure, as much as 8,000 times its weight of distilled water at about the temperature of the blood (100°Fahr.). The salts of this acid are more soluble, but yet, in comparison with others, only slightly so, and they and the acid itself readily crystallize out from the fluids in which they are dissolved. It is owing to this property of insolubility that uric acid, although it forms so small a proportion of the urinary excretion in man, so frequently is a cause of disease. In the first place, it may concretely in the kidneys, forming gravel and renal calculi, which, when they reach the bladder, if they remain there for any time, encourage the precipitation of a further quantity of uric acid or urates upon them, and thus vesical calculi are formed; or, secondly, uric acid may be present in the blood and lead to special symptoms in different organs, or become deposited in the form of urate of sodium in various tissues, producing much discomfort.

There is a third body—viz., hippuric acid ($\text{C}_9\text{H}_8\text{NO}_3$), which is found in the urinary excretion; largely in that of the herbivorous mammals; in small and varying quantities in the urine of man; but almost, if not entirely, absent from that of the carnivorous mammals. It will be seen from its formula that the percentage of nitrogen contained in it amounts to 7.82. Although hippuric acid has hitherto been regarded as a comparatively insignificant ingredient, at least in the urine of man, we shall, as we advance in our subject, find that it plays an important rôle in the metabolism going on in the system, one which, to us, as students of disease, is of deep interest.

It is in the form of one or other of these three substances, with comparatively slight exceptions, that the whole of the nitrogenized waste of the body is eliminated from the system by the renal organs, little or none escaping by any other channel.

As uric acid is the principle which will chiefly engage our attention in these lectures, and as a correct knowledge of the mode and place of its formation in the economy is of the utmost importance if we ever hope to arrive at the solution of the problem of the cause of calculi, and to develop some method of preventing their occurrence, and, more especially, as the views I have arrived at during the study of the subject differ so much from those held by almost all physiologists, I shall not attempt to apologize for occupying your time with the investigation of the nature of this substance.

Origin of Uric Acid in the Animal Economy.—There are, at least, two possible theories as to the formation of uric acid. Of these the first is, that it is formed during the metabolism constantly going on either in the system at large, or in special organs—such as the spleen, lymphatic glands, liver, lung, etc.; and that when formed, it reaches the blood, and is afterwards rapidly eliminated by the kidneys. From the point of view of this theory, the renal organs are merely the drawers-off or filters from the blood of the uric acid which it brings to them. For the sake of brevity, I shall, in these lectures, call this the *first* view.

Another, which I shall call the *second* view may be held. In this it is assumed that the kidney is the organ whose function it is to produce uric acid; that this principle is formed in the renal cells from nitrogenized matters brought to them

¹To economize space a few less important passages have been omitted from this report.—Ed. L.

by the blood; and that, in so far at least as uric acid is concerned, the kidneys do not act in any degree as filterers or strainers. There are few physiologists or pathologists, at the present time, who hold this opinion; and the discovery of uric acid in the blood, which I made in 1847, seemed, at first sight, to militate against it: for it appears to follow from the fact of the presence of uric acid in the blood, that it must be formed before the blood reaches the kidneys, and not in those organs.

In the course of our investigation into the value of these two views respectively, we shall have occasion to bring forward almost all the facts at present known with reference to the physiology of uric acid, and these require a satisfactory explanation before we can definitely arrive at any choice between the rival theories.

The two theories above mentioned may be shortly summarized as follows. In the first, the kidney is regarded simply in the light of a strainer or filterer of the uric acid which is found in the blood, and passes through to it. In the second, the kidney is held to be the actual producer of uric acid, and the presence of this principle in the blood and tissues is explained by resorption from the renal cells, a process which is scarcely appreciable in health, but becomes more and more marked in proportion to the difficulty which the uric acid has in finding its way to the uriniferous tubes.

In considering the physiology of uric acid, I must, in the first place, draw your attention to the fact that there are great differences between the urine of different classes of animals, both in physical condition and in chemical composition. In some animals the urinary excretion is very thin and watery; in others, it has the consistence and appearance of thick cream, these differences depending, of course, on the ratio between the water and the solid constituents of the excretion. The constitution of the solid portion of the excretion also varies much; in some urines the urea is abundant, the uric acid very scanty, or even altogether absent; in others, these two constituents are both present in large quantities; while, in a third class, the urea is either very small in amount, or entirely absent; uric acid, in some form of combination, constituting almost the whole of the solid portion of the urinary excretion.

1. *Mammalia*.—The urine of man we will not discuss at present, as we shall have to speak about it when dealing with the formation of renal calculi and gravel; it may, however, be mentioned in passing that, in constitution it closely resembles a combination of that of the carnivorous and herbivorous mammals, as, indeed might have been anticipated from our knowledge of the anatomical structure and the nature of the food of man.

The urinary excretion of the carnivorous mammals is a watery and heavy fluid, its specific gravity being sometimes as high 1070. I have found that of the lion and tiger to be 1063 and 1064, of a distinctly acid reaction, and a not disagreeable odor; nor is it liable, as has often been asserted, to rapid decomposition. The urine is rich in urea, so much so that often a single drop placed on a piece of glass will, after a few minutes, become a mass of crystals; and with nitric acid, it immediately becomes solid, from the formation of nitrate of urea. Uric acid is usually found in it, but in very small quantities, never, at least when the animals are kept in confinement and sparingly fed, reaching the amount contained in human urine.

No hippuric acid is found, at least under ordinary circumstances, in the urine of the carnivorous

mammals; a fact on which I wish particularly to insist.

Next, as to the herbivorous mammals. The chief points of relation and difference between the urine of these and the carnivorous mammals may be thus summed up. It is usually a heavy fluid. I have found in the horse the weight ranging from 1025 to 1045. In the elephant (female) it was 1033, and in the camel 1047; but only one examination was made in each case. In the cow and ox I have found it as low as 1014 and as high as 1035. It is always alkaline in reaction, except in the sucking animal, and of a peculiar but not unpleasant odor.

The urine of herbivorous mammal is rich in urea, less so than that of the lion or tiger.

One of the most characteristic substances found in the urine of herbivora is hippuric acid, which derives its name from the fact that it was first discovered in the urine of the horse. Under ordinary circumstances this acid exists in quantity at times equal to that of the urea.

2. *Birds*.—The urinary excretion of birds, as far as my observations go, is semi-fluid, cream-like, and very rich in uric acid. As much as 90 per cent. of uric acid, or even more, has been found in it, together with a varying quantity of ammonia. I have always found it distinctly acid in reaction, whether the bird was living on meat or grain.

3. *Reptiles*.—In so far as the eye can discover, or as chemical analysis has succeeded in making out, the urinary excretion of ophidian and saurian reptiles is identical with, or most closely resembles, that of birds. I have carefully examined that of several pythons, boas, cobras, and the common English snake; also of various saurians, as the Australian monitor, etc. Urea is said to be absent. In the chelonian reptiles the excretion differs from that of ophidians and saurians, in being almost liquid, usually consisting of a clear watery fluid, containing opaque white flakes of urates.

4 and 5 *Batrachians and Fish*.—With regard to these classes of animals but little information has as yet been obtained.

6. *Invertebrata*.—Lastly, one word as to the nature of the urinary excretion in the invertebrates. With the exception of animals belonging to the class arachnida, as the scorpion and spider, which excrete guanine ($C_4H_5N_5O$), a substance found in guano, and probably derived from uric acid, and closely related to it in composition, all the invertebrata throw out uric acid or urate of ammonium.

Having now given a short sketch of the character and composition of the urinary excretion of the different classes which compose the animal kingdom, we are naturally confronted by the question: Why this difference in the excretion of nitrogen? why in some animals does it chiefly take the form of urea, in others that of uric acid? The supporters of the first view have attempted many explanations, the favorite one being that it depends on the greater or less activity of the function of respiration. Liebig pointed to the fact that mammals, having a high temperature and active respiratory function, throw out but little uric acid and a large quantity of urea; whereas reptiles, with a low temperature and a correspondingly low respiration, throw out their nitrogen chiefly as uric acid. This view was founded on limited data, and we have only to turn to the large class of birds for its refutation. Here we see animals with the highest temperature and a respiration correspondingly active eliminating their nitrogen in exactly the same form as the cold-blooded reptiles.

The nature of the food taken has been thought by

many to have a powerful influence on the excretion of uric acid, but it needs very little consideration to show the inaccuracy of this idea; for ophidian reptiles, as the python and boa, which live exclusively on animal food, and grain-eating birds, such as the canary and others, whose food consists entirely of seeds, excrete the same nitrogenized products; in fact, it is difficult to separate the urinary excretion of the one class from that of the other, as I have already stated, both consisting of uric acid in combination with some ammoniacal compound. Again, if we compare a toad with a lizard, the little influence of the character of the food is at once strikingly shown: both animals live on flies, yet the urine of the toad is clear and watery, and contains no appreciable uric acid; whereas that of the lizard resembles cream, and consists mainly of urate of ammonium. The excretion of uric acid and of urea also is doubtless much influenced by the amount of food taken, whether in the same ratio has not yet been determined.

Some physiologists look upon the spleen as the producer of uric acid; others regard the liver, some the lymphatic glands, and some the cartilaginous tissues, as the originators of this principle. But there is one fact which must not be lost sight of—viz., that whether an animal throws out all its nitrogen in the form of uric acid, or in that of urea, it, equally in either case, possesses a spleen, a liver, lymphatic glands, and cartilaginous tissues.

Of course, if we accept the second theory, and regard the kidneys as the producers of uric acid, the difficulty of the question is at once solved; we have only to regard the kidney as containing different cells; some, perhaps, for the formation of urea; some, at least, for the production of uric acid, and to hold that the number of the latter cells, compared with the other excreting cells of the kidney, differs in different classes of animals.

Let us pass on to another point in the physiology of uric acid. How can we explain the fact that, in proportion to the weight of their bodies, some animals excrete so large a quantity of such an insoluble principle as uric acid, or even as urate of ammonium, the one requiring 8,000, the other 2,400 times its weight of water at the body temperature to dissolve it? The human subject excretes, on an average, in the twenty-four hours, about one part of uric acid for each 120,000 parts of his weight, or, estimating the weight of a man at 10 $\frac{1}{2}$ st., throws out about eight grains of this acid daily. In the case of the lower animals, I could find no facts on record relating to this subject, and therefore had to undertake to supply them for myself by means of the following observations and experiments. I had a cage constructed, with a glass floor, so as to be able to collect the whole of the excreta of the twenty-four hours from the bird that occupied it, and from such I carefully ascertained the quantity of uric acid: no difficult process.

1. A canary bird was kept in the cage, its food consisting of a supply of canary seed, millet, and hemp, together with water. In twenty-four hours I found that the excretion of uric acid was 2.1 grains and the weight of the bird was 277 grains, so that the ratio of the uric acid excreted in twenty-four hours to the weight of the bird itself was 1: 132.2.

2. An Australian grass parrakeet was next kept for twenty-four hours in the same cage, and fed on the same food. The weight of the excreted uric acid was 3.1 grains, that of the bird 415 grains. The ratio of the uric acid to the weight of the bird was 1: 133.8.

Had I calculated the weight of the bird from the weight of its excreted uric acid, taking the ratio in the case of the canary for my standard, I should have estimated the weight of the parrakeet at 409 grains instead of 415. The observation was repeated with a second parrakeet of the same weight, and the same result was obtained—viz., 3.1 grains of uric acid in the twenty-four hours. Let us, then, take 1: 120 as a fair ratio, including in the calculation both carnivorous and graminivorous birds, and we arrive at the somewhat startling conclusion that the bird in proportion to its weight excretes 1,000 times more uric acid than man.

In pursuit of this subject, I made further observations on the relation between the daily weight of the uric acid excreted and the weight of the renal organs themselves. In the case of a lark I found that the ratio of the weight of bird to that of kidneys was 125: 1; in that of a linnet, 118: 1. Taking the lark and linnet therefore, after calculating their daily excretion of uric acid, we find that it amounts to more than the weight of the kidneys of the same birds. Let us reflect on these facts. Is it possible to conceive, if we assume that the uric acid first exists in the blood, that the amount of this fluid passing through the renal organs could excrete as much of this principle as we have found, as a fact, to be thrown out? True, in the case of man, who excretes only one-thousandth part of the uric acid thrown out by birds, we could easily imagine this to be the process, but the more we consider the facts about birds, the more difficult does it become to believe in this explanation, and if we go further and hold it impossible, then the first view as to the formation of uric acid appears to me to fall to the ground.

As this question is of the utmost importance to physiology, and as its decision must necessarily be followed by weighty consequences, it is essential that nothing should be left undone which might help us to the truth. With this object before us, there arise many points which must be determined, and, first of all, we must ascertain the condition of the blood of various animals, especially with regard to the presence or absence of uric acid. I have obtained many such data from observations made during a long course of years. I have several times examined the blood of man in health, and many hundred times in various diseases, and the conclusion at which I have arrived is this: that in absolute health the uric acid in the blood is inappreciable by our tests, and that that fluid does not contain the 100,000th part of its weight of the acid, while in gout the blood is very rich in this principle, as I showed in 1847: that uric acid is also found, in much smaller but still appreciable quantities, in individuals who are developing a gouty condition, or who are under the poisonous influence of lead.

In the blood of various other mammals, as the ox, sheep, and pig, I have never found a trace of uric acid by the uric acid thread test. I have also examined the blood of several species of birds, as the turkey, common fowl, pigeon, and duck, repeatedly in some instances, and have found it as free from uric acid as that of the mammal.

The result of these observations must be looked upon as somewhat striking, and even startling, to those who regard the uric acid in the urine as simply a filtration from the blood, when we remember that the blood of birds, whose urinary excretion is almost entirely composed of uric acid, is as free from that principle as the blood of the herbivorous mammal, in whose urine it is usually difficult to detect a trace; or, again, that the blood of the bird is as free as, and often freer, than that of man from uric acid, though it excretes daily about 1-120th of its own weight of

that principle, man eliminating not more than 1-120,000th.

Let us go a step further in the inquiry, and let us assume, for the sake of argument, that the blood of a bird contains, which it certainly does not, 1-50,000th of its weight of uric acid, a quantity which, if present, could easily be detected by my so-called "uric acid thread test," and let us make a rough calculation of the quantity of blood which passes through the kidneys in the twenty-four hours. The figures contained in the table may be regarded as sufficiently correct for the purpose of illustration.

I assume the weight of the bird to be represented by a certain figure for convenience sake, and all the appended numbers have relation to that number.

TABLE (*illustrative only*).

	Grains.
Weight of bird.....	277.0
" heart.....	4.0
" kidneys.....	2.5
" blood in body.....	23.5*
" uric acid excreted in 24 hours.....	2.1
" blood thrown from left ventricle at each beat of heart.....	1.0
Pulsations of heart in 24 hours (120 per minute) 172,800	
Weight of blood passing through kidneys at each beat.....	0.10(?)
Weight of blood passing through kidneys in 24 hours.....	17,280

* Calculated at 8.5 per cent. from starling.

Assuming that one-tenth of the blood that leaves the left ventricle at each beat passes through the kidneys, in which case nearly 7,000 times the weight of the organs would pass through them in twenty-four hours, then the whole of that quantity would not contain one-sixth part of the uric acid excreted during the same time by the bird. We have, in this illustration, given every possible advantage to the supporters of the first theory, for we have assumed not only that what I should imagine to be a most abnormally large amount of blood passes through the kidneys, but also that the blood contains a much larger quantity of uric acid than is really the case. Add to this that we have assumed in the calculation that no trace of uric acid escapes filtration in every passage of blood through the renal vessels—a most improbable assumption. We shall soon have occasion to see what the filtering powers of the kidneys really amount to; in other words, how much uric acid they can excrete from a blood which is known to be rich in that principle.

Our next point is to ascertain what takes place when uric acid, in the form of one of its salts, is administered by the stomach or injected into the blood. In 1849 I gave urates of ammonium, sodium, and potassium with the following results: A man was passing on an average 8.07 grains of uric acid in the twenty-four hours, taking no drug. Urate of potassium was given, in five-grain doses, three times a day; the dose was afterwards increased to ten grains. During the time he was taking the urates the average excretion of uric acid was 8.25 grains—i.e., practically the same as before. I find appended to this case a note of no little interest—viz., that during the administration of the urates the man, who had some eczema, experienced a great increase of skin irritation, which subsided on their discontinuance. This goes far to prove, first, that the substance was absorbed into the blood, and, secondly, that some forms of eczema are closely connected with the presence of uric acid in the blood. To another man I gave, at

first urate of sodium, and afterwards urate of ammonium in doses of fifteen to thirty grains, without the slightest detectable increase of uric acid in the urine.

Subsequently Wöbler and Frerichs found that when urates of potassium and sodium were taken there was an increase of the urea, and a sediment of oxalate of calcium in the urine, but no augmentation of the uric acid. Neubauer found that in rabbits the exhibition of large quantities of uric acid was followed by a corresponding increase of the excreted urea, but no uric acid was discovered in the urine. The injection of urates into the veins was followed by the same negative result as ensued when uric acid was given by the stomach.

If the kidneys act merely as strainers off from the blood of the uric acid brought to them by that fluid, how can we explain these facts? Is it not impossible to do so? If, however, we regard the kidneys as the producers or manufacturers of uric acid from matters brought to them by the blood, then all difficulty with respect to the facts above mentioned vanishes, and we see at once why the amount of uric acid has no necessary relation to the character of the food, but depends on the activity of the formative cells, and the quantity of pabulum brought to them in a given time.

Before we proceed to discuss another point in the physiology of uric acid you must allow me for the moment to assume, what I shall afterwards have an opportunity of proving, that in the kidney cells this acid exists combined with ammonia, or, at any rate, with a base yielding ammonia, and not with any fixed base, as soda, potash, or lime; but that when it is found in the blood, or deposited in the tissues, either of man or the lower animals, it is in the form of urate of sodium. As far back as the year 1847, when I first found uric acid in the blood, I proved that it was in the form of the soda salt.

A few years ago an interesting case of this sort came under my notice, which, as it strikingly illustrates the question which we are now considering, I will relate as concisely as possible. An Australian grass parakeet, which had been quite recently imported, came into my possession and, within a few weeks of its arrival, I found on the digits of its claws little white nodules or protuberances, most of them larger than a pin's head. The bird soon sickened and slowly died. It was afterwards found that each of these nodules contained a cheesy matter, which, under the microscope, exhibited the appearance of being made up of innumerable very fine needle-like crystals, polarizing light with great intensity, and, when chemically examined, yielding an abundance of uric acid, but no ammonia. When incinerated, it yielded the characteristic soda ash. The deposit was, therefore, composed of urate of sodium. It was afterwards discovered that not only were the digits of the claws studded with this matter, but that it extended along the shaft of each leg, and there was a long rod of it in front of the cervical vertebrae, behind the trachea.

Let us now see how these facts can be explained on one or other of the two theories of the formation of uric acid. On the first, it is not difficult to suppose that uric acid may be formed, either in that shape or as urate of sodium (at any rate it would exist in the blood as the soda salt), and become deposited, under certain circumstances, in different organs and tissues of the body; but then comes the difficulty of explaining how it is that it is thrown out by the kidneys combined, not with soda but with ammonia. I cannot conceive any satisfactory explanation under this theory. I know of no chemical conditions which would render such a change possible and would cause

urate of sodium to be filtered through as urate of ammonium.

Let us now, for a moment, adopt the second view and assume that urate of ammonium is produced in the kidneys, and that it sometimes becomes resorbed (the word, though uncommon, is the best expression of the process) into the blood after its formation. How is it that it then becomes changed into urate of sodium? There is no difficulty here, for I have shown that, when urate of ammonium is added to a solution containing a large excess of either phosphate or chloride of sodium, it is converted into urate of sodium, and will crystallize out as such. All difficulty, therefore, as to the explanation of the change in the salt as it passes from the kidney cells into the blood is at once removed, and it necessarily follows that the tissue-deposits which occur in disease must be composed of urate of sodium. As I have already said, those who consider that uric acid is formed before it reaches the kidneys usually look to some other organ as its source—e.g., the spleen.

If the spleen is the organ in which uric acid is formed, why should not this acid be present in the urine of herbivorous as well as carnivorous mammals? On the same assumption, should we not expect that uric acid would exist in much larger quantities in the spleen of animals whose urinary excretion consists mainly of that principle than in others whose urine is often devoid of it? As far as my experiments go, the very reverse is the case, for while uric acid was easily detected in the spleen of the ox, in that of the bird it was most difficult to discover it. Again, it would naturally be expected that in animals that throw out uric acid the spleen would be larger, proportionally, than in others, but I am not aware that such is the case. It must also be remembered that uric acid has been asserted by different observers to be present in other organs besides the spleen, as the liver, lymphatic glands, and brain.

Assuming that our second view is correct and that the kidneys are the true formative organs, then an explanation of the presence of uric acid in the spleen, liver, and other parts is not difficult. When, from any cause, there is an appreciable back-flow of uric acid from the renal organs and resorption, then the blood becomes more or less impregnated with that principle, as we find to be the case in disease, and, under these circumstances, it is attracted by various tissues and becomes united with them. May it not be the case that, when uric acid exists in the blood, it is attracted differently by different organs, and thus the spleen and liver more frequently contain appreciable quantities than other tissues? Or, again, may it not be that in some organs, as the spleen, the substance of which, if not acid during life, rapidly becomes so after death, while the blood remains strongly alkaline, the uric acid becomes less soluble and more easily retained?

Before concluding this, the purely physiological part of our subject, I will state that there are a few facts which demand full explanation under any theory which claims to be accepted as the true one. For instance, the urine of the sucking calf and of the young of other herbivora contains uric acid in notable quantities, while that of the adult animal is usually free from it. How can this be reconciled with the view that uric acid is formed in the kidneys? There are also other facts closely allied to these which appear to be equally difficult of explanation by the second theory.

In the course of these Lectures I hope to be enabled fully to solve these difficulties, and, in so doing, to bring before you many observations, the results of which may prove to be of great service and value both in pathology and in therapeutics.

Original Papers.

THE ETIOLOGY OF DIPHThERIA, THE NATURE OF ITS CONTAGIUM, AND THE PHENOMENON OF SUDDEN DEATH OCCURRING IN IT, RECONSIDERED.

By EDWARD WOAKES, M.D.,

Senior Aural Surgeon, and Lecturer on Aural Surgery, at the London Hospital, Senior Surgeon to the Throat Hospital, London.

THE views put forward in the following communication not being in accord with those generally received on the subjects of which they treat, may I venture to solicit for them the considerate attention of the reader on the following grounds? First, because, though briefly summarized, they represent the outcome of many years' careful observance of the disease, under circumstances not unfavorable to its study. Secondly, because I have brought to bear upon the solution of the problems at issue a principle new in its application to such questions. This principle I had the honor of submitting in detail to the medical section of the International Medical Congress held recently in London in a paper discussing the evidences which support it, as well as some of its bearings on the determination of the phenomena of disease. The principles upon which the chief points attempted to be established in this communication rest may be briefly stated as follows:—1. The afferent fasciculi of a given sympathetic ganglion (which are usually found accompanying the sensori motor nerves, being contained within their sheaths) are in reflex relationship with the efferent vaso-motor nerves furnished to the arteries from the same ganglion. 2. That the medium of this reflex relationship is the particular ganglionic centre with which the afferent and efferent fibrillæ alike communicate. 3. That afferent impulses transmitted through a sympathetic ganglion take effect upon the walls of the bloodvessels supplied by it with vaso-motor nerves, and by enlarging or contracting the calibre of these vessels, produce alterations of nutrition, or of function, in the areas to which the vessels so innervated are distributed. 4. That in this way the sympathetic ganglia constitute centres for correlating widely separate tracts of tissue, bringing them into mutual interdependence in regard of such operations as come within the sphere of their functions. 5. By means of this correlating faculty the sympathetic ganglia are found to be largely instrumental in determining the localization of morbid symptoms. It is to this coördinating function of the sympathetic centres that I appeal in attempting to elucidate those aspects of diphtheria discussed in the present paper. One of my earliest experiences of diphtheria occurred about the year 1860, just after the appearance of Bretonneau's second memoir. The patient, a middle-aged female, was treated with calomel, as recommended by this author, though to a much less extent than practiced by him, and recovered. The case, though well characterized, was not, comparatively speaking, a severe one. During the subsequent fifteen years over which my experience of the locality where this case occurred extended, it was repeatedly visited by the disease. During the latter part of this period I was afforded, in the capacity of medical officer of health for the district, every opportunity of investigating the conditions under which it made its appearance. Two conclusions respecting the causation of diphtheria gradually took shape in my mind, as year after

year it presented itself under very varying circumstances.

The first was, that while I was never able to connect an outbreak of the disease, either in its single or multiple forms, with anything of a distinctly zymotic nature—understanding by this term some subtle poison introduced from without—yet I was nearly always able to connect the cases with some precedent climatic condition or state of the weather. These antecedent conditions were frequently quite dissimilar, comprising periods of intense cold, prevalence of very high summer temperature, long prevailing east wind, or a continuance of cold and wet. It was after such states of atmospherical environment, and not during them, that the disease made its appearance.

Secondly, I observed a very decided proclivity on the part of certain families to take the disease. By this I mean, there were some families in which, when the disease occurred, it usually ended fatally as regards the first subject attacked; it had a greater tendency to spread in such families than in others from one member to another; and finally, whenever a future outbreak appeared, these families would be nearly certain to contribute further examples of it. I have followed such families in different houses, have carefully examined their sanitary arrangements, but never found anything to which the attack could be traced, beyond those climatic influences already referred to. Almost invariably the children were healthy-looking subjects of the respectable middle class, but there was about them usually a softness of texture approaching to flabbiness, which seemed to betoken a want of tone in their constitution.

Concerning the *modus operandi* of these predisposing causes of diphtheria, two inferences were arrived at—viz., the climatic conditions above described constituted an exhausting influence to the subjects exposed to them—i.e., a great demand was made on the vital energy in order to resist their effect, and that this was equivalent to a withdrawal of nerve force from the system. Further, that young growing subjects who needed all their *vis viæ* for the purposes of their own economy, were most easily drained of this force. Secondly, the circumstance that some families exhibited a greater readiness than others to part with this force was probably due to inherited mobility of vaso-motor centres—a subject interesting on its own account, but which cannot be further discussed on this occasion.

In order to localize more specifically the processes brought into play by these proximate causes, it is necessary to assume for a moment, what I trust will subsequently be evident, that the exhaustive drain on the vital forces of the system induced by the foregoing causes, takes effect chiefly on those nerves and nerve-centres which are concerned with the nutritional functions. In other words, it is the vaso-motor nerves and their centres that suffer most from the paralyzing influences to which the subject has been exposed.

Having premised thus much, the next step to consider is the immediate or exciting cause of the attack. In this connection it is necessary to give unreserved attention first of all to the large group of cases which occur singly—in isolated situations often—and where, so far as it is possible to ascertain this point, the subject has not been exposed to any cognizable contagium. In considering this important feature of the disease one is struck with the fact that this aspect of it—viz., its possible spontaneity of origin—has not met with the attention it deserves. I propose therefore to examine it from this point of view, conceiving it possible to show how, by the derangement of a certain mechanism of the economy, a true diph-

theria is capable of developing itself *de novo*. Take, for this purpose, an already prepared subject—that is, a young, growing child, who has recently undergone exposure to severe climatic surroundings, and whose vital powers have been already exhausted by these—imagine him exposed to a chill, so that in some way or other he takes cold. What I understand by this expression is that a draught of cold air, impinging upon the unprotected surface of the patient, imparts a shock to the afferent sympathetic nerves accompanying the cutaneous branches of the cerebro-spinal nerves to the skin. This is conveyed along the afferent channels to their centre, whence it is reflected efferently to the correlated vessel nerves with which the centre associates them, as a wave of vessel dilatation. Under the circumstances detailed, of already exhausted vaso-motor force, this last shock implies a more or less complete paresis of vessels distributed to a particular area.

For the sake of anatomical brevity we will suppose the foregoing afferent impulse to be received by that portion of the upper cervical ganglion which contributes the *nervi molles* to the external carotid and its branches. The efferent response, so far as it implicates mucous tissues, will manifest itself in the vessels supplying the nasopharyngeal and laryngeal areas. Such a state of things may with reason be said to happen every time a cold in the head occurs, when vessel-dilatation expresses itself in congestion and effusion—in other words, catarrh—which may be nasal pharyngeal, or laryngeal, or all combined. But there is no more generally admitted fact than that a catarrhal condition is the frequent precursor of diphtheria. My contention is that the particular pathological state exhibited by the affected region has reference solely to the degree of pre-existent vaso-motor paralysis. For if the process end as catarrh, it implies that the patient was previously in ordinary health as regards his nerve-power, when the rebound from a state of vessel dilatation to one of equilibrium is rapid and complete.

If, then, we regard the catarrhal state as the mildest expression of vessel paresis, as it manifests itself in this region, a still more advanced degree is witnessed in phlegmonous sore-throat, where oedema is the prevailing symptom. It indicates that the subject has undergone a prior drain of nerve force. How closely it approximates to the diphtheritic condition, in respect of its parietic accompaniments, will be evidenced shortly. Whether this point of passive congestion with oedema can be exceeded is a question only of inhibitory resource. If this latter be exhausted, as in the case before us, the extreme stage of the process is reached, and plastic exudation results. In this supreme degree of vessel dilatation the most prominent feature is the astonishing generative activity of cell elements. Doubtless the suddenness with which the tissues are invaded, after the patient has received the final and determining shock, exercises an important influence in deciding the character of the processes about to supervene. The pre-induced recuperative incapacity of the vaso-motor centres, which is the true element of malignity in the disease, is by this last circumstance concentrated as regards its vessel influence on a region having a superficial situation, and of slight depth of tissue. Any vigorous process lighted up in it will rapidly tend to appear on the surface. That which is now at work implies the incursion of the transudation corpuscles from the vessels into the sub-epithelial layers, exciting into rapid growth and multiplication the connective-tissue corpuscles, and also some very special cell strata abounding in the pharyngeal walls. Richly supplied with albuminoid pabulum from the same

source, these rapidly growing germs crowd towards the point of least resistance, and are checked in their surfacewards career by the as yet intact basement membrane. At this point they become more plastic and organized in their character, and, getting incorporated with the limiting membrane, present to the observer the pathognomonic characters of the diphtheritic pellicle.

Thus far the tendency of my argument is to lift diphtheria out of the sphere of blood poisons, and to restore it to the rank of ordinary inflammations, where presumably Bretonneau located it, and to which all its analogies as seen from my point of view tend to affiliate it. That the disease is not limited to single occurrences, and that when established it may be propagated by contact, are facts which will doubtless cause many to hesitate in accepting the foregoing conclusion.

Respecting the *contagium* of diphtheria, it is necessary to remark that it is not an indefinable something, foreign in its origin to the human economy, but that it is a definite tissue element normally present in the body, a constituent part of it, but altered as regards its capabilities by the newly acquired conditions under which it is thrown off.

With regard to this normally existent tissue element it is to be observed that in almost every locality where mucous membrane subserves a special function, it is characterized by some peculiarity of structure which is more or less individual to it. This statement does not ignore the fact that it may possess structures common to every other part, or common to it as well as some others only. To mention one peculiarity of tissue belonging to the region of mucous membrane most obnoxious to diphtheria—that of the fauces—Luschka has described and figured a certain stratum of lymph corpuscles seated below the epithelium in the connective tissue, about midway in the depth of this latter structure, and most abundant in the posterior wall of the pharynx.

The contention of my argument regarding the special *contagium* of diphtheria is as follows. Either this cell-stratum of Luschka or some other developmental cell structure belonging to the affected locality undergoes that alteration in its capabilities already referred to the circumstances of the disease through which it has passed. The nature of this changed capacity is that, having been designed to take part in such slow formative processes as belong to equable growth—the replenishment of normal wear and tear—these cells have been impelled by the conditions of a violent inflammation to compress into the space of a few hours the developmental energies they were designed to exhibit only through the progress of years. Thus, started into activity by a superabundance of nutritional supply, and accelerated by a vast increment of heat, they rapidly multiply in number as they approach the surface, die, and are shed; their life history is played out before they could become incorporated with structures of which they were designed to form integral parts. This hot "riot" of cell life and death, taking place as it does quite near the surface, the process of shedding will be a rapid one, and many cells will escape that have not yet completed the rôle of growth which ends in destruction. Many will have started only on their course; others will be more advanced; and when set free from their surroundings, it requires only their transference to a suitable soil to enable them to complete the process already commenced. Neither have they lost their structural affinities. A paramount condition of the completion of their energies is that they be conveyed to such a tissue as complies with the histological relationships of their original situa-

tion. Once replanted in such congenial soil, these rapidly growing cells are not only capable of completing their own development, but also of exciting a corresponding premature activity on the part of the analogous structures with which they are brought into contact. On the degree of vessel-response to the tissue demand for more pabulum to satisfy the new process depends the character of the inflammation now established. This resolves itself into a question of amount of vaso-motor inhibitory force with which the centre receiving the demand is able to meet it. Obviously the intensity of the process will be proportioned to the prior depletion of vaso-motor energy which the subject has already undergone. Accordingly, these growing cells, cast off as above described, are potential diphtheria germs; and if the patient to whose analogous tissues they are transferred present the required state of vessel paresis, they become *de facto* capable of generating the disease in the subject so receiving them.

It is of great service to recall here what happens when the individuals who entertain these germs have not experienced the preparatory depression necessary to constitute what I now venture to call the diphtheritic diathesis. The experience of every family physician will enable him to substantiate my statement that nearly all the adult occupants of a house where diphtheria is rife, and who are brought within reach of the *contagium*, do suffer from sore-throats. But these, in the cases now referred to, are not diphtheritic throats. They are simply inflamed, often severely so, and may even exhibit the cedematous type. Thus, I have many times seen the parents of diphtheritic children, also the servants and nurses attending them, successively fall ill with attacks of faucial inflammation of varying degrees of intensity. So much is this the case that one may not infrequently witness in the different members of the same household the three phases of catarrhal, phlegmonous, and diphtheritic sore-throats at one and the same time.

This circumstance appears to me to have the value of a crucial experiment, tending directly to support my position, because the facts of the case leave no room for doubt that the exciting causes of these simple inflammatory attacks are the emanations of the original diphtheritic patient. Now, if there is anything specific in the nature of the diphtheritic germ, it is contrary to all analogy, as well as to all experience, that it should excite one disease in A and another disease in B. The obvious inference, indeed the only logical one, is that the element of specificity resides in the subject, and not in the germ. This specificity is, as is already stated, the inability on the part of the patient to resist the requisite blood-supply necessary to feed the germ-excited tissues to the diphtheritic point; it means the loss of vaso-motor control over the vessels implicated, and is the direct outcome of previous subjection to an exhausting environment. Respecting the possibility of croupous or diphtheritic membrane being formed spontaneously—i.e., idiopathically—the following apposite quotations should be noted:—

Billroth, "Surgical Lectures," p. 100, says that in large wounds, especially in fistular granulations, a yellow rind sometimes forms on the granular surface, and is readily detached. It consists of pus cells very firmly attached together. "Although I have sometimes found coagulating filaments between the cells, they do not always occur; hence we must suppose that the cell-body, the protoplasm itself, is transferred into fibrine, as occurs in true croup, and especially in fibrinous deposits on serous membranes. Under favorable circumstances it may result in destruction of the granu-

lations, in a true diphtheria of the wound, to be treated of hereafter as hospital gangrene. Usually croupous inflammation of a wound ends in sloughing of the diseased granulations, whereupon new ones spring from its depths." Virchow's view of croupous inflammations generally is that by the inflammatory process the tissue may be placed in a condition to cause coagulation of the fibrinous solution infiltrating it. According to A. Schmidt, in certain quantitative and qualitative irritations of the tissue, more fibrogenous material than usual escapes from the capillaries. Virchow has shown that by repeated irritation simple serous exudation may become fibrinous or croupous, as when by repeatedly blistering a previously healthy surface, it becomes covered with a fibinous layer, which is almost entirely composed of newly formed cells. Cognate to this evidence adduced from a wide range of analogies by authors well fitted to judge of their pathogenic meaning, is the case of a lady in whom a true membranous croup was rapidly induced by the accidental ingress of eau-de-Cologne into the larynx through the left nostril, to which it was applied while the patient was in a fainting condition. The case is recorded p. 95 *et seq.* of the "Report of the Committee of the Royal Medical and Chirurgical Society on Membranous Croup and Diphtheria." On the fifth day, ninety-two hours after the accident, "a perfect cast of the larynx, trachea, and upper part of the left bronchus was expelled entire in one piece." Patches of membrane also occurred in various parts of the naso-pharyngeal tract. There was no diphtheria in the neighborhood. Making allowance for the fact that microscopical examination was made some considerable time after expulsion, there were no appearances by which this cast could be distinguished from a true diphtheritic one. Such exudations, when occurring in the closed sacs of serous membranes are recognized as the orderly outcome of simple inflammation. The preceding quotations carry out this recognition to tissues of almost every type, while the concluding one brings the connection home to the very seat of diphtheria, inasmuch as it shows a membranous cast to have been formed in the naso-pharynx, larynx, and trachea, by the application of a definite local irritant.

The culmination of the disease in *sudden death* is the last feature to be examined. It remains to show how the adoption of the hypothesis of vaso-motor exhaustion as the essential factor in the causation of diphtheria supplies a constant explanation of this symptom. The phenomenon in question hinges upon the fact that the loss of reflex vaso-motor control extends to the *nervi vasorum* of the nutrient vessels of certain nerves, as well as those of the vessels distributed to the mucous membrane. It will assist its explanation to compare it with a slighter, or penultimate, degree of this latter kind of paresis, sometimes met with in the oedematous phase of throat inflammation, which I regard as occupying an intermediate position between catarrh and diphtheria. As I know of no better example than was afforded in a recent personal experience of my own, I will briefly quote it. In the spring of 1879, when considerably prostrated in health by an attack of influenza, I had occasion to inspect very closely the throat of a patient who was the subject of catarrhal diphtheria, and shortly afterwards was exposed to a sharp easterly wind. The same evening I was conscious of having acquired some severe throat mischief, which in the course of the next day assumed the proportions of what is indifferently termed phlegmonous, oedematous, or hospital sore-throat. Oedema of the epiglottis was an early symptom, quite prohibiting the act of swallowing

by the intense pain occasioned by any attempt to perform it. Forty-eight hours from the commencement of the attack the œsophagus was paralyzed. It showed itself thus: Having endured a fast up to this point an insufflation of morphia enabled me to get down first some beef essence, and then about a tablespoonful of milk. In the course of two or three hours, when the local influence of the anodyne was subsiding, there ensued a sort of cough, easy, and almost effortless, accompanied by expectoration. My astonishment was great to notice that the ejecta consisted first of the milk last swallowed, uncurdled, and fluid as taken, and then the beef essence, also unaltered. Clearly these nutrients had not passed further down the gullet than the space they occupied, as was shown by the fact that they were not mixed nor in any sense changed in character when rejected, which would have been the case had they passed into the stomach. The inference seemed obvious—viz., that there existed a paralyzed state of the lower portion of the œsophagus, which would not allow even fluid food to pass through it. If this conclusion be a correct one, it appears to admit of the following explanation: The plexus *gulsæ* is largely constituted by the *vagus*, augmented by branches from the third segment of the upper cervical ganglion. These nerves were already paralyzed on the second day of the attack in my case. It has already been shown that the local lesion in the fauces was the result of vessel-dilating impulses proceeding from the same vaso-motor centre as contributes the sympathetic portion of the plexus *gulsæ*, but which are distributed upon the vessels of the pharynx and adjacent tissues exhibiting the disease. Other vessels are furnished with sympathetic fibrillæ from the same source—notably those which are the nutrients of the œsophageal branches of the *vagus* nerve itself. These also participate in the dilating waves, and become hyperæmically distended, the result being to strangle the contained motor fibres, and for the time being annihilate their function. The vermicular action of the gullet, which is excited by the presence of food, could not occur in consequence of the nerves being thus rendered incapable of transmitting impulses. Hence the food remained in the œsophagus, the horizontal position being sufficient to cause it to run out.

In the foregoing case the dilator impulse was, fortunately for its subject, limited, not only in point of time over which it extended, but also in the range of nerve ramification which it influenced. For, with the preceding explanation as its clue, it is easy to see what would ensue were the nutrient vessels of the *vagus* more largely involved in it, as is the case in true diphtheria when the exciting cause of the paresis is more intense from the greater exhaustion of the vaso-motor ganglia participating in it. Because, almost the next set of branches of the *vagus* affected in its descensive extension is the cardiac set. When it is remembered that in diphtheria the vessel dilating impulse is bilateral usually—i.e., both *vagi* come under its influence, should this condition of hyperæmia extend to the cardiac branches of the pneumogastric on both sides—it is easy to see that death must ensue from the fact that the heart being cut off from the inhibitory centre will run on at a pace tending to exhaust its contractile powers. And further, that such a cardiac breakdown is peculiarly apt to occur on the sudden rising of the patient from the recumbent position. I am aware that the occurrence of sudden death has long been referred to the *vagi* somehow or other. But the exact how has not been defined. Nor, I contend, is it possible to do so without the application to it of the theory of correlated nerve

tracts. It has been supposed in some way to be an effect of that mysterious and subtle agency the diphtheritic poison, operating through the blood on the nerve centres. But if I am right, the vagus is only implicated in so far as by an anatomical accident, or rather coincidence, this nerve of vital import happens to have its blood-supply regulated by vaso-motor nerves which effereently respond to the original vessel-dilating impulse, affereently exciting the whole phalanx of symptoms. The cardiac branches of the vagus, it will be seen, are not paralyzed centrally, but are only mechanically hindered from transmitting impressions by the sudden afflux of blood, which for the time being abnegates their conductive functions. It is probable that this oppressed state of the vagi is operative to a less extent in all cases of severe diphtheria, and that it accounts for the gradual sinking of the patient, when death is said to begin at the heart; or further, by a similar implication of the pulmonary branches, death may ensue by arrest of the respiratory function. That it is the permanency of the results of this congestion of the vasi-nervorum—i.e., of the resultant effusion within the nerve sheaths, which explains the paresis of the palate muscles, as well as those of other regions, remaining after recovery from the disease, cannot I think be doubted. It is unnecessary further to consider this symptom, as it is foreign to the scope of the present communication. For the same reason I must forego the discussion of the parallel examples of paresis of the muscles of the Eustachian tube and palate, frequently seen as the result of every persistent post-nasal catarrh, though this symptom is of peculiar interest, inasmuch as it tends to establish the complete analogy between the three forms of throat mischief already alluded to.

The length to which this paper has extended compels me to defer entering upon the numerous corroborative proofs of the correctness of the conclusions herein advanced. It will suffice the objects in view briefly to enumerate the inferences arrived at.

1. Diphtheria is an idiopathic inflammation, the peculiar type of which is imparted by previous exhaustion of sympathetic nerve force; that the loss in question occurs chiefly in children, in whom the nutritional centres are normally in special activity; and that this exhaustion acknowledges chiefly climatic conditions possessing in themselves no other peculiarity than is implied in the tendency to lower the vital energy of the subjects exposed to them. The patient so circumstanced may be said to exhibit the diphtheritic diathesis. During its continuance exposure to a slight exciting cause, such as a common cold, will suffice to develop a typical attack of diphtheria. Under these circumstances the disease may be said to arise *de novo*.

2. When the diphtheritic process is established, in whatsoever way it may be brought about, the element of contagium is introduced. Though not, perhaps yet capable of exact histological identification, this is nevertheless a definite tissue element, forced into rapid growth. In this state it is liable to be thrown off with the detritus of the process, and is capable of continuing its developmental energies, and of exciting a similar action in the corresponding tissues of another subject, if it come in contact with these, providing the subject be already predisposed to exert insufficient inhibitory nerve-power to resist the tissue demand for such an accession of blood as will suffice to feed the new process to the diphtheritic point. The latter quality resides entirely in the vaso-motor resources of the patient.

3. The explanation of the symptom of sudden

death occasionally witnessed in the disease is shown to depend on a similar paresis of the nutrient vessels of the cardiac branches of the vagus, as was seen to occasion the local lesions in the throat when affecting the vessels of this area. In consequence of the engorgement of the circulation within the nerve sheaths, and the jugulation thereby of the contained fibrillæ, the latter are unable to transmit inhibitory impressions to the heart, which accordingly ceases to beat after a continuance of rapid action has exhausted its inherent vitality.

Harley-street, W.

TRACTION IN HIP DISEASE, AND THE CONSEQUENCES THAT MAY FOLLOW.

By JOHN JONES, M.R.C.S.

Two years have now elapsed since my former communication on this rare complication appeared in *THE LANCET*, and the time has now arrived when it may not be inopportune to add some further particulars as to the sequel. In any remarks I may have to make, I trust it may not be inferred that I have any wish to detract from the value of traction *per se* in hip disease. On the contrary, in witnessing it for the first time in this case, I was much struck with its simplicity and its adaptation to the purpose for which it was intended. To account for the novelty to me of the traction method, I should add that I retired in 1865, after thirty-eight years' experience of a very laborious country practice (probably before the introduction of the traction method), and I confess from that time I have taken but little interest in what has been going on in the medical world.

The patient at the present time is in excellent health, though pallid (as he ever has been), and backward in his physical development, as a consequence, it may be, of extraordinary mental aptitude. The lameness may be approximately estimated from a shortening in the aggregate of two inches, or but little less than under the old system of treatment. He is equal to any amount of walking exercise with comparative ease, and has no pain or uneasiness in the act or consequent upon it.

I will here give the comparative measurements of the right and left limbs in inches:—

	RIGHT. Inches.	LEFT. Inches.
From the anterior superior process of the ilium to the extreme point of the malleolus internus.....	31	33
From the same point of the ilium to the centre of the patella.....	17½	18
From the centre of the patella to the extreme point of the malleolus.....	13½	15
The fibulæ are precisely the same length on either side—viz.....	14	14

From these measurements it will be seen that three-fourths of the shortening is below the knee, and due to the separation—a striking example of the arrest of the growth of a bone on being separated from its epiphysis. As to the immediate cause of the separation, in the absence of injury or disease to account for it, I think there can be but one opinion, and however rare or remote such a result as happened in this case may appear to be, yet it clearly proves it to be within the range of possibility.

There may have been less power of resistance in the tissues in this case than in others of a kindred

idiosyncrasy, but there was nothing in the aspect of the patient to indicate this. Under these circumstances the question suggests itself whether all the advantages of traction might not be equally secured by placing the fulcrum on the femur, immediately above the condyles, instead of the ankle; it might be thought advisable also in such a case to attach the foot to the cord to prevent inversion.

I have reason to believe that the separation took place at a very early stage of the treatment, for on my first undertaking the charge of the case (owing to the serious illness of the gentleman in attendance) which was in November, 1879, just twelve months after the patient had been under treatment, I noticed an enlargement at the head of the fibula. I was perplexed, and feared there might be some mischief going on in the tibia, but there was neither heat, swelling, pain, nor tenderness, and the attachments of the bone were as firm as ever. The discovery of the separation revealed the mystery, which was nothing more than the continued growth of the fibula, while the tibia remained in *statu quo*.

In my former account I said that I treated the lesion as "a common simple fracture." This I abandoned after a few weeks, and adopted the following more promising method. I had a sandal made for the foot, and a collar and buckle for the femur, just above the condyles. These two points were connected by straps and buckles, which on being drawn up tightly pressed the separated parts together. The parts being so surrounded by ligaments and their aponeurotic expansions, I did not think it necessary to encumber the patient with any bandages against the possibility of a lateral displacement. This method proved highly satisfactory, and there is every reason to think that a perfect anastomosis has been established, as there has been no appreciable shortening of the tibia for the last year and a half, and the enlargement at the head of the fibula remains in *statu quo* (in the opinion of the patient rather diminishing). Lastly, the question suggests itself, Is this case (as it might appear to be from the strong protest of so eminent an authority recorded in my former history of this case) unique? I candidly confess that I do not think so, for reasons that appear in the history of this case alone. It is an interesting question, and one that ought and might very easily be determined, if gentlemen (of whom, no doubt, there are many) who have the means of doing so, would measure the relative length of the crura of a few who have undergone the traction treatment, and would make the result of their inquiries known through the medium of THE LANCET.

Lewes.

ON CERUMINOUS ACCUMULATIONS IN THE AUDITORY MEATUS.

By J. MACKENZIE BOOTH, M.A., M.B.,

Physician to the Aberdeen General Dispensary.

AMONG the cases occurring in the practice of those who devote attention to the treatment of aurial disease, few are more common or generally regarded with less interest than accumulations of cerumen in the external auditory meatus; and this is doubtless owing to the comparative ease with which they are removed, and along with them the deafness, tinnitus, vertigo, etc., with which they are often associated. Yet their etiology, as far as I am aware, is not well ascertained. In the textbooks on diseases of the ear little is said on the subject further than that these accumulations often take place rapidly, and that they result from

over-activity of the ceruminous glands from irritation of the external meatus by means of towels, etc., and often coexist with conditions of copious perspiration, as in the case of the laboring classes.

In the ear and throat clinic of the General Dispensary here three cases bearing on this point have recently come under my notice. They were those of three men of middle age, who worked as brass finishers in the same workroom, in all of whom the accumulation took place about the same time, and in whom the right ear was that chiefly affected. The first came up at the end of December, 1882, complaining of deafness and discomfort in his right ear. On examination the watch could only be heard on contact on the right side, and on the left the hearing was also somewhat impaired. The mirror and speculum revealed a ceruminous plug in both meati, that on the right being the larger, and in great part softer than the other. The use of the syringe soon freed him from his unpleasant symptoms.

A fortnight later No. 2 appeared, complaining of deafness, tinnitus, and uneasy sensations in his right ear. In this case, too, the watch was only heard on contact on the right side, while hearing on the left side was normal, and a ceruminous mass was syringed out, giving him relief. The mass, which came away in pieces, I noticed had green specks in its substance. The left meatus was normal.

In the end of January, 1883, the only remaining workman in the same shop, No. 3, presented himself with deafness and tinnitus in his right ear and occasional giddiness. As in the case of the others, the unpleasant symptoms were disposed of by the expulsion of a large quantity of ceruminous debris intermingled with greenish specks. The fact of this being the third case from the same place within a short space of time made me examine the patient more carefully, and also the quondam contents of his meatus. The naked eye readily detected small greenish specks of "verdigris," and under the microscope a low magnifying power showed a number of fine metallic particles interspersed through the ceruminous mass.

No. 3 informed me that about three months previously they (the three men mentioned above) had had a good deal of extra work on hand, that they had all perspired copiously, and all suffered from catarrh about the same time. He also stated that their deaf side was the one turned towards their work, which in the process of sand-papering produced a very fine cloud of brass particles.

In these cases the entrance of the brass particles into the ear must have played some part in causing the accumulation, since in two of the cases at least the left ear was free from plugging. The small hard plug in the left ear of No. 1 was probably of much longer standing than the others, which were of larger size and softer consistence. The left ear thus had evidently escaped from not being so much exposed to the metallic shower, otherwise the two ears were under similar conditions. But the entrance of the brass particles alone would not have been sufficient to cause the formation of these plugs, else they would have occurred much oftener in these men working constantly at their trade. All three patients had been working harder than usual about three months previously, and from this they dated the uncomfortable feeling in their ears and the tendency to pick them. This corresponds with the observations of Burnett¹ and others that rapid secretion and accumulation of cerumen are generally concomitant with increased activity of the sweat glands. In the above cases

¹Treatise on the Ear, by C. H. Burnett, pp. 289, 290.

this, however, would not yet have been sufficient to account for the accumulation, as these men were often very busy and often perspired profusely. But at the same time all three had complained of more or less catarrh. And to this along with the foregoing conditions, I would attribute the right-sided accumulations of cerumen. In the treatment of ear cases I have frequently found rapid accumulations of ear-wax following a nasal catarrh, there being only in some of these marked implication of the tympanum or Eustachian tube. The intimate relation of the vascular supply of the meatus to that of the naso-pharyngeal mucous membrane through the various branches of the internal maxillary artery, would lead us to expect increased activity of the ceruminous glands along with a similar condition of the mucous glands of the naso-pharynx, and this I believe, from the observation of many such cases, to be a very common starting-point of ceruminous accumulations in the auditory meatus.

Aberdeen.

NOTES OF A CASE OF EXTRA-UTERINE PREGNANCY (TUBO-OVARIAN); RUPTURE OF CYST; DEATH.

By WM. BERRY, M.R.C.S., L.R.C.P. and S. ED.

Honorary Surgeon, Royal Albert Edward Infirmary, Wigan; and
Honorary Medical Officer to the Convent of Notre Dame, Wigan.

THE infrequency of extra-uterine pregnancy and the obscurity of symptoms, as well as the fatality of the occurrence, have prompted me to send for publication in *THE LANCET* the notes of a case which recently came under my care in the infirmary here. I am indebted to Mr. J. H. Jackson, M.B. Ed., C.M., our junior house-surgeon, for the notes of the case.

Mrs. —, aged thirty-five years, a well-developed woman, of bilious temperament, was admitted to the Royal Albert Edward Infirmary, Wigan, on Dec. 2nd, 1882, with the following history:—She had had four children, two dead-born, and two others which had died in infancy. She had always been healthy, and there was no history of any previous disease. Her husband had deserted her, and left the country five months before, and since she had been in service as a housekeeper. Menstruation had been irregular, and she had suffered severe pain at the menstrual periods, and had been treated for colic just before coming to the infirmary. On examination there was slight tenderness over the right ovary on pressure, and dulness on percussion, and there appeared to be some abdominal enlargement, though this was not very marked. Her bowels were habitually constipated, and she suffered from piles. The heart and lungs were healthy. An enema was administered and the bowels unloaded. Rest was enjoined and warm applications applied. A stomachic aperient mixture was ordered. The temperature was taken daily, and was normal till December 8th, when it rose to 100° F., there being now increased tenderness over the ovarian region.—9th: Temperature, morning 102.4°; a great deal of pain over both ovarian regions. A morphia pill (quarter of a grain) was ordered every three hours, and a diaphoretic mixture; milk diet.—10th: Temperature 102.2°; pain not so severe, but a good deal of tenderness on pressure. On vaginal examination a swelling behind the posterior lip of os could be distinctly felt, but no fluctuation could be made out. The vagina and os uteri were hot and tender to the touch. On the introduction of the sound the uterus was found pushed forward

by the swelling and anteverted, the cavity, however, was normal in length. Ordered pills to be continued and poultices of linseed meal applied, three ounces of brandy daily in soda water to relieve the sickness and feeling of weakness.—11th: A little easier, still tenderness on pressure.—12th: Menstruation came on and the temperature fell to 99°. She felt better and the pain was less.—15th: The temperature remained at 99° till to-day, when it rose to 104° with symptoms of general peritonitis. Ordered salicylate of soda fifteen grains, every three hours, and poultices constantly applied.—16th: Temperature 103°; not quite so racked with pain.—17th: Temperature 101° morning, 104° in the evening. She had a great deal of pain and considerable tenderness on pressure on the right side. Pleurisy and pneumonia could be made out.—18th: Temperature, morning 104°; evening 104.4°; no change.—19th: Temperature, morning 103°; evening 103.4°; pain still severe.—20th: Temperature, morning 101°; evening 102.4°. Vomiting set in, and nothing could be retained on the stomach.—21st, 1 A.M.: Mr. Jackson was called to her; she was in a state of delirium and collapse set in. She died at 7 A.M.

Post-mortem examination by Mr. Jackson, fifty hours after death.—Fluid was found in the right pleura, and red hepatization of lower lobe of lung; heart healthy. On opening the peritoneal cavity a considerable amount of fluid escaped; the peritoneal surface of the bowels was inflamed and adherent in parts. The cavity of the pelvis was filled with clotted blood; uterus somewhat enlarged, and showed signs of congestion; cavity empty. The right ovary was found enlarged, and removed for further examination. Liver pale, other organs healthy. On making an incision into the removed ovary it was found to consist of a large sac from which blood escaped, leaving an embryo an inch long; the eyes, arms, and legs were distinctly visible. The true ovarian tissue did not surround the sac, but formed part of the whole mass outside the wall of the sac. The Fallopian tube could not be well made out, but a small perforation in the sac was visible, through which the blood had escaped into the pelvic cavity. The placenta was well formed and adherent to one side of the sac.

Remarks.—This case is peculiarly interesting, especially as pregnancy was never even suspected. Menstruation had never been absent so far as could be ascertained, though irregular as to time of occurrence, and there was considerable pain before the commencement of the flow. Morning sickness, fulness of the breasts, and malaise were either not present or overlooked. The progress of the case in the wards was peculiar. First we had apparently ovarian congestion or localized peritonitis, then pelvic cellulitis, afterwards symptoms of perforation, collapse, and death. Judging from the size of the foetus, pregnancy had commenced two and a half to three months previously.

Wigan.

ON A CASE OF ADDISON'S DISEASE, WITH MARKED DISCOLORATION OF THE TONGUE.

By LOFTUS WILKIN, M.R.C.S.

JANE W—, aged thirty-two, came under observation on December 28th, 1882. She stated she was one of a family of eight, all of whom as well as her parents were still living, and enjoying good health. The patient has been married for three years, and has had one child, eighteen months ago, which, however, survived its birth only three weeks. She has not suffered from any previous bodily illness, nor from exposure or injury; but

since the birth of her child has been "delicate," and getting gradually weaker, but not sufficiently so to induce her to obtain medical aid. She came down here from the City, where she had previously resided, in June, in order to have the benefit of the country air, and when first seen by me was suffering from severe epigastric pain, which, however, was easily relieved. On examination she appeared to be fairly well nourished; eyes very dark and rather sunken; hair black. The skin presented more or less generally a deep bronze or dusky hue, which was particularly marked about the upper part of the chest, face, neck, and arms, while over the surface of the latter, as on the sides of the neck, were numerous well-defined spots of deep chocolate or almost black color, and about a quarter of an inch in diameter. The gums and inner surface of the lips and cheeks presented a mottled appearance, owing to the presence of numerous patches of a deep brownish or mulberry tint; while on the posterior part of the dorsum of the tongue was one, nearly circular, patch, central in position, and as large as a shilling in diameter; anterior to it, and occupying the right side, was an irregular-shaped patch of nearly equal size; on the left side were two smaller spots, all being of very dark color, almost resembling ink stains while the intervening portions of the tongue were red and natural in appearance. The alteration in her complexion first became apparent to herself and friends soon after the birth of her child, but she did not notice the patches on her tongue till about ten months ago, when they were very small; since then they have been gradually extending, and have attracted considerable attention from herself and husband. Physical examination of the chest revealed no abnormal sounds. There was no cough. No pain or tenderness could be detected on pressure over any part of the abdomen. The bowels were natural. The urine clear; specific gravity 1020; acid; no albumen. Pulse small and weak. She complained of great lassitude and weakness, feeling incapable of getting up; but after two or three days nausea and vomiting set in. This could at first be relieved, but after a time all remedies tried to check it proved ineffectual, in many cases seeming indeed to aggravate it. She was able to retain, however, a fair quantity of iced milk and beef-tea till the termination of her illness. She was put on a mixture containing small doses of solution of arsenic and tincture of steel, but the debility gradually increased. The vomiting became more frequent; epigastric pains and hiccup were occasionally present, but were relieved by an opiate. The pulse at the wrist became imperceptible, the heart sounds very feeble, and she passed quietly away on Jan. 20th, having been only three weeks in bed. Unfortunately, owing to the opposition of her relatives, a post-mortem examination could not be obtained.

Walthamstow.

TWO CASES ILLUSTRATING THE SUCCESSFUL EMPLOYMENT OF THE COLD DOUCHE.¹

By W. H. BROADBENT, M.D.

CASE 1. *Delirium Tremens*.—The patient was a gentleman aged about thirty-eight. His constitution was thoroughly broken by excesses, especially alcoholic, and he had had several previous attacks of delirium tremens. He had been under my care in one of these in November, 1876, which had been ushered in by severe hæmoptysis followed by violent convulsions; and the case had been remark-

able from the fact that the characteristic delirium and tremor returned several times after a long sleep and complete recovery of the mental faculties. The first treatment was by digitalis and bromides, no alcohol being allowed, but beef-tea being given freely. In four days there was sound sleep, out of which the patient woke apparently well. The symptoms, however, gradually returned, and on the third day he was as bad as ever. The bromides and digitalis were again given, brandy being now added to the beef-tea, on the supposition that the relapse might have been due to absence of stimulants when the patient's strength was reduced by loss of blood. There was little apparent improvement, and chloral was given with the bromide, when at length sleep was procured. A relapse followed even more promptly than before, upon which morphia was administered subcutaneously, in doses of half a grain. Again sleep was obtained, with apparent recovery, but all the symptoms returned, and twice more was this recovery under morphia and subsequent relapse repeated. I now took advantage of the first moment when such a proceeding could be considered safe, and took the patient out with me. I made him name all the streets we passed through, kept his attention constantly occupied, and when I had to make a visit told the coachman to keep moving, so that he could not leave the carriage. He always had a story to tell when I rejoined him of two women who had been with him "fighting like the devil," and in his imagination we ran over and killed scores of children. However, he slept after the drive, and afterwards he was sent out daily with the nurse in a carriage till he was quite well. I was called to him again on Dec. 6th, 1878, and found him suffering from severe delirium tremens, which had been carried on for some days. He was well plied with beef-tea, had digitalis and bromides in full doses, and, finally, with great reluctance, morphia in grain doses subcutaneously, without effect. On the night of the 9th he was in a condition of extreme exhaustion, the face pale and haggard, the eyes wild, the skin bathed in perspiration, the pulse soft and small, frequent and irregular. He was almost too feeble to turn his head to follow the images of his fantasy, but was constantly muttering and exclaiming, while his fingers fidgeted with the bedclothes, and every limb, or almost every muscle, was the seat of jactitations. Dr. W. A. Smith, now of Newport, Essex, remained with him all night, and on the morning of the 10th reported that there had been no sleep, and no cessation of the mutterings and jerking, and that two or three times he thought he was dying, the pulse having become imperceptible, the countenance livid, and the voice almost inaudible. It was obvious that the nervous system would not respond to drugs of any kind, and that unless it could be roused by some means or other the patient had not many hours to live. I resolved, therefore, to try the douche. Ice-cold water was brought, and a large bath sponge; the patient was stripped to the waist, arrangements were made to protect the bedclothes, and then the sponge, as full of water as possible, was violently dashed against the head, face, neck, and chest. This was done two or three times, the skin being quickly and roughly rubbed dry between with a coarse towel. I will not attempt to describe the gasping and sputtering and impotent swearing. The process was repeated on the back, and the patient then being made comfortable was told to close his eyes and go to sleep, my hand being firmly placed in his. This he did at once, but in about five minutes he awoke, apparently disturbed by the jactitations, which continued to be violent. He was obviously better, the pulse more full, firm,

¹ Read before the Medical Society of London, March 5th, 1883.

and regular, while the face had warmth and color. During the few minutes of sleep the perspiration could be seen to form drops on his forehead, and roll off almost in a stream. He could not be made to go off to sleep again, and as his agitation increased, and he employed his renewed strength in struggling and shouting, the douche was again administered as freely as before, and he was afterwards commanded to keep his eyes shut, and go to sleep as before. He obeyed, sleep came almost instantaneously, and, in spite of the jerking of the muscles, lasted three hours. On waking up this time he asked where the doctor had got that water from, and was there any more like it. If there was he would have it used again. Used it was by Dr. Smith energetically, after which the patient slept continuously for twenty-four hours, only waking to take food. Convalescence followed quickly and satisfactorily. Delirium tremens seems to have gone out of fashion, and I have not seen a case since this.

CASE 2. *Sleeplessness and Pyrexia after Childbirth.* I was called on the evening of June 3rd, 1881, to see a young married lady who on May 30th had been confined of her first child. The labour had been prolonged and severe, the perineum had been ruptured, and the bladder paralyzed. From the setting in of the labour, and it was said a day or two before, there had been no sleep whatever. I was detained, and did not reach the patient's house till 11.30 p.m. She was under the care of Mr. Ord, of Streatham-hill, whom I met in consultation, and who gave me the above account of the case. Besides the sleeplessness there were pyrexia and severe abdominal pain with great tenderness in the left iliac fossa. The temperature on the previous evening had been $104^{\circ}5'$, on the morning of the day on which I saw her 104° , and at the time of my visit it stood at $104^{\circ}2'$. The patient complained of severe pain in the head, was restless and tossing herself about in bed, the face flushed, the eyes bright, the expression wild and anxious, the skin perspiring everywhere, the pulse 120, and the milk was suppressed. On examining the abdomen it was found to be full and large, but not tense, and the respiratory movements of its walls were not arrested. There was great tenderness over the left iliac fossa, but it was complained of on slight contact and superficial pressure, and not much increased by deep pressure. Opium had been given in various forms and bromides, and, as need scarcely be said, all the precautions against septic infection of the perineal wound had been taken. In deciding to recommend the employment of the douche I concluded that the abdominal respiratory movement excluded peritonitis, while the character of the pyrexia was not that of puerperal fever or septicaemia; the local tenderness again, in the left iliac fossa, was not accompanied by any tumefaction suggestive of pelvic cellulitis or ovaritis, and, as has been already said, it was remarkably superficial. It seemed, therefore, that the pyrexia and the sleeplessness were what we had to deal with, and that if they could be overcome there was every reason to expect that the patient would do well; while it was obvious, on the other hand, that persistence of a temperature of 104° , with entire absence of sleep, was attended with grave peril. It was agreed that she should be sponged all over with tepid vinegar and water, and that to the head, chest, and back the cold douche should be applied in the way described in the previous case. These measures were carried out; and, as I was informed by Mr. Ord, the patient speedily fell into a calm sleep, the pain in the iliac fossa subsided, and the temperature fell. There was no further complication, and satisfactory convalescence followed.

ON TWO CASES OF REMOVAL OF IMMENSE FATTY TUMOURS BY ABDOMINAL SECTION.¹

By JOHN HOMANS, M.D., Boston, U.S.A.

I AM not acquainted with any reports of the removal of fatty tumours from within the abdominal cavity approaching in size those to be described in this paper. As I have met with these two, probably other operators of greater experience have met with more. Mr. Cooper Forster showed at the Pathological Society of London on March 14th, 1868, a fatty tumour, weighing 55 lb., removed after death from the abdomen of a woman. This case, and an unreported one mentioned to me by Professor Calvin Ellis, of Harvard University, are the only ones I have heard of. Dr. Ellis thought that the one he removed after death might possibly have been successfully removed during life. In the first of my two cases I made an antiseptic exploratory incision, and thought I could not successfully remove the tumour (and in this opinion I was right). The patient recovered so easily and rapidly from the operation, however, that I felt emboldened to make another and more thorough attempt, which, I regret to say, resulted fatally.

CASE 1. *Immense Myxo-lipomatous Tumour within the Abdomen.*—Francis C. G., a porter, thirty-nine years old, a native of Germany, came to Boston at the age of ten, and has lived here since. In July, 1861, he enlisted in the 20th Massachusetts Infantry, and served gallantly through the war. He lost his left forearm at Fredericksburg in the assault under Burnside, but was never otherwise sick or injured. After he returned from the war he worked as janitor and porter in a large office building, and carried heavy ash barrels weighing 150 lb. apiece down five flight of stairs by swinging the barrel on his back, and holding it by the handle with his right hand over his shoulder. He also carried hods of coal upstairs, and had the care of twenty-five fires during each winter. He gave up his place in 1879, and was afterwards unable to find work that he could do. During 1879 and 1880 he did not feel strong, and was troubled with palpitation, heartburn, loss of strength, and more or less loss of mental power. After standing a few minutes he would feel numbness in both thighs, as though they were "asleep;" this sensation induced him to sit down, but if he struggled against this desire and walked about the feeling disappeared. Until the summer of 1880 he had had no dyspnoea; he had never had syphilis. He had been in the habit of drinking two glasses of lager beer daily for about eight years, and had smoked tobacco somewhat. He had not slept very well during the year 1880. Two years and a half ago—that is, in 1878—he first noticed that his abdomen was becoming swollen, but he thought it was a natural increase of size, and that he was simply growing stout. In the early part of 1880 he began to lose flesh and strength, and became gradually more and more emaciated. He entered the Massachusetts General Hospital in Feb. 1881, and remained about three weeks. No definite diagnosis was made. The urine was somewhat, but not remarkably, diminished in amount. I saw him in July, 1881. The tumour had grown considerably larger than it was when he left the hospital. His abdominal girth at the umbilical level was $42\frac{1}{2}$ in., and from the ensiform cartilage to the pubes the distance was 18 in.; from one anterior spinous process of the ileum to the other was $22\frac{1}{2}$ in. The different organs of the body were essentially healthy

¹Read before the Boston Society for Medical Improvement, Dec. 11th, 1882.

so far as could be ascertained. A careful examination of the abdomen was made many times. There was a uniform bulging in every direction, and the distended walls projected somewhat over the thighs. The tumour felt so fluctuating in parts that it was punctured several times, but only a little bloody fluid was obtained. This was examined by Dr. Gannett, and the following is his report:—

"6 Park-square, Aug. 3rd, 1881.

"Dear Dr. Homans—The fluid, of a dark-brown color, very opaque, gives slight precipitate with nitric acid. On standing, abundant brown sediment, clear supernatant fluid. Microscopically, sediment made up of very numerous fresh red blood corpuscles and a large amount of finely granular material, wholly soluble in acetic acid. No cells of any sort were found, and nothing to indicate the origin of the fluid. From its solubility in acetic acid, the granular matter is undoubtedly albuminoid. I am unable to make any diagnosis from the few characteristics found in the specimen.

(Signed) "W. W. GANNETT."

My diagnosis was a tumour of unknown character in the abdomen, without much adhesion, apparently a large myxoma, or a lipoma, or a colloid growth. After many examinations and consultations a room was hired in the Carney Hospital, and the patient's board was paid by a subscription of his comrades and friends in the 20th Massachusetts regiment and elsewhere, and on Oct. 30th, 1881, I made an incision under the spray about fifteen inches long from above the umbilicus to the pubes. The tumour on being exposed looked like an ordinary fatty tumour; it was smooth and lobulated. It was slightly adherent to the liver, and was covered with a delicate, smooth, envelope-looking like peritoneum. It seemed to be about two feet long and a foot thick. The incision enabled me to pull the tumour out of the abdomen considerably, and it was found that the envelope covering it ran down to the spinal column, and was then reflected upon the parietes. No intestines were seen. At the lower part there were no adhesions to the bladder, but the tumour seemed to have a central attachment extending from the neighborhood of the coeliac axis downwards and sideways, on both sides of the vertebral column covering a space considerably larger than the palm of the hand. My explorations were made for the most part on the left side of the abdominal cavity, and after ascertaining with some indefiniteness the attachments of the growths my courage failed, and I thought it wise to replace the tumour and close the incision. I doubted whether I could control the hæmorrhage accompanying its removal, and I feared that some of the abdominal organs, particularly the intestines or a kidney, might be included in the tumour. It was with the greatest difficulty that the tumour was pushed under the abdominal parietes and behind the pubes, and held there by three strong men while numerous stitches brought the edges of the incision together. Finally, fifty-six stitches held the wound firmly, and the tumour remained within the abdomen. The patient recovered completely from this exploratory operation and showed great strength of constitution. His convalescence was accompanied by much pain and diarrhoea, but the wound healed rapidly and solidly. He returned home at the end of four weeks and gained strength rapidly. He gradually increased his exercise until he began occasionally to come to Boston, from Cambridgeport, where he lived, a distance of two miles, in the horse-cars. The weight of the tumour annoyed and distressed him, but he found it much easier to carry after his wife had made a stout

supporting sling, held up by straps over his shoulders. As time went on he became anxious to be relieved of his burden, in order to be able to work and earn his living. After due consideration and reflection, we decided to remove the tumour. Mr. G— said, "My life will not last long with this increasing burden, and if there is such a thing as removing the tumour, I wish you would do it. I am not afraid to die, doctor, and it's neck or nothing this time." From the knowledge obtained at the exploratory operation, and from the endurance the patient had shown, I began to think that perhaps I could safely remove the tumour and that its attachments might not be inseparable. Whether our decision were wise or foolish, the operation was decided upon.

On Feb. 5th, 1882, I made another attempt, assisted by Drs. A. T. Cabot, E. G. Cutler, M. H. Richardson, F. C. Watson, Mixter, Russell Sturgis, and Messrs. Sparhawk, Holden, Godding, and several others. Two tumours, weighing with their pails 57 lb., were removed. An incision about seventeen inches long was made to the left of the scar of the exploratory incision, and a transverse one about four inches long was made on the left side at right angles with the longitudinal one. The large lobulated fatty tumours had no anterior adhesions except to the cicatrix of the former incision, but they were adherent to the ascending colon which crossed them transversely. The tumours seemed to have originated behind the peritoneum on the right side, and had pushed all the bowels towards the left side, except the ascending colon. If these tumours had been situated outside the skeleton—i.e., outside any of the great cavities of the body—they could have been safely enucleated; they were covered with a capsule, and from this they could be peeled out. The capsule was more or less torn and ruptured, and the tumour raised with great difficulty, owing to its weight. The ascending colon was separated from the tumour and rolled off, after dividing and tying most of its mesentery. The vascular attachments were clamped and tied and burnt off from time to time as was necessary, and the tumour was lifted out of the abdomen. When this tumour was removed another one, apparently purely myxomatous, was exposed to view. After some hesitation this was removed also. It occupied the right lumbar and hypochondriac regions, and had pressed the liver upwards and to the left into the epigastrium. The shining capsule (peritoneum) of this tumour was tough and strong; some of it was removed with the growth, and some of it was peeled off and left behind. All bleeding points were secured, and the abdomen thoroughly cleansed. Another tumour was now seen, about ten inches long, and lying on the abdominal aorta, and pulsating with it. This was not disturbed. Everything looked as favorable as one could expect after so severe an operation. There had not been much blood lost; the pulse was 85, and feeble, but not extremely so. Two atomizers had played a spray of a 5 per cent. solution of carbolic acid upon the abdomen, and the operation had been thoroughly antiseptic. The intestine which had been pushed off the tumour, or rather from under which the tumour had been withdrawn, was largely deprived of its mesentery, and might not be well nourished, but with this exception affairs looked as promising as after a severe successful ovariectomy. The patient was placed in bed with his feet elevated and warmed with hot bottles. The operation lasted an hour and a half. During the afternoon, the operation having been finished at half-past twelve, he seemed to be doing well, and at half-past five asked for a drink of water. His wife brought it to him, when he said, "I think I am going," and

died. I append an account of the autopsy, and a description of the tumours by Dr. W. W. Gannett, who has kindly written them out for me.

Autopsy, forty-six hours after death.—Body considerably emaciated. Anterior abdominal walls flaccid, flabby, and thrown into numerous folds. A linear incision from about ten centimetres below the xiphoid cartilage to the pubes. A short cross incision at the umbilicus stitched together. In the abdominal cavity about fifty cubic centimetres of bloody fluid. The ascending colon hung free like a rope in the abdominal cavity, having no mesocolon, its usual point of attachment showing a reddened ragged edge. The whole posterior right wall of the abdominal cavity had a ragged irregular surface; from this the tumours had been removed. On the left side posteriorly to the peritoneum was a flattened round mass the size of a man's head, showing the same fatty mucous structure as those previously removed. Another mass about three times the size of the fist, and of the same structure as the preceding, lay over the inferior vena cava, and was adherent to it and to the duodenum. The right kidney was of the usual size and density, and of a pale color; on section, it showed a yellowish opacity of the cortex and a moderate degree of fatty degeneration. The left kidney was apparently normal. The other organs presented no unusual appearance. The head was not examined. The tumours were retro-peritoneal.

Dr. Gannett's Report of the Tumours removed on the 5th of February, 1882.—1. A flattened globular mass, measuring $38 \times 33 \times 12$ cm., and weighing 25½ lb. The outer surface showed a shreddy, glistening, white surface, from which numerous thin connective-tissue layers could be picked off. One portion was hanging loose, and a mass of connective-tissue, about 20×20 cm., and about 3 mm. thick, formed a tough membrane, the under surface of which, corresponding to the tumour, was ragged, the upper smooth and shining. The density of the mass was about that of firm wine jelly. On section the cut surface showed a very delicate pale connective-tissue meshwork, enclosing large spaces which were filled with a thick, syrupy, pale-yellow, almost transparent fluid, coagulating on the addition of acetic acid. 2. The second tumour: A coarsely irregular mass of pale-yellow color, and somewhat doughy consistence, measuring $37 \times 31 \times 16$ cm., and weighing, with the mass next to be described, 24 lb. On section the surface showed a twofold appearance. A homogeneous, opaque, yellow tissue, resembling fat tissue. Imbedded in this were greyish, homogeneous, translucent, soft, gelatinous nodules, varying in size from that of a filbert to that of the fist. On scraping the cut surface of the latter, a thick, homogeneous, nearly transparent fluid was obtained. 3. A mass similar in character to the last (2), which was torn away from it during the operation of removal; it measured $34 \times 17 \times 15$ cm., and weighed, with 2, 24 lb., and presented the same appearance. 4. Several smaller nodules, of a flattened, globular form, varying in size from a walnut to a large peach. On section they presented a somewhat translucent yellow, as if made up of a fat tissue rich in connective tissue. Microscopic examination of gelatinous portions of the above-described tumours, frozen and sections made, showed a stroma made up of very delicate connective-tissue fibres running in various directions, and enclosing spaces in which was a clear refractive substance, giving a marked mucin reaction; the remaining portion showed the structure of fat tissue.

CASE 2.—On August 8th, 1881, I saw Mrs. V—, aged sixty. I learned that she had always been well and strong, and had had several children.

Her father died at the age of sixty-six of cancer of the rectum, and a brother had died of cancer of the liver. On examination I found a large fluctuating abdominal tumour, without impulse, and containing solid masses. During the previous six months it had grown rapidly. The umbilical girth was 41 in. I aspirated the tumour in many places where fluctuation seemed most distinct, but got no fluid, not even blood. The abdominal parietes in the pubic region were oedematous, and the lower extremities had been so. Her complexion was somewhat sallow, but had formerly been ruddy. The next day I aspirated with a good-sized needle, but could get no fluid. The result of my tapping and the family history decided me not to recommend an operation. The patient was bright, sagacious, and sensible. I suggested an exploratory incision at some future time, but rather discouraged any interference, though I promised to attend her if sent for.

Accordingly, in March, 1882, at her request, I operated at her home. Her umbilical girth was now 53 in., the oedema of the abdominal walls was greater, and her lower limbs were much swollen. The tumour was exposed by a long incision, and appeared to be an immense lipoma. It had originated on the right side behind the peritoneum, and as it grew had pushed the bowels before it, as in the previous case. It was adherent to the peritoneum, from which it was more or less neatly enucleated with free hæmorrhage at times. The ascending colon crossed over it as in the previous case, and the cæcum, colon, and the appendix cæci were almost incorporated in the mass. The tumour dipped deeply into the pelvis, and almost filled it, and was at length, after considerable hæmorrhage and much shock, removed. The operation lasted about an hour, and the tumour weighed 35 lb. She never rallied, and died soon after being placed in bed. Dr. Gannett reported that the tumour was a pure lipoma.

It seems to me proper and important to put these cases on record. The propriety of operating is, of course, open to discussion. It is very hard, however, to stand idly by and see persons sink slowly under mechanical pressure, which we cannot remove by tapping.

In Mr. Cooper Forster's case before referred to, both Dr. Wilks and Dr. Hicks believed the tumour to be a collection of fluid, the percussion wave being perfect. The ascending colon lay in front of the tumour, and there was a little fluid between it and the walls of the abdomen. It was adherent to the diaphragm, and when removed weighed 55 lb. It had no distinct pedicle, so it was a question how it originated. It will be seen that these two tumours and the one exhibited by Mr. Cooper Forster were crossed by the ascending colon, and it would seem impossible to remove such tumours without disturbing the vascular connections to such a degree as to cause gangrene of the bowel. In another case I should be rather inclined to make an artificial anus in the cæcal region, or resect the intestine that had been deprived of its mesentery. The latter procedure would be extremely difficult in the case of the ascending colon, which is much bound down in the right lumbar region. At my request Dr. Gannett has carefully searched all the German, French, and English periodicals and publications, but has not found a single case of retro peritoneal fatty tumour. Fatty tumours of the omentum and mesentery are not very unfrequently described. Leopold² and Kroner³ have collected seventy-six cases of extirpation of the kidney, but none for fatty or mucous

² Archiv für Gynäkologie, xix. Heft.

³ Ibid., vol. xvii.

tumours. One of these was a retro-peritoneal fibroma removed by Billroth,⁴ and Bruntzel, Breslau, reports⁵ an extirpation of the left kidney for a fibroma of the renal capsule, weighing 37½ lb., and followed by recovery with a fecal fistula. The patient was an unmarried woman, thirty-three years old. The tumour was of eight years' growth and painless. Bruntzel's treatment of the wounded and torn peritoneum is interesting and instructive. In removing the tumour, which was retro-peritoneal, the peritoneal sac was twice incised. The two ragged posterior peritoneal surfaces were brought into contact, and the anterior edges were stitched to the anterior abdominal wall in the lower part of the incision, thus providing for drainage from the space between the two folds. The paper is a highly interesting one, and is made clearer by two woodcuts. The tumour was a fibroma with a considerable amount of fatty tissue in it.

Boston, U.S.A.

THROMBOSIS OF THE RIGHT SIDE OF THE HEART FROM INTENSE MENTAL EXCITEMENT.

By KEITH N. MACDONALD M.D., F.R.C.P. Edin. etc.

THE following case presents some points of interest both from a pathological and medico-legal point of view, inasmuch as it tends to show the powerful influence of mental emotion as a factor in the production of sudden death; and one which ought not to be lost sight of in reckoning the causes of the existence of fibrinous coagula in the heart, independent of the morbid lesions and states of the blood which are usually credited with producing that condition. The case under consideration was brought to my notice through a judicial investigation which was instituted by the procurator fiscal of this county (Fife) in order to ascertain the cause of death of a woman who was found dead in the street under peculiar circumstances. On the night of Nov. 14th, 1882, I was called by the police, shortly before midnight, to see a woman, then unknown, who was found in an unconscious state in the street, and who was taken to the police office, together with a young man, a stranger to the town, who was seen to assist her when she fell. On my arrival, a few minutes after being called, I found that she was dead, and the young man was detained overnight for further inquiry. Next morning, Dr. Douglas and myself were instructed to make a post-mortem examination of the body, and were furnished with the following history of the case. The investigations of the police brought to light that she was a very respectable, steady, and hard-working woman, aged thirty-four, wife of a factory tenter, and mother of two children; that about eleven o'clock on the previous night, in consequence of her husband having come home the worse for drink, she flew into a violent passion, an altercation ensued, and she left the house in a state of great excitement, tinged with jealousy, and was proceeding to a friend's residence at some distance, where she had on several occasions taken refuge before, to spend the night, when the fatal illness attacked her. From the husband we further learnt that, with the exception of occasional headaches, she had previously been in the enjoyment of robust health, and, as far as we could make out, her family history was good.

Autopsy, eleven hours after death.—The body,

⁴ Wiener Med. Wochenschrift, 1880, No. 28, reported by Buselmann.

⁵ In the Berliner Klin. Wochenschrift, Dec. 4th, 1882, No. 49.

which was that of a comparatively young, good-looking woman, well nourished, had no marks of injury upon it. The face was placid and tranquil, eyes closed, lips apart, nostrils depressed, hair long and fair; fingers flexed and elbows slightly bent. There were livid patches of discoloration around the ears, extending on to the cheeks, and hypostatic congestion existed over the posterior aspect of the body. Rigor mortis well marked. Cranium: On removing the skull-cap the dura mater was found adherent along the temporal and parietal regions, and the longitudinal sinus was filled with dark fluid blood. The vessels of the pia mater appeared dark and prominent, and it and the arachnoid could be readily stripped from the surface of the brain matter. The basal arteries and their branches, so far as they could be traced, were normal. On slicing the hemispheres from above downwards, the convolutions of the gray matter appeared more congested than the white substance, which also presented numerous bloody points. The right lateral ventricle contained two drachms of serous fluid, the left being almost empty, and the choroid plexuses on either side formed fringes of injected blood-vessels. The corpus striatum, optic thalamus, medulla oblongata, and cerebellum were also more or less congested, and the fourth ventricle was empty. No other change worth nothing. Thorax: Heart walls normal; pericardium empty; right ventricle filled with dark coagulated blood entangled amongst the columnæ carneæ and chordæ tendinæ, extending into the pulmonary artery, right auricle, and inferior vena cava, neither decolorized nor laminated, but slightly adherent to the trabeculæ of the right ventricle. Left auricle and ventricle nearly empty. The mitral and aortic valves presented a few minute patches of atheromatous degeneration, otherwise healthy. Section of the lungs displayed intense congestion and some œdema with fatty mucus tinged with blood, which at first appeared like thin pus which was not verified on microscopic examination.

At this stage of our examination we were informed by the public prosecutor, after full investigation into the general facts of the case, that if we were satisfied death was due to natural causes, he was unwilling to inflict further pain upon the relatives by continuing our dissection, to which we assented, and reported accordingly that the cause of death was thrombosis of the heart and pulmonary embolus.

Remarks.—The only weak part in the above case is the absence of details regarding the state of the kidneys, and other abdominal organs, but as the history of the case pointed so clearly to a robust condition of health prior to the date of her death, and it having been brought out in evidence that she was a person of a very violent disposition, I can only end as I began, by asserting that, in my opinion, mental emotion was the immediate cause of the sad catastrophe.

Cupar Fife.

ABSTRACT OF THE REPORT ON THE RELATION OF MICRO-ORGANISMS TO TUBERCULOSIS.

Presented to the Association for the Advancement of Medicine by Research on Feb. 1st, 1883.

By W. WATSON CHEYNE, M.B. F.R.C.S.,
Assistant-Surgeon to King's College Hospital, etc.

A VISIT was paid to Professor Toussaint, of Toulouse, and to Dr. Koch, at Berlin, with a view of seeing their methods of experimentation, and the results which they had obtained. Various experi-

ments were seen, and a quantity of material was brought back to England for more detailed examination. The result of the visits, and a full account of the observations made, will be found in the complete Report, which will be published in the April number of the *Practitioner*.

It was thought advisable in the first instance to repeat some of the experiments which have led observers, more especially in this country to object to the view of the specific origin of tuberculosis, and to hold that in rodents, at least, any irritation might produce that disease. The present series of experiments were performed under the best hygienic conditions, with complete isolation of the animals from each other, and with thorough disinfection of the instruments employed. In six cases setons of various kinds were introduced both subcutaneously and into the anterior chamber of the eye; in ten, vaccine lymph both from the calf and from man was employed; in three pyæmic pus was injected (1) into the eye, (2) subcutaneously, and (3) into the abdominal cavity; and in six various materials (cork, tubercle hardened in alcohol, and worsted thread) were introduced into the abdominal cavity. None of these twenty-five animals became tuberculous. Some experiments are also cited in the report in which wounds in rodents have been stitched up with cotton thread, and others in which abscesses have been produced in various ways, but in none of these cases did tuberculosis ensue. In explanation of the former results, it is pointed out that at the time the early experiments on this subject were made the communicability of tubercle by mediate contagion was not recognized, and, as the precautions necessary for thorough disinfection of instruments, etc, had at that time not been made out, the channels for the introduction of specific micro-organisms were left unguarded.

Two tubes of serum containing micrococci were obtained from M. Toussaint, who holds that micrococci are the cause of the disease. Toussaint obtains the organisms by inoculation of flasks containing serum, or infusion of rabbit with the blood of tuberculous animals; and he has in some cases succeeded in producing tuberculosis by the injection of these cultivations into other animals. The material obtained from M. Toussaint was injected into three rabbits, two guinea-pigs, one cat, and one mouse, and of these seven animals six were under observation for a sufficient length of time for the development at least of local tuberculosis. In no instance did tuberculosis ensue. (In all the experiments detailed in this report inoculation was made into the anterior chamber of the eye, whenever this was practicable; syringes purified by heat were employed for the purpose.) Cultivations of these micrococci were also made, and injected into nine rabbits and three guinea-pigs. Of these four rabbits and three guinea-pigs were under observation for a considerable time without the development of tuberculosis in any case. The total result is that thirteen animals were inoculated with the micrococci with which Toussaint works, and obtained from Toussaint himself, and in no case did tuberculosis occur.

A number of tuberculous organs from animals experimented on by M. Toussaint were also obtained, some of the animals having become tuberculous after the injection of the micrococcal fluid. Careful examination of these organs has shown the presence, often in large numbers, of the tubercle bacillus described by Koch, but no micrococci have been found. The conclusion arrived at is that the micrococci described by Professor Toussaint are not the cause of tuberculosis. One of the possible explanations of the results which should not be left out of account is the following:—Pro-

fessor Toussaint trusts greatly to carbolic acid as a disinfecting agent for the purification of the instruments employed in inoculation. This antiseptic, though effectual for the destruction of the ordinary forms of micro-organisms, as evidenced by the satisfactory results obtained from its use in aseptic surgery, has been shown to be ineffectual against the spores of bacilli, unless it acts for a long time. The bacillus of tubercle apparently produces spores, and there is no reason to suppose that these are less resistant than those of bacillus anthracis, and other bacilli. An experiment is given which shows that a saturated watery solution of carbolic acid, even though it acts as long as fifteen minutes, is not sufficient to arrest the development of the tubercle bacilli. Therefore, to wash a syringe with carbolic acid is not such a certain means of disinfection in this particular instance as was formerly supposed. Experiments were also made with cultivations of tubercle bacilli obtained from Dr. Koch. Twelve animals were inoculated with these organisms, chiefly into the anterior chamber of the eye, and all of them became tuberculous, and that more rapidly than after inoculation of tuberculous material. The tubercles produced in these cases were infective, and caused tuberculosis in other animals. On examination of tuberculous material, Koch's tubercle bacilli are always found, though in varying numbers. They are most numerous in bovine tuberculosis, and least numerous in human tuberculosis. About eighty organs of tuberculous animals and thirty-six cases of human tuberculosis were examined, and in all of these, without exception, tubercle bacilli were found. The inoculation of these bacilli is more certain and more rapid in its effect than the inoculation of tuberculous material from any source; and this seems only explicable on the supposition that in the cultivation of these bacilli the virus of the disease is present in a more or less pure state, and in large amount. Various facts are pointed out leading to the conclusion that in these bacilli we have the virus of the acute tuberculosis caused in the lower animals by the inoculation of tuberculous material.

In applying the facts obtained from experiments on animals to the pathology of tuberculous diseases in man, it is pointed out that all that has as yet been absolutely proved is that a variety of materials in man, which we class together as tuberculous, produce acute tuberculosis, when inoculated into rabbits, guinea-pigs, and other animals, and that this result is due only to the tubercle bacilli present in the materials inoculated. It therefore remains for inquiry, what relation these bacilli bear to the morbid processes in man in which they are found.

Acute miliary tuberculosis in man resembles in every respect, in histological structure, in tendencies, and in the presence of bacilli, the disease produced in the lower animals by the inoculation of tuberculous material; and there can be little doubt that the cause of both diseases is the same—viz., the tubercle bacillus. It is, however, much more difficult to understand the relation of these organisms to localized tuberculous processes in man (phthisis, scrofulous diseases of glands, joints, etc.). Phthisis is alone considered in the present report, and, with a view of making clear the conception which the author has formed as to the relation of bacilli to this disease, the following facts are brought forward, which he has observed as to the mode of distribution of the organisms in the tissue, and their relation to its histological elements.

Two distinct structures have been described as tubercles in lungs of rodents—viz., nodules of lymphatic tissue in close proximity to the vessels

and bronchi, and nodules which are largely made up of epithelioid cells. If a case of commencing artificial tuberculosis is examined, it will be found that bacilli are only present in the latter nodules; indeed, it is rare even in the later stages to find them in the former, and in that case epithelioid cells will be found as well. The bacillus being the cause of this disease, the nodules containing epithelioid cells are alone tubercles. Further, on careful investigation of these nodules, it will be found that bacilli are only present in the epithelioid cells themselves. In making this statement only young tubercles and those in which the bacilli are present in moderate numbers are referred to. When there are enormous masses of bacilli, or where there has been confluence of tubercles forming a largish tuberculous deposit, some bacilli may be found in the outer part of the tubercle, but the great majority of them occupy the epithelioid tissue. When the bacilli are few in number, one need only look for them in the epithelioid cells. Around the epithelioid cells the tissue becomes inflamed, and converted more or less completely into granulation tissue. As the tubercle becomes older the epithelioid cells at the centre undergo caseous degeneration, and in this case the bacilli are present in the caseous mass; but are often best seen at its margin, where epithelioid cells still exist, and they may also be found penetrating into the inflammatory tissue. The giant cells of tubercle can be distinctly traced as originating from epithelioid cells, especially from epithelioid cells containing bacilli. As to the origin of these epithelioid cells in the lung, the great majority are derived from the alveolar epithelium. The bacilli escape from the blood-vessels or lymphatics and pass into the alveolar epithelium, where they grow and cause multiplication of the epithelial cells until the alveolus becomes completely filled with them. In some instances, however, those cells are probably derived from the endothelium of blood and lymphatic vessels. In the case of the liver, the author thinks they are frequently developed from liver cells, for bacilli have been found in liver cells at the margin of commencing tubercles, and gradations in size and form can be traced between those liver cells and the epithelioid cells in the centre of the tubercle. The accumulation of the epithelium in the centre of the nodules leads to obliteration of the vessels around and to fusion of neighboring nodules. With regard to phthisis, the two extremes, the rapid phthisis or caseous pneumonia, and the chronic or fibroid phthisis are considered. In the rapid phthisis the alveoli are distended with caseous material, or in parts where the process is less advanced with epithelioid cells. Surrounding these, the trabeculae are thickened, and converted into granulation tissue. Here the bacilli are found in moderate or considerable numbers in the caseous material and epithelioid cells which fill the alveoli. By-and-bye the walls of adjacent alveoli disappear, and thus irregular cavities are formed containing caseous material surrounded by epithelioid cells and inflammatory tissue. In this case the bacilli are most numerous, and sometimes in enormous masses at the free margin of the cheesy material, and they are also present, though not as a rule so numerous, in the epithelioid cells at the line of junction of the caseous mass with the surrounding tissue. In fibroid phthisis the bacilli are, as a rule, extremely few; but here and there if a cavity exists, or in the centre of a caseous mass, one may find them in considerable numbers. They may, though very rarely, be also found in the giant cells, which are generally pretty numerous among the fibrous tissue. As a rule, however, the bacilli are extremely few, but nevertheless, if a sufficient

number of sections be carefully examined, a few will be found here and there at the margin of or in the caseous masses.

The foregoing facts seem to indicate that when the tubercle bacilli reach the alveolus of a lung which is in a suitable condition for their growth, they develop in the epithelial cells lining the alveolus. This alveolus becomes filled with cells, neighboring alveoli become affected, and the same process goes on in them. The further result will depend on the number and rapidity of growth of the bacilli, and on whether the patient is a good soil for their development. If they develop well we have caseous pneumonia; if they grow slowly and with difficulty we have fibroid phthisis. In the former case the alveoli become early distended with epithelioid cells, inflammation of the walls of the alveoli ensues, the epithelioid cells soon undergo caseous degeneration, and the presence of the masses leads to atrophy or sloughing of the walls of the alveoli. Infection of neighboring parts of the lungs occurs by continuity, and also by partial coughing up and re-inhalation of the bacilli into other parts of the lung. In this rapid phthisis fibrous formation around the alveoli only takes place imperfectly, and the lung rapidly breaks down. In the case of fibroid phthisis the bacilli are few, and grow only with difficulty. Thus fibrous formation occurs extensively, and giant cells are entangled in the fibrous tissue. In parts, however, the process may be more rapid, and there cheesy masses are formed, which may lead to breaking down of the lungs and the formation of cavities.

In the report it is pointed out that on this view we have one explanation of the rarity of acute tuberculosis in connection with phthisis, and of the presence of bacilli in sputum, even before physical signs are marked, while it is shown that this view is directly corroborated by the results obtained by Tappeiner in his inhalation experiments. Against the statement that phthisis is due to the tubercle bacilli might be urged the fact that the bacilli found in the lung after death are often very few in number. Among other facts brought forward with regard to this question, it is stated that extensive tuberculous processes may be found in animals, containing only few bacilli, and that in cases where bacilli alone were inoculated, and where it is certain that the bacillus was the only agent at work. With regard to the production of phthisis by the inhalation of dust of various kinds, it is pointed out that the foreign particles inhaled probably only prepare the lung for the reception of the bacilli; for in these cases also bacilli are found. It has often been urged that the milk of tuberculous cows is infective. This may be the case when the mammary glands become tuberculous, and the mode in which the bacilli might get into the milk was well illustrated by the appearances found in a tuberculous kidney. There not only were bacilli present in the tuberculous mass, but they were also found in large numbers in the epithelium of the kidney tubules and in the interior of these tubules, both in the vicinity of the mass and at some distance from it. The author has not yet investigated the subject of tuberculosis of the kidney, but from what he has seen he thinks it probable that the epithelium of the tubules is the favorite seat of the bacilli in the kidney, just as the alveolar epithelium is in the lung. In that case bacilli would be present in the urine, not merely when there were marked tuberculous masses in the kidney, but also where the disease was but slightly advanced. From analogy it is probable that the same is the case in the mammary glands, and bacilli might be present in the milk, even though the disease of

the gland was not sufficiently advanced to be noticeable.

The staining solution employed was the Weigert-Ehrlich solution. The formula is: of a filtered saturated watery solution of anilin one hundred parts, of a saturated alcoholic solution of the basic anilin dye (methyl violet, gentian violet, fuchsin, etc.) eleven parts. Mix and filter. Rapid staining is obtained by warming the solution. The specimens are then decolorized by immersion in nitric acid (one part to two of water), and stained in a suitable contrast color. Very delicate sections are apt to be injured by immersion in the nitric acid. In this case, after staining them in the Weigert-Ehrlich fuchsin solution, they may be washed in distilled water, immersed in alcohol for a moment, and then placed in the following contrast stain for one to two hours: distilled water 100 ccm., saturated alcoholic solution of methylene blue 20 ccm., and formic acid 10 min. Whenever it is possible, however, Ehrlich's original method is recommended, as being most rapid, most simple, and most satisfactory. By this method of staining, tubercle bacilli and leprosy bacilli remain red. Psorospermia and the outer coat of some parasites also retain the red color. Lichtheim has further stated that a micrococcus is frequently found in the feces, which reacts in a similar manner to the tubercle bacillus.

ON ENDEMIC HÆMOPTYSIS.¹

By DR. MANSON,

of Amoy, China.

THE work of Bilharz, Griesinger, Cobbold, Dr. J. Harley, Sonsino, and others, has made us familiar with the parasitic affection of the urinary organs known as endemic hæmaturia. I propose to notice a disease of the lungs almost the exact counterpart of this of the urinary organs, and, following the example in the nomenclature of endemic hæmaturia, I will call this new disease "endemic hæmoptysis."

The parallel that obtains between these two diseases is very remarkable. Endemic hæmaturia and endemic hæmoptysis are both of them caused by parasites; in both diseases the parasite is a species of distom. Both affections are characterized by an intermitting or remitting discharge of blood, and in each the ova of the parasites are to be found in this discharge. Both have a limited and probably well-defined geographical distribution, and both tend perhaps to shorten life either by profuse hæmorrhage or the gradual sapping of health consequent on long-continued and frequently repeated small bleedings.

My acquaintance with endemic hæmoptysis dates from the middle of April, 1880. At that time I was practicing in Amoy. For a purpose altogether unconnected with the subject of these remarks, I had for some time been in the habit of examining with the microscope the blood brought up from the lungs in all the cases of hæmoptysis I met with in native practice. On one occasion I was consulted by a Chinaman about a trifling skin disease. Whilst he was describing to me his symptoms he was seized with a fit of coughing, and brought up a small quantity of blood-tinged sputum. I transferred a small portion of the sputum to a glass slide and examined it with the microscope. I found plenty of blood and mucous corpuscles, epithelium, and so forth, and in addition to these I observed certain large bodies such

as I had never met with before, and which I suspected, from their appearance, were the ova of a parasite. These bodies were in great abundance, some three or four of them in nearly every field. They were oval, dark reddish-brown, double outlined, operculated at the broader end, and contained one or more paler spheres suspended in a granular matrix. There was some diversity both in size and shape. Some were more spherical; others, again, more elongated. On an average they measured 1-300th in. by 1-500th in. These bodies were undoubtedly ova; but, thinking they might have been accidentally introduced into the man's mouth in his food, or possibly that there might be a parent worm about his mouth or throat, I examined his oral cavity very carefully. I found no trace of food or parasite, and when, on requesting him to cough again and expectorate, I found that he produced a second pellet of bloody sputum containing similar ova, I concluded that a parasite must reside somewhere below the vocal cords, probably in the lungs, and that I had stumbled on a new disease.

The man told me he was a native of Foochow, was thirty-five years of age, and was a secretary in a mandarin's office. He had been in Amoy about a year only. When twenty-one years old he went to Formosa, where he resided, with the exception of two or three visits to the mainland, for nearly ten years. It was during his residence in Formosa that his blood-spitting commenced—about a year after his arrival on the island. On his first attack he spat from half an ounce to an ounce of blood for nineteen days in succession. He emaciated slightly, but had very little cough. About six months later hæmoptysis returned—less profuse than on the former attack, but, as on that occasion, the sputum at the outset was pure blood. This second attack lasted for a few days only, but ever since he suffered from periodical attacks of hæmoptysis of two or three days' duration, and coming on every second or third month. He never had very much cough, nor had the hæmoptysis ever been very profuse, the blood after the first monthful or two always being mixed with mucus. Once during two years he had no attack whatever. His general health was satisfactory. A careful physical examination failed to detect anything amiss with heart or lungs that could account for the hæmoptysis. His family history was fairly good; his mother, he said, died of some disease of which cough was a symptom, but his father had never any sign of chest disease, and his four brothers and sisters were alive and well.

Two days after the first visit this man called on me again, and, as on the first occasion, brought up by coughing abundance of ova-laden sputum. Although he promised to see me again he did not return, and for a time my attempts to investigate a new and interesting disease were balked.

This man's case brought to my recollection that of a Portuguese, who had been my patient, suffering from aortic aneurism during November and December, 1878. This man, like my Chinese patient, had long resided in Formosa; indeed, he was only a visitor to Amoy when he came under my notice. He had been in bad health for some time, and a cold he caught so aggravated the dyspnoea he habitually suffered from that he was obliged to come to hospital. Under iodide of potassium and rest his urgent symptoms subsided, and he got well enough to return to Formosa about the end of the year. In the following June he died from rupture of the aneurism into the pericardium. Dr. Ringer, under whose care he had come, knowing I took an interest in the case, kindly sent me particulars of the post-mortem examination, and mentioned in his letter that on

¹ Read at the Medical Society of London, March 19th, 1883.

making a section of the lungs he encountered a parasite of some sort lying on the surface of his incision. Impressed with the great probability that a parasite of the same species that Dr. Ringer found in the lung of the Portuguese resided in the lungs of the Chinaman, and was the parent of the ova I found in such abundance in the sputa, I wrote to Dr. Ringer requesting him to send me the parasite, and in the sediment of the little bottle, in which it lay in spirits of wine, I had no difficulty in finding many ova corresponding exactly in size, shape, color, and contents with those I had found in the Chinaman's sputa. This parasite from the lungs of the Portuguese was of the same species as that producing the ova in my Chinese patient.

As far as I know this is the only specimen of this parasite that has been found; it is a distom. The spirit specimen, which had probably shrunk somewhat from its original size, measured half an inch in length by one-sixth of an inch in breadth by about one-third of an inch in thickness. It was quadrangular in shape, with the angles rounded off, of a bluish-grey color, and leathery consistence. I sent it to Dr. Cobbold, who pronounced it to be a new species, and named it, after the discover, *Distoma Ringeri*.

The gist of these observations was published in the China Customs Medical Reports for the half year ended Sept. 30th, 1880. In *THE LANCET* of the same year I read an abstract of a paper by Professor Baelz, of Tokio, Japan, which appeared to me to refer to the same subject. He described certain bodies found in the sputa of cases of hæmoptysis occurring in Japan. He considered these bodies to be a stage in the development of gregarinæ, and proposed to call the disease they were found in Gregarinosis pulmonum. I wrote the professor for specimens, and he very kindly sent me a small bottle from Japan containing characteristic sputum. Under the microscope I recognized the bodies he described, but they were in every respect identical with the ova associated with the solitary specimen of *Distoma Ringeri* I had examined, and with the bodies I found in such abundance in the sputa of my Chinese patient. I persisted in the examination of the sputa in every case of hæmoptysis turning up at the native hospital in Amoy. I examined over a hundred cases, but did not again encounter the ova in a single instance. My patients were all natives of Amoy or of the surrounding country. I suspected therefore that, like other distoms, the area of distribution of *Distoma Ringeri* was limited to certain districts, and that Amoy was not one of these. But I knew the parasite was to be found in Formosa. I therefore turned my attention to the natives of that island. On application to a friend residing in Formosa, I received two large bottles filled with sputa from two of his servants, which on examination were found to be crowded with distoma ova. In answer to a second appeal my friend sent his servants to Amoy to be under my immediate observation. The elder of these two men was a short, sturdily-built fellow thirty-one years of age. Until his visit to Amoy he had never been out of Formosa. His family, he said, was healthy. His father died of dropsy, aged fifty-eight, but his mother, three brothers, and four sisters were alive and well. His blood-spitting began about eleven years before I saw him. He was then working on the tea hills as an ordinary laborer. He observed that when he breathed hard during severe exertion cough came on, and with the cough expectoration of blood-tinged mucus. From that time he has been troubled with blood-spitting more or less constantly. It was always increased by violent exercise, and on one occasion, whilst rowing in a

boat, he suddenly brought up over a bowlful of pure blood. Occasionally coughing and spitting would stop for a few days, perhaps for a month, but then they would return and occur daily for a month or two. I auscultated this man's chest very carefully, but failed to detect any physical sign of disease. His throat was remarkably well developed, and altogether, though rather thin, he seemed to be in robust health.

The other servant was a tall, thin, rather delicate-looking young man, twenty-two years of age. Both his parents were dead: from what I could make out they died of some dropsical affection. He said he was quite strong till four years before the date of his visit to me; then, and without any obvious cause, he began to cough and spit blood, especially after exertion. During one year he continued to spit blood almost daily; about an ounce at a time. He then changed his employment to one in which less physical exertion was required. His hæmoptysis ceased and did not recur; but the cough continued, and now, almost daily, especially on rising in the morning, he has attacks of coughing ending in the expectoration of quantities of yellow-brown muddy-looking tenacious mucus. He complained of some pain about the left nipple, but on auscultating him I failed to detect anything amiss with the lungs.

While these two men lived in my house I examined their sputa daily. By getting them to cough I could always procure abundance of ova-laden sputum. So numerous were these ova, that I could procure thousands of them any time I chose to send for my patients. The fit of coughing which occurred on rising in the morning was always the most productive.

These men told me that blood-spitting was a disease to which Formosans and immigrants to the island were especially liable. In some districts it was very prevalent. I had only to request my friends there to send me some, and usually by return steamer I received three or four specimens coming from different blood-spitters.

The constant or repeated small bleedings these parasites induce cannot fail in certain cases to produce in time a state of intense anæmia, rendering the subjects of it very liable to attacks of dangerous forms of other disease. But the *Distoma Ringeri*, in consequence of the position it occupies, the lungs, and the liability of these organs to great strains and congestion on exertion or coughing, undoubtedly exposes its host to the additional danger of sudden and profuse hæmorrhage and the consequences, whatever these may be, of infarction of the lung tissue by effused or suddenly inspired blood. I am not in a position to assign to this parasite its exact share among the causes of grave disease, but I have no doubt that in time it will be found to operate prejudicially on the populations of the countries in which it is endemic in the directions I have indicated.

I need not enlarge on the symptoms and diagnosis of endemic hæmoptysis, but there is a point having very practical bearings—viz., the way in which the parasite and the disease it induces spread from one human host to another. By observing the specimens of ova under the microscope, it will be seen that they contain no trace of embryo. The ova passed in cases of endemic hæmaturia are occupied by a well-developed ciliated embryo, which escapes very soon from the shell.

The ova of other well-known distoms also develop a ciliated embryo. The development of the embryo of *Distoma Ringeri* was therefore the first point I had to attain before an intelligent idea could be got as to how the parasite spreads. My two patients supplied me with abundance of material for experiment.

It is evident that the sputum is the natural medium for the escape of the ova from the human host—just as in the case of Bilharzia the urine is—or, in the case of the intestinal and liver parasites, the intestinal discharges are. By following the destinies of sputum, therefore, I would perhaps be led to some knowledge of the development of the ova it contained. Seeing that the embryo was not at all developed, it was unlikely that the egg was immediately transferred to the body of the final, or, perhaps, of an intermediary host. As in other distoms, it was probable that there was a preliminary and ciliated stage in which the miniature parasite was free. When sputum is cast on the ground its destinies may be various. That which seemed to me the most conducive to the development of any ova it might contain was that it should be transferred by some agency, such as a shower of rain, to some pond, ditch, or well, where it might be incubated. I resolved to experiment in this direction. I placed specimens of distoma sputum in glasses, shook it up with filtered water, washed it daily for a week in fresh water, and then allowed the ova to settle quietly to the bottom of the vessel. In this way I fancied I imitated what must happen in nature. From day to day I examined ova thus treated with the microscope, and had the satisfaction of finding that a process of development led up to the formation of an embryo. At the end of from four to six weeks nearly every ovum contained active ciliated embryos closely resembling in appearance and habits those of Bilharzia and other distoms. Ova of the same age which I had not thus treated with water, but which had been kept in sputum as originally expectorated for comparison, exhibited no signs of development, and resembled in every respect freshly procured specimens.

When ova thus treated approach maturity, they present a very striking and interesting appearance. The embryo they contain is a delicate heart-shaped ciliated organism endowed with prodigious activity, incessantly occupied in attempts to rupture a collar-like membrane which surrounds its anterior extremity, and to force open the operculum of its shell. In time it accomplishes this, and by continued efforts, which can best be described as frantic, it squeezes its plastic body through the opening. Freedom obtained, it rushes through the water with great velocity, assuming varying forms. The cilia are in constant motion, and the whole appearance and behavior of the restless little animal convey the idea that it is searching for something. This something, I have little doubt, is its intermediary host. Its correspondence with the embryos of other and better-known distoms justifies the inference that its future history will bear a similar resemblance, and that the various stages of advancing development require its entrance into the body of some animal which will act the part of intermediary host. Now the necessity for the intervention of this intermediary host impresses on this parasite and the disease it produces their endemic character. Speaking roughly, parasitic diseases depending on parasites which do not require an intermediary host are pandemic. Again, if parasitic disease, whose parasite requires an intermediary host, does not occur in certain old countries, like China, we have a *prima facie* argument for believing that the intermediary host is not to be found there. From this I infer that the particular animal which acts the part of intermediary host to *Distoma Ringeri* is not to be found in China, but that it is a native of Formosa and Japan. Again, from the fact that the first step in development of the embryo takes place in fresh water, I infer that this intermediary host is a fresh-water animal. Therefore the inter-

mediary host of *Distoma Ringeri* must be searched for among the fresh-water animals common to Formosa and Japan, which are not natives of the neighboring mainland of China.

A glance at the map of Asia will show that Formosa and the great islands constituting the empire of Japan are by no means contiguous, whereas a very narrow belt of sea separates Formosa from the mainland of China. The distribution therefore of the intermediary host of *Distoma Ringeri* must depend on something other than mere latitude or temperature. There must be something in the soil or climate which Formosa and Japan have in common, and which is necessary to the well-being of the intermediary host, which China does not afford. I believe this element depends in some way on a volcanic soil. Unlike the mainland of China, both Formosa and Japan are actively volcanic. On this account, I believe, as research and our knowledge of this parasite extend, it will be found to prevail in other countries where a volcanic soil and certain ranges of temperature and moisture allow of the existence of the intermediary host. I have little doubt it exists in the Philippines and neighboring islands.

To return to my patients. The idea of curing them naturally occurred to me, and I made many attempts to dislodge their parasites. The accessibility of the bronchial tubes and tissues of the lungs generally to medicated vapors suggested inhalations of a parasiticide character. With a steam spray I atomized solutions and infusions of various substances, and caused my patients to inhale them. In this way quassia, koussou, santalin, turpentine, and sulphurous acid were applied to the lungs, inhalations being practised daily for a week in one case, and a fortnight in the other. But no mature parasite was brought up, only ova in abundance. However, three months after these inhalations the younger of my patients told me he was quite well; he had lost his cough, and no longer brought up rusty mucus. I irritated his lungs with fumes of burning sulphur, and thus caused him to cough violently, but the small quantity of bronchial mucus he brought up was quite destitute of ova. I believe he was cured. My other patient, I subsequently learned, was not benefited. Of course, the result of inhalations will depend in some measure on the position the parasite occupies in the lungs; if it is free in a bronchus we need not despair of dislodging it, but if it lies in the blood-vessels this may not prove so easy a matter.

From the facts I have adduced it is evident in what direction attempts at prevention should be made. It is only necessary to boil or filter drinking water, and never to eat uncooked vegetables or other uncooked food, to ensure immunity from endemic hæmoptysis in the countries where it prevails. London is a very cosmopolitan place, I doubt not, in the matter of disease, as in many other things, and just as we see natives of Japan and other countries in the streets, and meet Englishmen who have travelled or resided in foreign countries, so it is very likely you will meet in your hospitals or consulting rooms exotic imported diseases. I would recommend, therefore, in the event of your being consulted for chronic recurring hæmoptysis by a patient who has resided or travelled abroad, and in whose chest you can find no adequate reason for the blood-spitting, that you should place a little of his bloody or rusty sputum under the microscope.

—The authorities of the German Hospital at Dalston have secured the premises known as Graham House, directly opposite the hospital, to be used for convalescent purposes.

NOTE ON A PHASE OF INTOXICATION.

By WILLIAM S. SAVORY,

Surgeon to St. Bartholomew's Hospital.

In all that has been written on the subject of intoxication, one phase, and that perhaps the most common, of poisoning by alcohol has almost escaped description. Fits of drunkenness, in its various degrees, after a debauch on the one hand, and disease, for the most part in the form of degeneration of some kind from prolonged excess on the other, are of course only too familiar among its effects. Much also has been said of the general depression and disturbance of function which usually precede the establishment of organic disease; of the loss of appetite and craving for stimulants, and even the need of them for immediate and temporary exertion of any kind. But I allude now to none of these. I refer to a state often antecedent to the one last mentioned, of what I would call habitual narcosis—a state due not to a comparatively large excess of alcohol at any one time, but to the daily, almost hourly, imbibition of beer or spirits. Alcohol in some form is taken, not at any one moment in very large quantity, but at intervals so frequent as to keep up its effect in a powerful degree continuously through the twenty-four hours. This habit pervades all classes of society, but it prevails most largely, or at all events it is most openly illustrated, among the lower. I believe that it may be seen most commonly in the carmen who drive slow and heavy wagons through the streets of London. These men hardly ever seem to be thoroughly awake. They sit for the most part bent forward, with a dull drowsy countenance, the eyes either half or wholly closed, and the limbs and body shaking with the vehicle from sheer relaxation of the muscles. If the horses which lead them were not more intelligent, none would dare to venture within their range. This condition is not due to mere fatigue or weariness. The swollen features, the congested surface, the bloodshot eyes, tell another tale. Moreover, when aroused from this stolid state, the behavior is characteristic enough. When suddenly surprised they speak or turn round, but not as one overtired and half asleep, or even naturally very stupid, but only after a prolonged interval, with slow and lethargic action, like the movement of a sloth or tortoise. Perhaps, in civilized life there is no state of human nature lower than this. Here the blood is constantly charged with alcohol, and the brain and other nerve centres are always largely under its influence.

But inevitable as the result is here, when nothing stronger than their own will intervenes to interrupt its course, if from these men alcohol be forcibly withheld for a time, before the stage of serious organic mischief has been reached, they are usually restored very rapidly, and often become changed in a startling way. When such men are brought with some injury into a hospital they are likely to pass through an attack of delirium tremens, from which, however, they usually recover, and the approach of this is made manifest by want of sleep, general depression, and tremulousness. But most of them, if the injury be not severe, after passing a few days in a heavy drowsy state, craving for beer or gin, rapidly grow brighter and fresher, become more alive, and before long are so changed for the better in every way that it must be difficult, I should think, for the patient to believe in his personal identity.

Something is to be learnt from these cases. Formerly it was assumed to be highly dangerous to suddenly deprive a man, who had been accus-

tomed to excess of them, altogether of stimulants. I would not venture to say that this can invariably be done with impunity, but I have no hesitation in saying that as rule the practice is safe and satisfactory. And in the very exceptional instances when danger threatens, it can, I think, be usually foreseen. If a man can sleep and eat tolerably well, his life does not hang on stimulants. Nay, even in delirium tremens, looking to these signs, we may with the best effect often withhold them. I suppose it is well understood now that it is not good practice to prescribe stimulants in delirium tremens as a matter of mere routine. When such patients as these come under our care I would always, when practicable, give them time for recovery from the effects of this bad habit before subjecting them to any operation, or even to measures of severe restraint. The time is well spent in leaving such a patient alone for some days to the influence of suitable food and the rigid exclusion of alcohol in any form, and in standing by and watching the change in the furred tongue and foul breath and obtuse intellect, until at length he may truly say of a demon more potent for evil than that which assailed Macbeth—

Why, so: being gone,
I am a man again.

DIFFUSE CEREBRAL HÆMORRHAGE IN A NEW-BORN CHILD AFTER AN EASY LA- BOUR;

COMMENCEMENT OF SYMPTOMS ON FOURTH DAY;
DEATH ON FIFTH DAY; AUTOPSY.

By F. H. CHAMPNEYS, M.A., M.B. Oxon., F.R.C.P.,

Assistant Lecturer on Obstetrics and Assistant Obstetric
Physician to St. George's Hospital.

MRS. C—, aged about twenty-five, at her second confinement (her first labour having been normal and the child alive and healthy) was delivered easily and naturally on Sept. 8th, 1881, at midday. On the night of the 10th the child was restless. On the 12th, at 9 A.M., it was found in its cot with its hands clenched. At 10 A.M. the child had a convulsion. At 2 P.M. it squinted and became livid, and this squinting and lividity recurred about every twenty minutes. At 10 P.M. there was a strong convulsion, repeated about every hour till 1 A.M. on the 13th. At 11.30 P.M. on the 12th left ptosis supervened, which rapidly increased. From 1.30 A.M. to 4 A.M. on the 13th the convulsions were almost incessant on both sides, but affected the left side most. Death took place at 4 A.M.

The necropsy was made by Mr. J. Kingston Barton (to whom I am also indebted for some of the above facts) under very unfavorable conditions, which, added to the ordinary great difficulty of examining the brain of a newly-born infant, made a more precise examination impossible. Child female; length twenty inches; apparently mature. Heart: foramen ovale closed, except a very small aperture at the upper border; mitral and tricuspid valves showed "hæmato-nodules" described by Parrot, corresponding to his description. Brain: diffuse apoplexy, especially of the left side, the blood having escaped apparently from the neighborhood of the lateral ventricles and reaching the surface in parts; on the convex surface there were many small hæmorrhages.

The hæmato-nodules are thus described by Parrot: "The hæmatomata are little tumours, of

spheroidal or conical form, black or dark violet, like concretions of blood or morsels of coal, varying in size from the smallest size visible to the naked eye to that of a millet seed; isolated or united so as to form little clusters. They are only found on the mitral and tricuspid valves. . . . They are smooth and glistening, and appear always covered by the superficial layers of the endocardium. . . . After a time they become decolorized, sink, and little papilliform eminences alone are found.² . . . They are seen in children immediately after birth and during the first month, but are not seen in still-born children. After the first month they rapidly decrease. . . . They are to be considered as the result of the changes in the circulation at birth.³ . . . They contain blood, of which the hamatin is in various degrees of change.⁴ . . . They do not resemble the products of acute endocarditis. Their surface is always smooth; they are never soft or friable, and can never be detached except by tearing. . . . They never show arborescent vessels; they are not to be regarded as pathological, but as, at most, demilections." I have given this description as exactly describing the appearances in my case. In 120 children under seven years of age Parrot found them in seventy-four. In all of these (thirty) not more than a fortnight old, they were never absent. I may add that I have found them in all the children dying soon after birth, but not in any full-time still-born fetuses in whom I have looked for them. I do not imagine that they had anything to do with the cerebral hæmorrhage.

The case seems worthy of record on account of the rarity of cases of cerebral hæmorrhage in young children; the rarity with which they are recorded may be partly due to the fact of their falling somewhat between the departments of the obstetric and the general physician. It may be scarcely necessary to remind the student of such cases that the term "apoplexy" applied to young children is generally used to describe the first or livid stage of asphyxia. Such "apoplexy" may be associated with true cerebral hæmorrhage.⁵ Rilliet and Barthez⁶ say nothing about cerebral hæmorrhage in the newly-born; the youngest in their table is two years old. Gerhardt, in dealing with the subject of cerebral hæmorrhage in children, mentions its rarity, but calls attention to the fact that the earlier the age the commoner is the occurrence. Four out of twelve cases related by Gerhardt occurred within the first six weeks. Billard found an apoplexy in the left corpus striatum in a child three days old. Berard found a similar one in a child eight months old. It is commoner in males. Rilliet and Barthez give a table in which nine out of fifteen were males. Bednar found eleven out of sixteen in males. It is generally preceded by disease, and may be associated with miliary aneurisms. Inter-meningeal (as opposed to intra-cerebral) hæmorrhages are not rare after difficult labours, and are due to contusion. Capillary "ectasies" are congenital; miliary aneurisms always arise after birth; injuries after birth are usually inter-meningeal. In my case the small cortical hæmorrhages may have been the result of the convulsions.

Great Cumberland-place, W.

² Ibid, page 540.

³ Ibid, page 539.

⁴ Ibid, page 544.

⁵ Désormeaux in Dict. de Méd. Paris, Déchet, 1826, tome xv., p. 153.

⁶ Maladies des Enfants, 1853, tome ii., p. 277.

ON THE SEPARATION AND TRANSPLANTATION OF OVARIAN CYSTS.

By EDWARD MALINS, M.D., C.M.,

Obstetric Physician to the General Hospital, Birmingham.

THE present paper is illustrative of a very uncommon pathological condition, and affords some important and interesting details from a clinical aspect. Five cases have come under my notice where cysts were transplanted to a new situation; in one the separation was not absolutely complete when the patient was operated upon, though the transplantation was advanced; in the three others the union from the place of original development was entirely severed, and a connection established under different auspices with fresh structures. The process by which this was accomplished created much disturbance for a time, but the cysts afterwards appeared to have settled down with a singular accommodation on the part of their surroundings. This toleration after an inflammatory storm has subsided is an interesting feature to note; the contest during the while is severe, the fresh region resents the intrusion of the foreign body, the temperature rises, the pulse quickens, there are pain and constitutional distress. This is continued, with varying doubts as to the issue, for an uncertain time, until the persistence of the invasion overcomes the reluctance of the new locality, and the cyst is retained where accident allots it space. Thus, like a parasite, it ultimately derives its nourishment and fosters its growth from the part which unwittingly accedes to the necessities of the conqueror.

CASE 1.—Mrs. W—, aged forty-five, married twenty years, thirteen children, youngest three years old, was admitted to the General Hospital on July 1st, 1882, with the following history: She stated that she had always had good health until March, 1881, when she noticed an enlargement of the abdomen, chiefly on the right side; this continued to increase in size. Six months later, while nursing and lifting a sister who was ill, she was suddenly seized with violent pain in the abdomen and was obliged to go to bed. This was followed by an attack of inflammation of the bowels, which caused her to keep her bed for several months, she was very feverish and had occasional shiverings. The abdomen became much reduced in size, but still swollen and tender, and in March, 1881, a large abscess formed below the navel, which, pointing outside, was opened by the doctor and several pints of matter let out. This discharged for some weeks and ultimately closed. Still a large lump remained; it was not particularly painful, but she was feeble and unable to work. Menstruation had been regular. On examination the patient was thin but otherwise healthy looking. The abdomen was not tense; a little to the left and one inch and a half below the umbilicus was a depressed cicatrix an inch long. On palpation a rounded mass was felt about the size of a small cocoon, the bulk of which was to the right of the median line, the upper border being a little higher than the level of the umbilicus. Fluctuation was indistinct; it was smooth and evidently adherent to the inner aspect of the abdominal wall. The uterus was free; there was nothing abnormal in the pelvic roof; there was no albumen in the urine. On July 12th the abdomen was opened in the middle line by an incision three inches long through somewhat dense tissue, when a cyst was found adherent to the abdominal wall, the omentum, and on the left to about four inches of small intestine. The adhesions were separated and the cyst removed; there was no pedicle, and on examining the pelvis

the right ovary was absent. The Fallopian tube could not be traced. The patient made a good recovery. The cyst weighed nine ounces and a half, was crinkled, dull, and dense, its walls were an eighth of an inch thick, irregular, and the interior contained about nine ounces of thin grumous fluid. It would appear that there was originally a large cyst; that this, probably containing clear fluid, had ruptured, giving rise to the inflammation of the bowels spoken of by the patient; that the cyst diminished in size, became adherent to the place I have mentioned by the activity of the inflammatory action; that, becoming fixed, it gradually dragged away from its attachment to the broad ligament, this stretching being favored by the constant movement of the intestines, until at last it established itself by a prescriptive right of possession to the new situation it had acquired. Probably as a result of the inflammation of its walls, and in some measure owing to the low vitality, its connection must have permitted, there was free supuration in the interior, which, finding its way in the direction of least resistance, the pus was let out when it showed signs of coming through the abdominal wall. After this there was an abeyance of acute symptoms, but the tumour remained with a future before it upon which we may speculate as probably that of a passive existence.

CASE 2.—Miss S—, aged eighteen, pale, strumous-looking, stated that she was brought up in the country until a year ago, when she came to live with some relatives in Birmingham. Before leaving home she had a bad attack of "inflammation of the bowels," and was confined to bed for some weeks; since then she has never been well and strong. Has been irregular, and suffered from occasional attacks of pain in the lower abdomen and right side; this was always most during menstruation, obliging her to lay by for some days. On Oct. 23rd, 1882, she got wet, and went to bed with indications of an ordinary cold. On the 25th she had a shivering with acute pain in the abdomen. Dr. Lewis was sent for, and the pain relieved by hot fomentations and opium. On the 26th I saw her with him; she then had constant sickness, pain and tenderness over the abdomen, particularly in the right iliac region; quick pulse and high temperature. Per vaginam the uterus was fixed, the pelvic roof hard throughout; by the rectum the pelvic contents were represented by a general hardness, through which definition was impossible. Her urine was free from albumen. On the morning of the 28th she was seized suddenly with an intense aggravation of the abdominal pain, with collapse. The abdomen was distended and exquisitely tender; there were profuse sweating and general torpor, the tongue dry, pulse 130, temperature 102° F. She never rallied, and died on the 29th at 1 p.m. On the following morning a post-mortem was made by Dr. Lewis. On opening the abdomen there were signs of general peritonitis; the intestines were dull, slightly adhering in some parts, more firmly in others, with here and there patches of recent lymph. On the right side of the pelvis the parts were matted together by inflammatory adhesions. To the inner aspect of the cæcum, adhering to it, to the omentum, and to the adjacent coils of small intestines, was a cyst the size of an orange, smooth where not attached, and tailing off with a band like a pedicle into the thickened mass on the right of the uterus, in which by careful dissection no trace of an ovary could be found. The cyst contained between two and three ounces of thick yellow pus, and at its lower part was a small opening through which this had ruptured into the peritoneum. The cyst wall was dark leaden-colored, about two lines thick, denser in some parts than others; and over one side

could be traced a band, which terminated irregularly like the end of the Fallopian tube. The inner surface was roughened and irregular. The left ovary was enlarged, and the Fallopian tube on that side distended and containing pus. The uterus was small and hard, intimately connected by adhesions with the rectum and surrounding parts. Read by the light of this history, the explanation seems to be that this girl had an ovarian cyst, which became adherent during the attack of the so-called inflammation of the bowels a year before; that it subsequently suppurated, and was associated with a condition of chronic pelvic peritonitis; that it became separated and transplanted, eventually ruptured and caused death. That such a state of parts in the pelvis is not inconsistent with a tolerable condition of health and ability to pursue the ordinary avocations of life we have occasional clinical knowledge. One case I remember seeing at the post-mortem of a young person who died of peritonitis after a few days' illness: the ovary was dilated and filled with pus, which had burst into the peritoneum. The abscess of the ovary was evidently of old standing, and yet within a week of her death the patient was going about as usual.

CASE 3.—Mrs. T—, aged thirty-three, fair and healthy-looking, four children, the youngest five months old, came as an out-patient to the General Hospital on Oct. 27th, 1882, with the following history:—She stated that her health had always been good until after the last confinement, when she noticed a swelling on the right side of the abdomen, which was gradually getting larger; it was not painful, and only affected her by the inconvenience of its bulk. On examination, the abdomen was smooth and tense, larger in the right half, fluctuating throughout; no solid matter felt. The uterus was drawn up to the right, and measured three inches; no albumen in the urine. Diagnosed large unilocular cyst of the right ovary. The patient was advised to wean her baby, and come again in a month's time for operation. She was admitted into the hospital on Jan. 5th, 1883, having written to say that she had been detained by a bad attack of "inflammation of the bowels," for which she had been in bed a fortnight; this came on suddenly in the night, after going to bed in her usual health. On examination, I was struck with the change in the appearance of the abdomen from the time of her last visit. Instead of a uniform distension, smooth, tense, and fluctuating, there was now a prominent bulging in the middle of the abdomen, below the umbilicus. This was manifestly adherent to the inner wall, the surrounding parts being lax, and the skin quite loose. It was about the size and shape of a "Rugby" football. On Jan. 11th the cyst was removed. It was adherent to the anterior abdominal wall, the omentum, and to about three inches of small intestine; its lower border was connected by a pedicle which had rotated round from the right forwards, and over to the left for about three turns, presenting the appearance of a twisted umbilical cord. The connection with the broad ligament and right side of the uterus was shelled off by the fingers from an area of organizing extravasation; there was no ovary. The cyst was olive-green colored, smooth externally; it weighed thirteen and a half ounces, and contained seventy-four ounces of port-wine colored fluid; its walls were thick and puckered, its interior irregular. A glass drainage-tube was put in the abdomen and retained for five days, during which time eight ounces of sanguinolent fluid were taken away. The temperature was never more than a little over 99°, and the patient has made a capital recovery. A similar explanation is applicable to

this case from the course in which events were noted with a reasonable probability of sequence. There was a large thin-walled cyst; this ruptured in the night; the cyst collapsed and became twisted round on its pedicle; peritonitis succeeded from the quantity of escaped fluid, then came adhesion, arrest of circulation by the torsion with transudation of blood in the interior, and final separation with transplantation away from the primary source.

CASE 4.—Mrs. P——, aged thirty-three. This case is recorded in *THE LANCET* in 1877. There was a large single cyst which was tapped on Feb. 18th, sixteen pints of fluid being withdrawn; on March 3rd it was removed, the patient making a good recovery. In this case the pedicle was rotated for two complete turns; there were recent adhesions to the omentum, anterior abdominal wall, and small intestine. The cyst weighed 1 lb. 9 oz., was shrunken, dark livid colored, and contained half a pint of dark colored fluid. Here the mechanism by which the result was produced was identically the same. A large single cyst was tapped; it collapsed, drifted from its moorings; under the influence of soft elastic pressure from constantly moving intestines it became twisted round on its stalk; peritonitis gave the conditions for the adhesion which was present, and transplantation was practically complete. The twisted pedicle no longer afforded a link for the vital connection, but, with the principle of true conservative reparation, delayed its final separation, while the cyst was forming adhesions by which it was destined to find an independent existence.

CASE 5.—F. V——, admitted to the General Hospital on Feb. 17th, 1883, with the following history. Has been ill for two years with pain in the left side of the abdomen, which has been gradually increasing in size. Sixteen weeks ago, while sitting still she was suddenly seized with pain in the abdomen; this was followed by an attack of severe inflammation of the bowels, for which she has been in bed ever since. Five weeks ago she was seen by an eminent surgeon, who diagnosed hæmatocoele, and aspirated through the abdominal wall; rather more than six pints of dark-colored fluid, mixed with blood, were taken away. The pain and swelling still continued. On admission the abdomen measured thirty-one inches round; from the umbilicus to the left superior spine, five inches and three-quarters; to the right the same. On Feb. 22nd, the abdomen was opened, and a cyst formed of the right ovary was found adherent to the abdominal wall, the omentum, and about four inches of small intestine. The walls were about one-eighth of an inch thick, and dark-olive-green colored; the cyst weighed 1 lb. 3 oz., and there was about five pints of port-wine-looking fluid in the interior. The pedicle was twisted two and a half times, was friable, and easily disconnected from its attachment, which was in the process of separation. The abdomen was drained and dressed antiseptically. She made a good recovery.

In the cases I have narrated it will be seen that the four operated upon recovered, that there was a close similarity in the history as given in the accounts of the patients themselves, and in the symptoms exhibited. In the remaining one it would have been hopeless to have attempted any operation from the extent of the chronic pelvic peritonitis which was lighted up by the rupture of the pus-containing cyst, and the extreme condition of the patient at the time the consultation took place. That large thin-walled cysts may burst, giving rise to temporary disturbance, and ultimately disappear, is now well known, but that under certain conditions transplantation may take place there

has not been as far as I know any clinical record. In the *Edinburgh Medical Journal* for January, 1861, is a paper by Professor Turner, of which he was kind enough to send me a copy. He there relates a case found in the dissecting room in a woman aged seventy-nine, where an ovary the size of a foetal head was transplanted to the peritoneum covering the first and second lumbar vertebrae. He also quotes an essay by Rokitsansky upon the same subject, mainly setting forth the effect of peritoneal inflammation in intra-uterine life. In a paper on mesenteric and omental cysts by Mr. Knowsley Thornton, in the *British Medical Journal*, December 23rd, 1882, is a case which appears to be in support of my observations; a left dermoid cystic ovary was twisted off from its pedicle and became adherent to the omentum on the right side from which its nourishment was derived.

Birmingham.

A CASE OF LARGE FEMORAL HERNIA,

WHERE SUDDEN RUPTURE OF ITS COVERINGS OCCURRED, AND A PORTION OF INTESTINE WAS PROTRUDING FOR SEVERAL HOURS BEFORE REDUCTION.¹

By BERNARD PITTS, F.R.C.S. Eng.,

Assistant Surgeon, St. Thomas's Hospital.

THE following case is a very unusual one. I have not heard of any similar accident. It is also certainly rare for recovery to take place when the intestine has been so much manipulated and so long exposed. The patient was admitted last December into St. Thomas's Hospital, into one of Mr. Mason's beds. I operated on her as a case of urgency. I am indebted to Mr. Mason for allowing me to continue in charge of the case.

Frances V——, aged forty-six, a laundry-woman, has suffered from a right femoral hernia for twenty years. She wore a truss till three years ago. On Aug. 30th, 1880, she was admitted into Guy's Hospital with symptoms of strangulation of three days' duration. She had not worn a truss for a year previously. An operation was performed by Mr. Jacobson. The sac was very thick and intestine dark. She left the hospital on Sept. 27th, wearing a truss. The hernia at the time of operation was about the size of two fists. For one year after this she kept up the hernia with the truss, but subsequently the great increase in the size of the hernia rendered the truss useless. During the last winter she has suffered from a bad cough, and the hernia became as large as a child's head, but always reducible. Several small ulcers formed on the skin, which caused her to leave the truss off altogether. About nine o'clock on the evening of the 4th of last December the patient was going upstairs in her home at Kennington, when, whilst sneezing violently, she felt something give way suddenly in her right groin. She became very faint, but managed to walk to her bedroom, and then discovered that about a foot of intestine had escaped through a rent in the coverings of the hernia. She made an attempt to return it, and sent for her medical man, who tried taxis for a short time, and then advised her removal to St. Thomas's Hospital. She was brought to the hospital in a cab on a cold and frosty night. I saw her directly on her admission at twelve o'clock. She was an extremely stout woman, and suffering then from severe shock. An examination under ether was at once made on the bed, and one foot and a half of small intestine was found protruded through a rent in the skin, about an inch long, and situated a little above the old

¹ Read before the Medical Society of London, Feb. 19th.

operation cicatrix. There were one or two chronic, small ulcers to be seen on and near the lower part of the cicatrix. The exposed intestine was bruised, congested, dirty, and very cold. A number of hairs and foreign particles were removed from the bowel and mesentery, which was then carefully cleansed with warm carbolio lotion. Failing to get the bowel back by taxis, the opening in the skin was enlarged freely, and a large quantity of small intestine escaped from the sac, at least four or five feet, together with the cæcum. A slight enlargement of the crural ring was made with the hernia knife, and by patient manipulation the intestines were returned into the abdominal cavity. A sponge was placed in the opening, and the very thickened sac was dissected from its surroundings and removed; this involved the ligature of a considerable number of vessels. The sponge was then removed, drainage for the peritoneal cavity provided, and the cut edges of the sac brought together by very stout catgut. A large portion of redundant skin (including the cicatrix and the ulcerated parts) was then removed, and the edges of the wound brought together by silk sutures, and the wound dressed with carbolio gauze. The patient slept a little during the night after a subcutaneous injection of morphia. On the morning of Dec. 5th the wound was dressed, the temperature being 100.4°. In the after-part of the day the breathing became very labored. Pulse 132; temperature 102.4°; great lividity of countenance. She was propped up in bed and brandy administered. The urine was found albuminous. The subcutaneous injections were discontinued.—6th: Breathing decidedly better, but cough very troublesome. Temperature normal. The wound was dressed and the abdominal drain removed. After this she made a slow recovery, the temperature never reaching higher than 100°. She has been for some time convalescent and is wearing a truss.

Remarks.—It certainly seems difficult to understand how such an accident as happened to this woman was possible. By a mere effort of sneezing a thick sac and free movable, though stretched, skin were split. The rent had much the appearance of an incised wound; it occurred at a part where the skin was perfectly sound, but close to the cicatrix of the former operation. I imagine this would be a point more likely to give way than the cicatrix itself, because it was the junction, as it were, of the new cloth with the old, and where the movable part of the skin joined the adherent. The case is interesting also in a medico-legal aspect, for supposing the patient had been unable to give an account of the occurrence, suspicion of violence must necessarily have arisen. In the treatment of the case the most important point was to thoroughly cleanse the protruded parts and then to get them back as quickly as possible into the abdominal cavity. In order to avoid increase of shock I operated on the bed at the time of the examination of the patient, and did not use the spray. Drainage of the peritoneal cavity was provided, because it was thought that some peritoneal inflammation might necessarily be expected. The latter part of the operation—viz., attempting a form of radical cure—occupied a good deal of time, and must undoubtedly have increased the shock to the patient, but was necessary on account of the very violent cough from which the patient was suffering; and, moreover, the woman is now in a much better condition than she was before the accident occurred. The hernial opening is now perfectly under the control of a light truss, and with proper care the hernia ought never to attain to anything like its former inconvenient dimensions. I believe also, that by getting rid of a large sac and redundant skin, the chances of continued

suppuration are much lessened, and where there is a large hernial opening, the ligature of the neck of the sac diminishes the danger of inflammatory extension from the wound to the peritoneal cavity.

When the sac has been opened in cases of strangulation occurring in large umbilical and scrotal herniæ especially, a great deal of improvement in the after-condition of the patient may be effected by taking redundant parts freely away. In August, 1881, a man was under my care with a very large femoral hernia, the largest I have ever seen, quite as large as a man's head. It had been irreducible, and was of about the same size for many years. I had to open the sac for symptoms of obstruction. After taking away a quantity of omentum, and replacing the intestines, I dissected out the sac, removing a portion of sac and skin corresponding, which measured about thirty inches in circumference. I was fearful at the time whether the abdomen would tolerate the continued presence of so much intestine that had been in the habit of dwelling outside. The man made a good recovery. I have seen him frequently since, and he has been able to keep up the rupture with his truss. He has therefore parted with a most inconvenient burden. The sac in a very old-standing hernia is so thick that union of its edges forms a very firm support. The success that followed in this case determined me to pursue a similar course in the case here recorded.

CASE OF RAPID ACUTE MENINGITIS, WITH DEATH.

By ERNEST F. NEVE, M.B. Ed., M.R.C.S.,
Resident Physician to Cowgate Dispensary, Edinburgh.

On Tuesday, Nov. 28th, 1882, I was called to visit G—, a girl aged about eight years. None of the past history in the least concerned the present illness; the child had been perfectly healthy, although exposed to great vicissitudes—want of food, cold, etc. The immediate previous history was as follows. In the morning of the day of my visit, on rising, the child complained of a slight pain in the left side of the neck. As she soon ceased to complain, the mother paid but little attention to her. During the morning the child was running about, and seemed, as the mother said, perfectly well. In the middle of the day she lay down on the bed and fell fast asleep. About two or three hours afterwards, the mother, who wanted to go out, found some difficulty in waking her; she seemed drowsy, spoke indistinctly, and was indisposed to move. However, she got up and went out at 5.30 p.m. and sang in the streets till 7 p.m. It was a very cold day. About that time the child left her mother's side to get change for sixpence, and did not return. After ten minutes' time the mother went in search of her, and found her lying on a door-step unconscious and somewhat delirious, talking about "sugar-candy, and all kinds of things." A bystander put the child into a cab, and she was conveyed home. The mother says that she remained in the same condition till I saw her at 9.30 p.m. She was then lying on her left side, with the knees and arms flexed and drawn up, and the muscles of the neck contracted. The cheeks were slightly flushed, the expression of the face that of repose, the eyes closed, not tightly. There were no movements of the muscles of the face; the head was warm, but not hot; the temperature was 100.5° in the axilla; the body felt hot, the feet and hands cold; the respiration was regular and deep, not stertorous, 25 per minute; the pulse was 100 per minute, extremely feeble, and hardly perceptible.

the cardiac impulse was also excessively weak. The left pupil was widely dilated, the right markedly contracted; both reacted to light, and the left contracted when a light was held before the right. The child was quite unconscious. When moved over on the right side, however, she groaned. When the head was firmly touched, or the neck moved, she said once or twice, "Oh, dear!" and moved her hands up as if to remove the annoyance. There was no evidence of either fracture or bruise on examination of the head. I ordered a blister for the left side of the head, a drastic purge of jalap, and hot bottles to be applied to the feet.

The child's death, which occurred next morning at 9 A.M., was immediately preceded by two or three convulsive fits. After one of these I am told that she vomited some yellowish material, possibly the powder administered the previous evening.

Autopsy, thirty hours after death.—This was refused by the mother. I declined giving the certificate, and the authorities appointed Dr. H. D. Littlejohn to perform it. I was present. The dura mater was firmly adherent to the calvaria at a great many points. When reflected the veins of the surface were much distended with blood. The dura mater was not adherent to the arachnoid. There was a distinct infiltration of purulent matter under the arachnoid, over the cerebral convexity, occupying especially the spaces between the convolutions and extending round to the base. On removing the brain, there was found at its base about half an ounce of sero-purulent fluid, with here and there a puro-fibrinous deposit; this existed especially around the optic nerves. There was no macroscopic evidence of tubercle. The pia mater was injected but not tough. The cortical substance was rather soft. There was scarcely any fluid in the ventricles and no further evidence of any lesion.

Remarks.—The chief points of interest in the case are:—1. The rapidity of the onset of the disease and the absence of prodromata, except the slight cervical pain. 2. In the character of the first stage there was a marked absence of the usual symptoms. There was no twitching of the muscles, no vomiting, no evidence of paralysis, even of the third nerve, except as far as the dilatation of the pupil on the left side was concerned. When seen at 9.30 P.M. the temperature was 100.5°. There was no ground for supposing that the child had a headache. The child, according to the mother's account, remained in the same condition during the night. 3. She seems to have passed into the comatose state the following morning, this condition being preceded by the convulsive attacks and vomiting. After an extremely brief duration of this stage she died in a convulsive fit, according to the account of the mother.

Whether the disease had been latent for some days and the mother inattentive to the child's condition, I cannot say. I can see no evidence to lead me to consider it a case of exacerbation of pre-existing tubercular meningitis. The evidence, such as it is, points, I cannot help thinking, to the exposure to cold as the exciting cause of the disease.

Edinburgh.

A NOTE ON THE CURABILITY OF CEREBRAL ANEURISM.

By JAMES GREY GLOVER, M.D.

It is always a pleasant thing to record recovery from the gravest lesions, even when nature has all the credit of the cure. For this reason I publish the

following part of a letter received some time since from a medical friend in the United States in reference to the death of a dear relative. I do so with the more satisfaction, as Dr. Welch, of New York, is the pathologist answerable for the post-mortem examination. I need make no apology for the letter-like form in which the facts are vividly expressed:—"—died of an aneurism of the internal carotid artery. Nine years ago she had an aneurism of the internal carotid artery, which ruptured; the blood extravasated at the base of the brain was absorbed, and she recovered—a thing unknown, spontaneous cure of aneurism of internal carotid. She then enjoyed nine years of uninterrupted good health. A second aneurism developed near the old one, just as the vessel leaves the carotid canal at the base of the brain, within the cranial cavity, of course. The only symptom she had during her illness was paralysis of the third cranial nerve. We had hoped this paralysis was functional, not suspecting an aneurism, and never having fully understood the nature of the cerebral trouble nine years since. She was perfectly well until three weeks before her death, when she was taken sick. She suddenly became unconscious, and remained so for twenty minutes. She came out of this, and the attack passed off, leaving only ptosis, dilated pupil, and strabismus. Ten days later she had another attack, similar to the first, but more severe. From this attack she rallied, but the third attack followed. She became suddenly unconscious, and remained so fourteen hours. When she died Dr. Welch made the autopsy, which revealed the aneurism which had ruptured, and the obliterated sac of the old aneurism which ruptured nine years ago. This, I believe, is the only case of its kind on record."

CASES ILLUSTRATING THE SURGICAL DISEASES OF CHILDREN FROM THE HOSPITAL FOR SICK CHILDREN, PENDLEBURY.

By G. A. WRIGHT, M.B. Oxon., F.R.C.S. Eng.,

Surgeon to the Hospital, and Assistant-Surgeon to the Manchester Royal Infirmary.

CASES OF NECROSIS OF THE PATELLA LEADING TO DISEASE OF THE KNEE-JOINT.

CASE 1.—Ambrose C—, aged eight years, was admitted in December, 1881. In June of the same year he fell from a wall, but did not feel any serious ill effects till a month later, when his knee swelled and he became lame; there was also some redness and tenderness about the joint. Under treatment his condition improved, but he had not got quite well when, five weeks before admission, he was kicked upon the same knee, fresh inflammation was lighted up and an abscess appeared which discharged three weeks after the second injury. His general health somewhat failed, but he had no great amount of pain and no night startings. On admission he was a not unhealthy-looking boy. The right knee was considerably swollen, but the swelling was almost entirely limited to the tissues around the joint, there being but little effusion apparent within it. Three sinuses were seen on the front and sides of the knee, and these freely communicated with one another. A few days after admission the sinuses were slit up and drained and the limb fixed upon a back splint. He did fairly well for a week, when the knee became more swollen and tender, and the boy's temperature rose to 102°; the superficial wounds were then swabbed out with chloride of zinc, and the joint freely laid open on each side. The incisions gave exit to a considerable quantity of lymph and

flaky serum. The synovial membrane was swollen, but the cartilage seemed healthy except at one circular spot, about half an inch in diameter, in the centre of the patella; here a perforation existed which ran completely through the bone and communicated freely with the openings on the front of the knee. The wounds were dressed antiseptically and pressure with sponges employed. Some burrowing of pus took place a few days later in spite of apparently free drainage. Counter-openings were then made, and the case went on fairly well, though it was questionably aseptic; the openings, however, never healed, and the sinuses assumed that indolent intractable character so common in cases of chronic joint disease in children, and in spite of various modes of treatment, the boy at his discharge was not in a satisfactory condition. He was sent to the seaside in an immovable apparatus, and allowed to get about with crutches, but was finally lost sight of.

CASE 2.—John —, aged seven years and three months, was admitted in July, 1882. Ten weeks before he was first seen he received a blow upon the left knee, and the joint became painful and weak from that time, but there does not appear to have been any acute inflammation, and it did not discharge until five days before he came to the hospital. His health had not been so good since the accident, and there was a family history of phthisis. On admission the left knee-joint was found to be swollen and fluctuating, the swelling mapping out the synovial sacs, and bulging in the popliteal space. The skin was somewhat red, and the veins were turgid, but there was very little tenderness. A sinus, which was scabbed over, was seen over the front of the ligamentum patellæ. The limb was in good position. Six days after he came in the sinus was explored, and found to lead to the upper surface of the patella. On laying open the track a sequestrum of the size of a damson stone was found loose in the centre of the bone, and on removing it a perforation into the joint was seen. The joint was laid open freely on each side, and the finger could then feel the orifice on the articular surface of the patella, corresponding to the external opening. Much thin serous fluid and solid creamy masses of coagulated lymph were squeezed out of the joint. The operation was done under carbolic spray, and rubber drainage-tubes and sponge pressure employed with the usual dressings. The temperature did not reach 100° after the second day from the operation, and he was discharged with a small superficial wound at the end of August, eight weeks after admission. Soon after his discharge passive movement was attempted, but there was still a good deal of swelling about the joint, and not much progress was made. In October he was put under chloroform and the joint examined; it was found that very firm and extensive adhesions had formed within the joint, and it was finally decided that these and the continued thickening of the tissues made it wiser not to attempt anything better than a straight stiff limb, especially as the remains of the patella were fixed somewhat firmly to the femur. The wounds were all at this time soundly healed. He was seen again in January, 1883, and the limb remained in much the same condition, a good deal swollen, but painless and slightly movable. The wounds had remained sound.

Remarks.—In *THE LANCET*, in 1878, Mr. Gay records a case in which he removed the whole patella for necrosis. In this case the bone was apparently bare, except that a portion of the articular cartilage remained undetached. Mr. Gay gives references to four other cases: (1) That of Thirion of Namur; here, too, the whole patella in a young subject was removed for necrosis after a fall, the

patient being of strumous constitution. In this instance, as in my cases, the patella appears to have been perforated, though a much larger part was removed than in my patients. The joint was found full of granulation tissue, and the limb ultimately was apparently in nearly the same condition as in my second case.¹ (2) Knöde, of Missouri, published a case in which after a fall on ice some sloughing of the skin, and ultimately necrosis of the patella, followed. The whole bone was removed, the cartilages of the joint at the time of operation were apparently normal, and the limb recovered a great part of its natural mobility. (3) Mr. Wood, of King's College, removed the whole patella as a loose sequestrum from a girl aged seven. Here the necrosis was pyæmic. (4) Dr. Gross, of Philadelphia, has also removed the patella for necrosis after frostbite. The patella has also been excised for dislocation of the bone, with consequent pain and uselessness of the limb. Mr. Erichsen, in his book, mentions a case where necrosis of part of the patella followed a fracture, and the sequestrum was removed by him with good result. I can find no cases other than those recorded. Periostitis of the patella from injury resulting in exfoliation is, I imagine, not a very rare condition; and though I have not found a record of a case, I have been informed by Mr. Clegg, one of the house-surgeons at the Manchester Infirmary, that he remembers seeing an instance at the out-patient department some eighteen months ago. Syphilitic periostitis is certainly not very uncommon; two well-marked cases I have seen myself, but these were not followed by necrosis. I have not, however, been able to find any record of cases corresponding exactly to mine, where, it appears, osteomyelitis of the ossifying nucleus of the patella occurred, leading simply to circumscribed perforation of the bone, and consequent destruction of the joint. The opening in each case was singularly defined and circular, and surrounded apparently by healthy cartilage. In the first case the opening was small, perhaps half an inch in diameter, and probably the whole of the ossified part was not destroyed; no actual sequestrum was found. In the second case a sequestrum was removed, and the perforation was somewhat larger than in the first boy. The condition I have ascribed to osteomyelitis, and this I think most probably correct. I should compare it to the common epiphysitis we see in children; it is, however, no doubt quite possible that the primary condition is periostitis, which, from the greater vascularity of the ossifying centre, affects the bone rather than the adjoining cartilage. There was no reason to suspect a syphilitic taint in either case.

I am indebted to the resident medical officer for the notes of these cases.

ON THE FORMATION AND PREVENTION OF BEDSORES IN NERVOUS DISEASES.

By THOMAS BROWNE, M.D.,

Staff Surgeon to the Royal Naval Hospital, Great Yarmouth.

(Communicated by the Director-General of the Medical Department of the Navy.)

In the following paper on the formation and prevention of bedsores I will first refer to some of the views put forth to explain their occurrence in connection with diseases or lesions of the nervous system.

Sir James Paget long ago pointed out that sloughing of compressed parts is peculiarly rapid and

¹ Vide *THE LANCET*, 1820.

severe when those parts are deprived of nervous force by injury of the spinal cord or otherwise. Charcot refers to experiments made on animals where ulceration occurred in parts paralyzed by section of their nerves, and quotes the observation of Brown-Séquard that these ulcers or sores are produced by prolonged pressure and the contact of faecal matter and decomposing urine to which the parts are exposed. He adds, if the parts are carefully and effectually protected from injury, lesions whose consequence is the abolition or suspension of the action of the nerves are impotent to produce in distant parts other nutritive disturbances than those attributable to prolonged inaction. Drs. Bucknill and Hack Tuke say that the formation of bedsores depends on the cessation of nutrition and consequent death of the tissues, and the blood contained in them, from obstruction of nervous force; and they mention some cases of general paralysis of exceptional severity where the thick fleshy cushion of the gluteal and lumbar regions were extensively involved in a way that bore a strong resemblance to traumatic gangrene. In these cases the slightest pressure produced sloughing: the weight of one leg crossed over the other in bed, or the weight of the hand or the forearm lying on the abdomen. In such cases as these, decomposition had set in while the vital functions were still languidly performed.

As a loss of mere sensation or motion will not of itself produce bedsores, it has been suggested that a lesion of the sympathetic and vaso-motor system of nerves might explain the rapid formation and extension of these much-dreaded sloughs. I may say, in passing, that the sympathetic system of nerves has in later years risen into importance and prominence. Its functions are not well understood, so that we are apt to look on it somewhat in the light in which a commander-in-chief does a good staff officer whose duties are ill-defined, but who is quite ready to be saddled with any odd job that seems to belong to no one else. We know that neuro-paralytic hyperæmia, however far it may go, is never of itself sufficient to cause an alteration in the nutrition of tissue. It predisposes to inflammatory action, and this is lighted up by causes which would be comparatively trifling in a healthy organism. Charcot expresses in strong language the opinion that the formation of acute bedsores depends on lesions which determine either in the nerves or nervous centres an exaltation of their properties, an irritation or an inflammation. He says they develop especially in those regions which are subject to pressure, to friction, or to prolonged contact with urine; but they may also make their appearance apart from these conditions, although the cases are rare. This view is concurred in by Mickle, who says the tissues melt down more rapidly or slough under acute trophic disorders of central or spinal origin.

In the course of this paper I trust to be able to show that bedsores, in nervous diseases, at any rate; except in very rare instances, may be entirely avoided. As my experience in the successful prevention of bedsores has been nearly confined to cases of general paralysis, my remarks will chiefly have reference to that disease, though I hope some useful deductions or wider application may be drawn. In general paralysis bedsores were formerly of common occurrence; indeed, towards the closing scenes, they were nearly the rule, their appearance was looked on as inevitable and a matter of course, hardly calling for observation or record. Some very dreadful pictures are drawn by various authors of their character and extent, as well as the septic poisoning that followed, till the patient became a mass of sloughs, a foul and offensive object to all about him. Happily, in

later years a great improvement in this respect has been effected by all who have had the care of such cases, till a bed sore is now the exception in patients dying of general paralysis. Those who have seen much of this disease knew well how profoundly the vital powers are lowered towards the end of a long case. Though healing may, and often does, rapidly occur in the less advanced stages, yet when the last stage is reached how slight is the hope that a bed sore will ever heal. I mean in that condition where the patient lies helpless, speechless, paralyzed in every limb, just able to swallow the food placed in his mouth, apparently insensible to all around him, and quite unconscious of the performance of the natural functions. There is little or no response to any stimulus; with a lowered temperature the circulation creeps sluggishly on, having barely strength to reach the more distant parts of the body, so that if at any point it meets with the most trifling obstacle it simply stops. There is then, as Bucknill and Tuke express it, a "cessation of nutrition, and the consequent death of the tissues and the blood contained in them." In this condition bedsores are very apt so form unless the greatest care is observed. But there is another phase of the disease in which bedsores occur with readiness, where all our skill and attention will be fully taxed to prevent their formation—namely, during those nerve-storms in general paralysis, often recurring and of varying intensity and duration, which arise in connection with the epileptic fits so common in this disease. Here everything is the reverse of the foregoing dull picture of inert life, failing powers, low temperature, and languid circulation. There is, on the contrary, an exalted condition of everything, except to external impressions. There are high temperature, rapid pulse, and frequent convulsions, combined with profound insensibility, lasting it may be for days. The difference between these two states has been often pointed out, and is very marked; and each of them has a bed sore with a distinctive character. In one the sloughs are slow in formation, have little or no inflammation, appearing after prolonged pressure, as if the result of functional inaction alone. In the other the lesions are rapid in formation, and are ushered in by the appearance of blisters or other signs of irritation or inflammation. One consists of passive lesions; the other of trophic disorders. In each of these varieties there is something more than mere trophic change, as these sloughs only occur where pressure is added, and not, as in necrosis or ulceration of the cornea, following some injuries or diseases of the trifacial nerve.

For the prevention of these lesions I have nothing new or startling to introduce. I will only plead for a more careful application of those general principles which guide us in the treatment of other affections, modifying and adapting them to the special requirements of the condition before us. In the first rank may be placed careful feeding, cleanliness, diffusion of pressure, and the maintenance of an equable temperature in the extremities by the application of artificial heat where necessary. By careful feeding I mean a liberal mixed animal and vegetable diet of an ordinary character. So long as a patient is able to masticate, and can safely swallow his usual food, it is best for him to do so, for the digestive functions seem to last after all else is a ruin. When the paralysis has advanced too far to allow solid food to be given with safety, a liquid or semi-solid dietary must be substituted. But it must not consist too exclusively of an animal diet, there must still be the due proportion of vegetable matter, and vegetable juices. Such can be easily and pleasantly given

in soup, which should ever form part of the diet of a general paralytic.

In most of the books to which I have had access it is assumed that it is quite impossible to keep general paralytics clean and sweet. In my experience this is not so, but careful feeding is necessary as well as the most scrupulous and constant cleanliness to preserve a healthy skin. Probably a diet such as I have referred to may do its share towards keeping the skin sweet. We are all familiar with the disagreeable effect of an excessive animal diet on the skin of a dog. Perhaps our anxiety to sustain the vital powers and the view that a general paralytic in his last stage requires a generous diet with a liberal supply of port wine, may lead at times to the exhibition of a diet too purely animal, and in some measure accounts for the skin becoming dull, dirty, and greasy, despite ablution.

I have made little reference to the use of alcohol in the diet of a general paralytic, because I have a decided opinion that it can seldom be a desirable addition to the diet of a patient laboring under such a disease. It is suggested by some writers that chloral, so often useful in this disease, has a depressing effect, and that it is well to give alcohol in some form or other to obviate that result. But careful observations have shown that the pulse, as estimated by the finger, is not lowered by a moderate dose of chloral. The omission of alcohol in every form from the diet and medicine of patients suffering from general paralysis has been attended with no ill result. The experience gained at this hospital agrees with the observations of those writers who have recently stated that as the consumption of alcohol was reduced, the necessity for chloral greatly diminished, so that now in many hospitals the administration of chloral or other sedative is quite exceptional in cases of general paralysis.

I will now discuss the question of cleanliness, and how it may be most effectually attained. A high authority, referring to general paralysis, says, "They must not be allowed to lie in bed; they must be taken out of bed and thoroughly washed, for in the advanced stages it is difficult to keep them dry, and must sit day by day in an easy chair. If allowed to lie in bed, they very soon contract bedsores." My own experience differs much from this. In the paralyzed and absolutely helpless condition of a patient such as I have sketched when discussing passive bedsores, a mere inert living object, it would hardly be possible to keep him in any form of easy chair. Even did we succeed daily in dressing him and placing him in a chair, he would frequently be wet and dirty, for these patients follow no rule when the helpless stage is reached, and no attention is paid to the action of the bladder and bowels. Besides, the pressure caused by mere body weight in the most easy of chairs for three hours would be sufficient to cause a cessation of nutrition, and consequent death of the tissue on which the pressure fell. Its feeble life would be crushed out. A patient in such a condition is, in my opinion, best in bed, for only there can absolute cleanliness be observed. The patient must frequently be placed in a warm bath, gently washed, and carefully dried by the pressure of the towel, not rubbed, as the vitality is too low for that. There must be no hesitation about changing the patient when merely wet, as urine in contact with the skin acts like an escharotic, destroying its vitality like a blight. If the paralysis is far advanced and the patient helpless, he must be placed on a water-bed on which several layers of blankets and sheets have been laid, and in addition to this, especially during the periods of nervous exaltation and insensibility, his feet, ankles, knees, trochanters, sacral spines and ears,

etc.—in fact, wherever there is pressure—must be protected by cotton-wool padding, so as to diffuse the pressure as much as possible. But in the lowered vitality and nearly stagnant circulation, or whilst the nerve-storm and epileptic condition lasts, this is not enough. Even with all these precautions a bed sore will form wherever pressure occurs, unless the patient be frequently moved, turned from side to side, or the point of pressure varied, in severe cases every hour by day, and every three hours by night, if the patient sleeps. The frequency with which the position is varied must be judged in each case. Special care in padding and frequent change of position are called for during epileptiform and apoplectic seizures, and for some days after their cessation.

The extremities must be examined from time to time and their temperature sustained, if necessary, by the application of warmed flannel or hot-water bags, carefully guarded. Hot-water bags, not bottles, must be used; the former act as padding and diffuse pressure, while the bottles, being hard and resisting, would soon produce the sore we dread so much.

I have made no reference to local astringents or other preventive measures beyond cleanliness and padding. Every medical man has his own favorite application. Most of these are good of their kind, so long as they do not divert our attention from the more general measures necessary, and conceal from view the actual condition of the skin till, perhaps, irreparable mischief has been done. Such, then, is the means by which the formation of bedsores has been successfully avoided. Under gradually improved nursing and careful dieting, bedsores became more and more rare, till they finally disappeared, I hope for ever, from the Royal Naval Hospital, Great Yarmouth. For a period of over four years, under various medical officers, there has been an entire freedom from these distressing complications, though there is a larger proportion of general paralytics here than in any other hospital in the United Kingdom. Some of these cases have been in a helpless, speechless condition, paralyzed in every limb and confined to bed for four or five years, yet there is not an abrasion on their skins, and they are free from all unpleasant odor, and have not become "dull, dirty and greasy despite ablution." Such success can only be attained by the hearty and intelligent co-operation of a staff of good nurses and attendants on the sick, who take a pride in their work and in the state of their patients. We are so fortunate as to have secured such co-operation in this hospital. It is always a pleasure to go into the wards and see the care and kindness so heartily bestowed on these most helpless and miserable cases. Should even a spot of redness appear on any prominent part the attendant is full of anxious thought and busy with little contrivances for the removal or diffusion of pressure, equally ready to carry out instructions or make suggestions such as a ward experience soon teaches any nurse worth having. For the prevention of bedsores a good nurse, with the faculty for taking trouble largely developed, is, above all things, necessary.

I will not be so dogmatic as to say that bedsores are always, and under every circumstance, preventable. I can easily believe in such a profound trophic change or degeneration of the tissues, such a depressed vitality with molecular death before the heart and lungs cease to act, as indicated by a cadaveric smell days before life, at last, flickers out, that, do what we will, the epidermis becomes abraded, and the discolored, inelastic, and already decomposing skin yields and breaks down before every touch. I have never seen a case like this, but I think I have several times seen a condi-

tion not far removed from it in the last twenty-four hours of the life of some of our general paralytics.

OBSERVATIONS ON THE USE OF THE CATGUT LIGATURES.

By E. DOWNES, M.D. Brussels, L.R.C.P. Lond.,

Medical Missionary of Kashmir.

IN THE LANCET in 1881, appeared a paper by Dr. French on the above subject. Dr. French, after recording a case of Mr. Barwell's, published in THE LANCET of July 30th, in which hæmorrhage occurred when the ulnar artery had been tied, and was attributed by Mr. Barwell to the use of a thick catgut ligature, proceeds to give his own experience, which goes far to prove (if proof is still wanting) that the catgut is the best substance for the ligature of arteries. At the same time, Dr. French had observed secondary hæmorrhage on one or two occasions when he had ligatured vessels on the human subject; and on one occasion when he experimentally tied the femoral artery of a dog. He thinks the hæmorrhage may have been due to using a thick ligature, and advises the use of a thin ligature. He says: "To those who are in a position to carry out experiments, I venture to suggest the advisability of determining whether, in many cases, the secondary hæmorrhage is not chiefly due to the employment of catgut ligature of too large a size." I determined to undertake some experiments to satisfy myself on this point. I may say that, with some little experience with catgut ligatures in surgical cases, I have never once had a case of secondary hæmorrhage. I ordered ten healthy dogs to be procured, and determined to tie the femoral arteries of these animals. I had procured catgut ligature from Messrs. Weiss, of London, a year ago. On the bottle they were described as four kinds, the numbers being "0, 1, 2, and 3, as used by Professor Lister." I could only distinguish three kinds; probably the two smallest kinds were much alike, and, having been well soaked in oil, I really could not distinguish them; I therefore called the three kinds which I could distinguish large, medium, and small respectively. The dogs were put under chloroform, and the operations were performed with strict antiseptic precautions. One dog died under chloroform, though every precaution was taken. I may mention that I have observed what I have never seen mentioned elsewhere—viz., that dogs and foxes, and probably all animals of this kind, are easily killed by chloroform, far more easily than human beings. So nine dogs only were operated on; three had their femoral arteries tied with the large, three with the medium, and three with the small catgut ligature. The dogs tore off the dressings from the first day to the third, but some of the wounds healed by first intention; in the other cases the edges of the skin gaped, but there was no suppurative in any case, nor was there any secondary hæmorrhage. I need hardly say that I cut the ends of the ligatures short and closed the wounds with fine catgut sutures. I intended to have killed all these nine dogs three weeks after the operations, but the hospital servants begged for the life of one dog so that he might be kept as a watch dog for the establishment. I consented; so only eight dogs remained to be killed and examined post mortem. The dogs were allowed to live over three weeks. Three had been operated on with large, three with medium, and two with small catgut; the fortunate dog having been operated on with the small.

The result of the post-mortem examinations was

as follows:—1. Large ligature; artery quite blocked; walls of vessel uninjured; no mark left by ligature. 2. Large ligature; artery quite blocked; walls of vessel uninjured; no mark left by ligature. 3. Large ligature; artery nearly blocked, but apparently a small channel open; walls also uninjured. 4. Median ligature; artery quite blocked by a very firm clot; walls quite uninjured. 5. Median ligature; artery closed by a small clot, but channel impervious; walls of artery uninjured. 6. Median ligature; channel quite open; a little roughening in one place of the inside of the vessel, perhaps the remains of the clot; walls uninjured. 7. Small ligature; walls of artery nearly cut through by ligature, but artery thoroughly blocked above. 8. Small ligature; the most complete obliteration of the artery for the distance of about half an inch; walls quite uninjured. In no case was any trace of the ligature to be found; it had in every instance been completely absorbed.

I should mention that in tying the vessels I used three twists, as recommended by my old instructor Mr. Lane, of St. Mary's Hospital, instead of the two twists of the ordinary reef knot. It will be observed that this would make the knot still larger than it would have been, and, according to Dr. French and Mr. Barwell, this would increase the danger of secondary hæmorrhage. Notwithstanding this, I did not have secondary hæmorrhage in any case. The only instance in which the wall of the vessel was injured was a case in which the finest ligature was used. I think that with such fine ligature too much force in tying the knot should not be employed. Probably in my case the vessel would not have been injured had I been more careful; but I used as much force as I should have done with a silk ligature when I wished to cut through the inner coat of the artery. My conclusion is that Dr. French's idea that the small ligatures are safer than the large ones is not correct. I also think that with large ligatures the third twist in the knot is an important precaution. I also feel sure that with large ligatures especially it is most important that thoroughly reliable material should be used. If large ligatures are used moderate force should be employed in tying the knot; but if fine ligatures are used I think it inadvisable to attempt to cut through the inner coat of the vessel.

Kashmir.

ON AN INFECTIOUS ULCERATIVE DISEASE OF SKIN AND MUCOUS MEMBRANE CAUSED BY A SPECIFIC BACILLUS.

By ALFRED LINGARD, M.R.C.S., and

ERNEST E. BATT, M.R.C.V.S.

A DISEASE of the above character having yearly caused considerable ravages among young cattle in this country, portions of the affected organs were received by us at the Brown Institution for examination.

The following are a few points we wish to make known prior to the completion of the research, which is so far advanced that it will shortly be published in full:—The tongue and mucous membrane of the cheeks are the usual localities of the primary lesion. The typical ulcer in advanced cases consists of a sore with free, overhanging edges. On section through the sore, the tongue is found to be necrosed to a considerable depth opposite all parts of the ulcer. Wherever the sore touches any other part of the mouth or cheek, the disease is communicated and rapidly spreads. In some cases similar necrotic changes had taken

place in the lungs. The line of junction of the necrotic with the healthy tissues was found to be occupied by a mass of bacilli having the appearance of a dense phalanx advancing upon the healthy tissues. The disease has been proved capable of transmission by the bacilli in question, which are equally numerous and virulent after passing through several generations by inoculation.

CONCERNING THE EFFECTS OF DILUTION AND CONCENTRATION ON THE ACTION OF POISONS.

By SYDNEY RINGER, M.D.,

Professor of Medicine at University College.

THE persistence of the effects of drugs varies considerably. For instance, very soon after discontinuing the administration of chloroform consciousness returns, whilst after dropping into the eye a minute dose of atropia the pupil remains dilated for days. It is evident, then, that the changes induced by chloroform on the brain are obviated much more readily than the changes induced by atropia in the structures of the eye.

From experiments with the frog's heart, presently to be described, I find that the effects of one drug that completely arrests function are readily removed, whilst with another drug its effect is got rid of with much more difficulty, whilst in the case of a third its influence cannot be got rid of at all. The experiments were performed with Roy's tonometer, by means of which an artificial circulation can be maintained through the ventricle by a syphon action. In each experiment I employed 100 cc. of blood mixture, made by dissolving bullock's blood in saline solution. I took tracings first of the heart's contractions with this mixture, and then added to the whole circulating mass dose after dose of the substance experimented with, until the ventricle lost its contractility and failed to respond to a strong induction shock; then to the whole mass of the blood mixture I added an equal quantity of saline or an equal quantity of blood mixture, so that the same quantity of poison circulated through the ventricle, but in a much diluted form. In case neither dilution restored contractility, I replaced the poisoned blood with fresh unpoisoned blood mixture. These experiments show that the action at least of many poisons depends on the degree of their concentration. A given quantity administered in a concentrated form will act more energetically than a larger quantity in a more dilute form. For example, experimenting with the frog's ventricle, on adding a potash salt to the circulating fluid, the contractility grows less and less, and at last disappears; so that a strong induction shock fails to contract the ventricle. When, however, the circulating fluid is diluted with an equal quantity of saline solution, good contractility speedily returns. In this experiment the contractility returns although the ventricle receives the same quantity of potash only in a more dilute form. Indeed, in the case of the inorganic salts in the blood, this arrangement must prevail, otherwise the functions of the body would soon be all arrested.

In my experiments with the frog's heart, I find that with some salts dilution with saline solution is adequate to remove the depressing effect. With other salts dilution with blood mixture is necessary; and in some cases the poisoned blood mixture must be replaced with unpoisoned blood, producing thus, of course, a very large dilution. For instance, simple dilution with an equal amount of saline solution will restore good contractions in a

ventricle arrested by potassium, ammonium, and sodium salts, extract of opium, ethylic alcohol, extract of muscaria, and liquid extract of jaborandi. Very free dilution—i.e., threefold dilution—with blood mixture removed the effects of veratria; but the substitution of fresh blood mixture for the poisoned blood of course made the experiment far more effective. The substitution of fresh blood for poisoned blood mixture restored good contractions to a ventricle arrested by arseniate of soda. On the other hand, the substitution of unpoisoned blood for poisoned blood mixture failed to restore contractions to a ventricle arrested by aconitia, arseniate of soda, chloral hydrate, and strophanthin. I have thoroughly investigated the effect of dilution on the action of potassium chloride, and now give in detail my experiments.

On April 13th, 1882, I added in one dose 2 cc. of 10 per cent. solution of chloride of potassium, a larger dose than is required to arrest the ventricle, for previous experiments show that on an average 1.5 cc. will suspend contractility (both spontaneous and excited). In about fifteen seconds after the addition of this dose the ventricle stopped beating, and strong faradaic shocks failed to induce any contraction. This dose produced some spasm, which lasted about ten minutes, gradually growing less, and finally disappearing. After an interval of forty-eight minutes, during which time the ventricle did not beat spontaneously nor respond to very strong induction shocks, I added to the circulating blood 100 cc. of saline. In a little over four minutes induction shocks with the secondary coil at 0 excited weak contractions, which grew gradually stronger, and could then be induced by a weaker excitation. Ten minutes after the first addition of saline I added another 50 cc.; fifteen minutes after the first addition the ventricle beat good spontaneous contractions, almost as good and quite as frequent as before the operation. However, on applying continued faradization to the ventricle, the secondary coil standing at 2, I arrested the spontaneous contractions and brought the ventricle to a standstill, but on discontinuing the faradization it at once resumed contraction. Although, then, the ventricle had to a great extent recovered itself, and gave good and frequent spontaneous beat, it was still so far under the influence of the potash salt that strong continued faradization, instead of exciting tetanus as in an unpoisoned heart, arrested the spontaneous beats. I then added another 100 cc. of saline, and the contractions continued as strong and as frequent as before, but still continued faradization arrested the ventricle. I then substituted some fresh blood mixture for the previous circulating fluid, and the contractions became more frequent and not quite so strong, but at this point continued faradization produced imperfect tetanus.

On April 12th I added 3 cc. of 10 per cent. solution. This arrested contractility, notwithstanding the application of a strong induction shock, in about twenty seconds. This large dose induced more marked and more persistent spasm than in the previous experiment. In thirty-three minutes I added 100 cc. of saline solution, and in four minutes a similar quantity. In ninety seconds after the last dose contractions returned, and became good, but, as happened in the last experiment, continued faradization arrested them. On another occasion, after suspending contractility by the addition of 1.5 cc. of the chloride of potassium solution, I allowed an hour to elapse before adding 100 cc. of saline. In a few seconds good and frequent spontaneous contractions set in, though less strong than before the addition by the salt. At another time, after the addition of 1.3 cc. of potassium solution the ventricles remained for

twenty-four minutes incapable of contraction, when I added 100 cc. of saline, and in a few seconds good spontaneous contractions ensued, contractions as good and as frequent as before the experiment. I then adopted another testing method. I employed the usual 100 cc. of the blood mixture, but diluted it with 100 cc. of saline, and then from time to time in small quantities added a 1 per cent. potassium chloride solution till strong induction shocks could no longer be produced. In two experiments I found that 37 cc. and 36 cc. were required to arrest the ventricles. I used double the amount required, when only half the quantity (100 cc.) of circulating blood is used. On another occasion I employed 100 cc. of blood mixture with 200 of saline; 52 cc. of the 1 per cent. solution were needed to arrest contractility, or rather more than three times the quantity required to arrest contractility when only 100 cc. of circulating blood is employed.

Next tried a third method. By the addition of 1.5 cc. of 10 per cent. solution in successive doses I arrested the contractility, and then added 100 cc. of saline; good spontaneous contractions ensued. I then again arrested the contractility by the further addition of the potassium chloride solution and in the addition of another 100 cc. of saline good spontaneous contractions returned a second time. I then a third time arrested contractility, adding more potassium solution, so that in all 5 cc. were added (more than three times the quantity necessary to arrest the ventricle when added to only 100 cc. of circulating blood). I then added another 100 cc. of saline, and again good spontaneous contractions returned, which became arrested on the application of continuous faradization. That the arrest of contractility is due to the concentration of the dose, and not to the amount sent by the ventricle, is shown by the rapidity of the loss of contractility. Thus, on adding to the circulating fluid a single large dose of potassium chloride, enough to arrest or greatly weaken the ventricle, in a few seconds, even before many drachms can have passed through the ventricle, its contractility is suspended, and cannot be re-excited even by a strong induction shock.

The effect of a strong percentage dose is also shown in the following experiment, performed by Dr. Sainsbury. He injected a small dose of potassium solution into the afferent tube leading to the ventricle. It thus was very little diluted with blood, and reaching the ventricle in a concentrated condition, arrested it. The blood, however, following, diluted the potash solution in the ventricle, and contractions soon returned.

It is interesting to note that potassium, sodium, and ammonium salts will suspend for an hour or longer not only spontaneous action, but contractility, so that a strong induction shock will not excite a contraction, and yet on dilution good spontaneous contractions recur. The action of these salts on the heart may be compared to the action of anæsthetics on the central nervous system.

It is probable that substances which affect the heart, according to the degree of concentration, act in the same way on other tissues. If so, then it is obvious that in cases of poisoning by any of these salts, we should give the patient abundant supply of fluids to dilute the poison, and to act on the kidneys and skin, and thus help to carry off the poison from the system. It is feasible, too, that in certain cases this dilution of the blood may be aided by bleeding the patient, and, if necessary, by both bleeding and transfusion, a mode of treating which has been successfully adopted in poisoning by phosphorus, etc. This effect of dilution is, I am told, well known to some who, on

getting drunk, speedily sober themselves by drinking very freely of water.

By the light of these experiments we can readily explain Aubert and Dehn's observations. They arrested the heart of a dog by injecting a solution of potassium chloride into the jugular vein, and then restored contractions by connecting the crural artery of another dog with the jugular vein of the poisoned dog. Here the transfused blood of the unpoisoned dog diluted the blood of the poisoned animal, and so obviated the effect of potash to arrest the heart. I find that cane sugar weakens the contractility of the ventricle, and in large doses will even suspend contractility; but the dilution of the circulating fluid with saline solution restores good spontaneous contractions. In this fact we seem to have an explanation of the use in storing up glycogen in the liver; for if after every meal the sugar were at once poured into the general circulation, the excess of sugar would depress the functions of the body.

The foregoing observations seem to me suggestive of rules for guidance in prescribing medicines. For instance, when giving powerful drugs, like curare, conia, or physostigma, in toxic doses to produce paresis, as in chorea, tetanus, and other paroxysmal diseases, it is better to give small and frequent doses, rather than large and less frequent doses. Should the stomach be empty at the time large and infrequent doses are given they might be absorbed quickly, and produce more marked effects than we might desire. I have seen this occur, I think, in the case of conia. Again, in administering alkalies, etc., to render the urine neutral, or in epilepsy, especially in the case of potassium salts, it is better to give smaller doses frequently, and so prevent the percentage of potash in the blood becoming large enough to depress the heart.

In cases of poisoning we can dilute the blood by drinking fluid, or if that method is impossible, the fluid may be injected into the rectum, or even into a vein or the abdominal cavity. The fluid to be employed should be of such a character that it will not destroy the red corpuscles of the blood, and be the best adapted to sustain the functions of the tissues. Certain experiments recorded in the *Journal of Physiology*, vol. iv., No. 1, show that the heart's contractility can be sustained only by an alkaline fluid containing lime and potash salts—namely, potassium chloride 1 part in 10,000 to 15,000, chloride of calcium 1 part in 5,000 to 10,000. Any other combination of the salts of the blood without lime is incapable of sustaining the heart's contractility. It is fair, I think, to conclude that the salts needful to sustain the heart's contractility are likewise necessary to sustain the contractility of the skeletal muscles, and possibly may be likewise indispensable to the performance of nervous function. I would then suggest as a useful fluid 100 cc. of a saline solution containing .75 per cent. of common salt, with potassium chloride 1 cc. of 1 per cent. solution, sodium bicarbonate 5 cc. of 1 per cent. solution, and calcium chloride 2.5 cc. of 1 per cent. solution. In a recent number of *THE LANCET*, Mr. C. E. Jennings recommends as "an almost perfect substitute for blood transfusion" the following solution: Water 20 ounces, sodium chloride 50 grains, potassium chloride 3 grains, sulphate of soda 2.5 grains, carbonate of soda 2.5 grains, phosphate of soda 2 grains, containing two drachms of absolute alcohol. By means of Roy's tonometer I have tested the action of this solution on the ventricle of the frog's heart, both with and without alcohol, and in the strength recommended, and in double that strength, and find that the ventricle fed with this solution rapidly grows weak and soon loses its

contractility, so that it neither beats spontaneously, nor will it respond to a strong inductive shock.

Now I find that on adding 2 to 2.5 cc. of 1 per cent. solution of calcium chloride, spontaneous contractions soon recommence and become good. I would advise, therefore, the addition of calcium chloride to Mr. Jennings' solution; but as his solution on the addition of calcium chloride becomes cloudy from the formation of calcium carbonate, it is better to use sodium bicarbonate instead of sodium carbonate. In a case of poisoning, after washing out the stomach the patient should drink very largely of one or other of these fluids. If he is insensible, it may be introduced by a tube; but as absorption from the stomach may prove too slow, then, I think, in certain cases it may be warrantable to inject the fluid at a temperature of 100° into the abdominal cavity or directly into a vein. If in a place where no defibrinated blood can be obtained, or if in insufficient quantity, the free ingestion of this fluid will of course dilute the poison in the blood, and get rid of some of it through the kidneys and skin. Whilst we thereby dilute and diminish the poison circulating in the blood, we have got another resource in venesection, which will not only run off some of the poison with the blood, but will also assist the absorption of the saline solution.

A Mirror

OF

HOSPITAL PRACTICE

BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ST. THOMAS'S HOSPITAL.

ANEURISM OF THE FEMORAL ARTERY IN HUNTER'S CANAL; DIGITAL COMPRESSION FOR TWENTY-FOUR HOURS; CURE.

(Under the care of Sir W. MAC CORMAC.)

For the following notes we are indebted to Mr. White, house-surgeon.

Charles C—, aged twenty-nine, a china-packer, was admitted on December 5th, 1882. The patient was a well-made, broad-shouldered man, of dark complexion, in height 6 ft. 1 in. He had lived an active life. From 1870 to 1875 he was a private in the Life Guards; in 1875 he was engaged in the Canadian police, and in 1879 he returned to this country, and till within the last year he had followed the occupation of a packer. In 1874 he had a chancre, which was followed in a short time by a rash over his body, sore-throat, and pains in the shins; according to patient he had been treated, but to what extent was not ascertainable. His previous health had been good, and he had not had rheumatism. It was about a year before admission that his health gave way, and he was advised on account of heart disease to rest in bed, where he remained up to admission. While lying in bed, about a month before entering the hospital, he first noticed a pulsating swelling of small size in the lower part of the left thigh.

When examined on admission, the patient was

(34)

found to have a fusiform swelling, painful to the touch, about the size of a large lemon, and measuring three inches from above downwards. Distensible pulsation was well marked. The tumour occupied the lower third of Hunter's canal; it was fairly movable, and upon compression of the femoral artery all pulsation ceased, and the sac partially emptied. There was a well-marked bruit conducted down to the calf. The leg was warm, and the pulsation of the posterior tibial artery could be felt. The arteries were thickened; pulse 89, collapsing. The heart was enlarged, the apex beat being two inches below and two inches external to the nipple; there was a thrill at the apex; heart-sound to the right of sternum, a loud double murmur was heard. There were no symptoms of aneurism in the chest; urine normal; temperature 100°.

Dec. 12th: The patient having rested in bed for a few days upon low diet, his pulse fell to about 80 and his temperature to the normal. Digital compression of the femoral was maintained by relays of students selected from the hospital dressers, each to go on for a ten-minutes' spell, his successor to get his fingers on the artery, and to compress each time at a different place before the other relaxed his pressure. Compression was commenced at 8.30 A.M. At midnight the sac was nearly filled with clot, and the pulsation considerably diminished. There was still some pulsation to be felt in the posterior tibial artery. The compression was continued.—13th, 10 A.M.: A little more than twenty-four hours after the treatment was commenced the tumour was quite solid; no pulsation could be discovered in the sac nor in the tibial artery; the limb was warm. Compression was discontinued. The patient felt well. Several anastomosing vessels visibly pulsated around the knee.—16th: The patient well; limb warm; pulse 80; temperature 98°. No return of pulsation in the tumour, which is much more solid.—21st: Pulsation could not for the first time be felt in the posterior tibial artery; no return in the sac; pulse 85; temperature 98.6°.

From this time until Jan. 5th, 1883, when the patient got up for the first time, all went well, and he was now up and about the ward, completely relieved of his clot.

The sac contracted to one-third its former size, became quite hard, and gave the patient no inconvenience. He has since left the hospital convalescent. The absence of any exciting cause is an interesting feature in this case. It affords, too, another instance of the satisfactory results obtainable by carefully applied digital pressure, even under, as in his case, circumstances not otherwise favorable.

CASE OF TROPICAL ABSCESS OF LIVER; PARACENTESIS; SUBPERIOSTEAL REMOVAL OF PORTION OF NINTH RIB; FREE OPENING; RECOVERY.

(Under the care of Mr. GEORGE GULLIVER, M.B.)

T. C—, aged twenty-five, was admitted to Arthur ward on Aug. 24th, 1882. The family history presented no facts of importance. Thirteen years ago patient had "gastric fever." In 1875 he enlisted in the army. In 1878 he went with his regiment to Bengal, and that year he had an attack of pleurisy in the left side. He remained in Bengal till 1881, and during his stay there had several attacks of fever and ague, till eventually, at the end of the year 1881, at the expiration of his period of service, he was invalided from Netley Hospital for ague, which rendered him unfit to join the reserve, as he would otherwise have done. He never suffered from diarrhoea or dysentery; he was a temperate, well-conducted young man, and had

two good-conduct badges. A month or two after leaving Netley he was able to take employment as an out-door laborer.

On July 20th, 1882, rather more than a month before his admission, whilst working in the rain, he was attacked with pain in the right shoulder, vomiting, chilliness, and a slight hacking cough, and was obliged to leave off work and go home. These symptoms continued, and in addition his appetite failed; he lost flesh much, his bowels were from time to time relaxed, and he occasionally coughed up small clots of blood. He presented himself as an out-patient on August 24th, and entered the hospital on being advised to do so.

His state on admission was as follows:—A tall, muscular, but considerably emaciated man, complaining of the symptoms just enumerated; complexion very sallow; conjunctivæ slightly jaundiced. Was perspiring a good deal; temperature 102°; heart normal; pulse 80, soft, regular. On the right side of chest there was dullness in front from the fifth rib downwards, and posteriorly the lower quarter of the chest was dull. Over the dull area the breathing and voice sounds were diminished, except at the extreme upper margin of the area where the breathing was tubular and the voice bronchophonic. The left lung was normal; the liver extended two and a half inches below the ribs in the right nipple-line, and the edge was somewhat tender on palpation. The spleen appeared normal, tongue moist, coated with white fur, urine, sp. gr. 1011, no albumen. There was nowhere any indication of an abscess being about to come to the surface. The diagnosis rested between a fluid accumulation in the pleura, depressing and causing secondary congestion of the liver, a suppurating hydatid in the liver, or possibly between the liver and diaphragm, and, lastly, an idiopathic hepatic abscess. He remained in the hospital for nearly three weeks without any active steps being taken for his relief, partly on account of the uncertainty of the diagnosis, and partly because his condition did not appear to call for immediate active treatment. During this period the symptoms remained much the same, that of which he complained the most being the pain in the right shoulder. The liver descended lower till it reached nearly to the umbilicus, and it was tense and elastic to the touch, but nowhere fluctuating. The upper margin of the dullness in the back at the same time ascended till the lower third of the back was involved. His temperature varied from being occasionally normal in the morning to 103° in the evening. With a view to clearing up the diagnosis on three occasions, a puncture was made with a morphia syringe into the dull area of the back. On the first two occasions nothing but a little blood came away, but on the third attempt a few drops of brownish-colored serum were withdrawn. Though the color of this was certainly suggestive of hepatic origin, it was not opaque enough to make it certain that it was part of the contents of an hepatic abscess, at least as ordinarily seen. On the afternoon of September 18th, he had a transitory but somewhat alarming attack of dyspnoea, fearing the recurrence of which Mr. Gulliver determined to take active steps for his relief, and accordingly asked his colleague, Mr. Pitts, who was then resident assistant-surgeon, to see the patient. This he did on the evening of the same day. He also failed to detect any appearance of an abscess forming or fluctuation, but on account of the elastic feel of the liver in the epigastrium, being somewhat suggestive of a deep-seated abscess in that situation, he first of all inserted the trocar of the aspirator into the liver at that point, but without result. The trocar was then in-

serted for some distance at a point between the eighth and ninth ribs and posterior to the mid-axillary line. The result was the withdrawal of a quantity of thick chocolate-colored matter, such as in the most typical cases comes from an abscess of the liver. In all four pints two ounces came away, and more would have come with ease, but it was thought that sufficient had been done for purposes of diagnosis, and to ensure the safety of the patient against an attack of dyspnoea, and that, moreover, aspiration could be merely palliative and preliminary to making a free opening for the escape of the pus. After the paracentesis the patient had a severe attack of pain in the lower part of the abdomen, which, however, quickly yielded to morphia. The next day there was no pain, and the edge of the liver reached only two inches below the margin of the ribs. There was, however, no diminution of the pyrexia, the temperature being 103° on the afternoon of the day succeeding the operation, and 101° and 102° on the two succeeding days. At the same time the pus began rapidly to reaccumulate, as was indicated by the rapid depression of the edge of the liver, till on the fourth day after the tapping the patient's condition seemed to be much the same as before that operation, his temperature in the morning being 102°. It was consequently thought advisable to delay no longer making a free incision.

On Sept. 16th the patient was placed under ether and Mr. Pitts made an incision just anteriorly to the angle of the ninth rib, and removed subperiosteally a portion of it, about an inch and a half in length. On cutting into the pleura beneath this there escaped some ounces of thin brownish serum of about the color and consistence of thin beef-tea, and similar to that which had formerly been removed by the hypodermic syringe. A free incision was then made into the liver through the diaphragm, and about three pints of pus of the same kind as had been removed by the aspirator came away through the opening. Two large drainage-tubes were then inserted, being well packed round with gauze to prevent the escape of matter into the pleural cavity. No vessel required ligature. The operation was conducted with the strictest antiseptic precautions. The cavity was not syringed out.

There remains little to record except the almost uninterrupted convalescence of the patient. On the evening of the day of operation the temperature was subnormal, and it did not rise above normal till the twenty-sixth day after the operation. The wound was dressed about every third day under the carbolic spray, the cavity being syringed out with a solution of oil of eucalyptus, the discharge never exceeding two or three ounces. The antiseptic dressings were discontinued on Oct. 11th, and a dressing of carbolic oil and iodoform gauze substituted. The drainage-tubes, which had been shortened from time to time, were finally removed on Nov. 21st, and a few days afterwards he was allowed to get up, whilst waiting his turn of admission to a convalescent home. His convalescence was interrupted by a rise of temperature on Oct. 11th, due to a slight attack of pneumonia, at the base of the right lung in the neighborhood of the abscess cavity, the signs being cough, with blood-stained expectoration, dullness, with crepitation and tubular breathing. The temperature reached 103·8°. For four or five days it remained more or less elevated, but never to such an extent as to cause any serious alarm. For three days after the operation he took milk and beef-tea only, after that he had milk diet and eggs, and about ten days after the operation he had chicken. His appetite soon improved, and, as soon as he cared for it, he had ordinary diet. In addition he had

about three glasses of wine every day. The only medicine which he took was a mixture of a little hydrochloric acid and tincture of nuxvomica in water, sweetened with syrup of oranges.

On December 6th the patient went to a convalescent home. On his return, on January 3rd, 1883, he presented himself in the out-patient room in all respects perfectly well. He had become very stout. The wound had healed perfectly, no fistula remaining; and it was not possible to detect that any portion of a rib had been removed. His chest was perfectly normal, with the exception of some slight impairment of resonance at the right base, which was only what one would expect from thickening and adhesions of the pleura at that spot. The liver could not be felt below the ribs.

Remarks by Mr. GULLIVER.—The case is interesting from the doubts which were at first entertained as to its nature, and which were only removed by aspiration; the more so as it was shown at the operation that some ounces of fluid did exist in the pleura, though without doubt due to inflammation secondary to the hepatic abscess. The unusually large size of the abscess necessitated a very free and dependent opening, which called for the removal of a piece of rib. No vessel required to be tied during the operation, and no bad consequences ensued on it. The abscess was reached through the pleural cavity and diaphragm without harm resulting, the precaution having been taken of packing the drainage-tubes round with gauze. The rapid reaccumulation of pus after aspiration tended to demonstrate the futility of that operation for anything more than temporary relief. Lastly, I should say that the complete recovery of the patients was entirely due to the skilful manner in which the operation was performed, and the subsequent treatment carried out by my colleague, Mr. Pitts. I am indebted to Dr. Harley, whose work I was doing at the time of the patient's admission, for permission to publish the case.

RADCLIFFE INFIRMARY, OXFORD.

CASE OF EXTRA-UTERINE PREGNATION FOLLOWED BY THE
EXPULSION OF FETAL BONES THROUGH THE BLADDER:
PERMANENT UTERO-VESICAL FISTULA; REMARKS.

(Under the care of Mr. H. P. SYMONDS.

For the following notes we are indebted to Mr. J. E. Hine, M.B., late resident medical officer.

Mrs. A.—, aged forty, was admitted in August, 1880, with symptoms of stone in the bladder and with an extreme degree of cystitis. Her history was as follows: Menstruation began when she was thirteen, and has been regular till recently. She married at the age of sixteen. The first child was born alive ten months afterwards, at full time. This was followed at intervals of about two years by a miscarriage of twins at the fourth month; another miscarriage at the third month; then a child at full time, still living. Then another child, also living, and then another miscarriage. Twelve years ago, when pregnant four months, she had a fall which caused abortion, and was followed by inflammation of the womb. She says that a fully formed foetus came away, together with something else which the nurse told her was "like a piece of flesh with a bone stuck in it." She had severe flooding and great pain in the abdomen both before and after the miscarriage, and was ill for three months. Ever since this illness she has menstruated through the bladder, the periods being regular and the flow normal in amount. For two years after the illness she had a constant discharge

of matter from the bladder, and on several occasions for nine months from the time of the miscarriage she passed fetal bones. One of these, she says, resembled a blade bone; others were long bones. The discharge of pus gradually ceased, and she was able for several years to get about as usual, her only trouble being the menstruation through the bladder, which often gave her pain through clots blocking up the urethra and causing retention. At the end of 1879 she had one day a sudden pain in the abdomen and stoppage of urine, followed shortly afterwards by the passage of two small stones, the size of peas, rough on the surface and hard. She went on quite well after this till June, 1880, when she had a repetition of the same symptoms, and passed, together with bloody urine, a bone about an inch long, which crumbled when she took it up. At the same time the discharge of pus recommenced. She came into the infirmary in August. On the 13th lithotripsy was performed, and a few drachms of phosphatic material without any nucleus were removed. She was relieved by the operation. Two days later a sound was about to be passed into the bladder, when there was found emerging from the urethra a foreign body which proved to be a fetal scapula of about the fourth month. The urethra was dilated and the bladder explored by the finger. A cavity was felt at the base of the bladder, but outside its walls, containing fragments. From this more fetal bones were removed, but owing to considerable hæmorrhage the whole were not taken away. For a few days after more fetal remains were passed with the urine, and in ten days the operation was repeated with similar result as before. After a third sitting no more fragments could be felt and no more were passed. From time to time after the operation the patient had attacks of pain, due apparently to local inflammation. In October she was discharged, feeling quite well. By vaginal examination the uterus was found not very movable. In front of it a thick mass was felt between it and the bladder. The sound passed one inch and a half through the os uteri, and could be felt when the finger was in the bladder to be in the cavity at the base, in which the bones were. Since she left the infirmary, more than two years ago, she has had no more trouble. The sound now does not enter the bladder, the uterus is more movable, and the thickened mass has disappeared. She still menstruates through the bladder.

Remarks by Mr. SYMONDS.—From this history it will be seen that when in 1870 the patient had miscarriage at the fourth month she was delivered of a foetus; yet from the date of this illness, which was accompanied with "inflammation of the womb," she passed fetal bones from the bladder. This seems to indicate that there was a twin pregnancy, one foetus being in the uterus, the other extra-uterine or in the wall of the uterus. The latter, ruptured by accident, inflamed and suppurated, eventually opening into the bladder, and leaving a fistulous communication between it and the uterus, by means of which menstruation takes place. The cavity went on suppurating till 1872, fetal bones being passed from time to time. Then there was a long interval, and all the symptoms, except the menstrual, subsided till the end of 1879. All this time from some cause the suppuration began again, a few more bones coming away, till she entered the infirmary, and the cavity was cleaned out, and the source of the irritation thus removed. From the fact that the sound could be passed through the os into the bladder, but that the menstrual flow passed from the bladder only, it seems that the upper part of the uterus was cut off from the lower part by some inflammatory ad-

hesions following the original disease. As this case is one of considerable rarity, I have thought it well to give the details at length.

ST. ANDREW'S HOSPITAL FOR MENTAL DISEASES, NORTHAMPTON.

A CASE OF SUICIDE BY OXALIC ACID; NECROPSY; REMARKS.

(Under the care of Mr. J. BAYLEY, Medical Superintendent.)

For the report of the following case we are indebted to Mr. E. F. Cooper, assistant medical officer.

W. H. S—, aged forty-seven, paper manufacturer, was admitted on Dec. 21st, 1882, suffering from (1) melancholia and (2) oxalic acid poisoning. From the statement of the friend who accompanied him, and from information subsequently received, it appeared that the patient had, a week or ten days previously, attempted to destroy himself by means of laudanum, and that on the day prior to his admission he had obtained at a neighboring pharmacy two drachms of oxalic acid, with which he immediately proceeded to a refreshment-house and there swallowed in coffee. The chemist who supplied the poison was quickly on the spot and induced vomiting, the vomited matter, as he stated, causing blackening of the floor; carbonate of magnesia and demulcents were also administered. From the time of his admission the patient was depressed, and complained of pain in his back and abdomen, and was sick at intervals, until on Christmas evening respiration became very hurried and he died in the night, conscious to the last. The treatment consisted in the administration of milk, lime-water, and carbonate of magnesia, while, after the first day or two, beef-tea and custard-pudding were given in addition, together with three ounces of brandy per diem.

At the post-mortem examination, made on the requisition of the coroner by a gentleman unconnected with the hospital, the stomach was found to be intensely congested over a portion of its inner surface, and contained about a third of a pint of thick blood-stained fluid; the lower end of the œsophagus was in the same inflamed state; there was double pneumonia, with adhesions of the left pleura, and effusion into the right one.

Remarks.—The comparative smallness of the quantity of the poison taken is an interesting feature in the case. One drachm is recorded as having caused the death of a boy, aged sixteen, with which exception this is the smallest fatal dose of which I have found mention.

GUY'S HOSPITAL.

HÆMATOCELE OF TUNICA VAGINALIS, FOLLOWING TAPPING OF HYDROCELE; INCISION; RECOVERY.

(Under the care of Mr. BRYANT.)

For the following notes we are indebted to Mr. Kendall.

Wm. S—, aged fifty-eight, was admitted into Job ward on May 24th, 1881. In April, 1878, he was in Lazarus ward, under Mr. Durham. He had suffered from gonorrhœa twenty-three years before, and small-pox. About this time he was kicked in the scrotum; though he had not much pain or swelling, he wore a suspender for some time. On April 6th, 1878, two days before his admission under Mr. Durham, he was struck in the scrotum by a crane, and when admitted the left side of the scrotum was much distended, painful on pressure,

and the veins were apparently much congested. The scrotum was tapped, and a quantity of yellow serous fluid escaped. The scrotum was strapped, and the patient went out. Six weeks later the scrotum swelled again, and was tapped. For two years he had no more trouble.

On May 23rd, 1881, he presented himself at the hospital with his scrotum distended. It was tapped, and on drawing off the fluid the swelling returned again, and blood spurted from the wound on withdrawing the trocar. There was ecchymosis of the left side of the scrotum. The penis was very œdematous; the swelling on the left side was very tense, but extended up to the external abdominal ring; the scrotal tissue could be pinched up between the fingers. The refrigerator was applied.

On June 2nd the swelling had increased and become more tense at the upper and outer part of the scrotum, on the left side, but the lower part of the scrotum remained in the same condition as previously. The patient complained of pain in the left cord. Next day the tunica vaginalis was laid freely open, and a large quantity of recent blood-clot removed. The testis was freely exposed. The tunica vaginalis was thickened, and its inner surface irregular. There was no bleeding of importance. The surface was thoroughly cleansed with sponges and iodine and water. The patient had injection of morphia in the evening, but he did not sleep; and on the following morning he complained of pain along the back of the scrotum and in the hypogastric region and tenderness of the testicle. Temperature and pulse normal; appetite good. On the 6th the urine when examined showed a sediment consisting of the triple phosphates, with pus and epithelium cells; specific gravity 1030. On the 11th sloughs came out of the wound, and on July 12th the cavity had entirely closed, nothing remaining but a small fissure.

MANCHESTER ROYAL INFIRMARY.

A CASE OF PERFORATING ULCERS ON BOTH FEET.

(Under the care of Mr. FREDERICK HEATH.)

For the following notes we are indebted to Mr. John Priestley, house-surgeon.

The published cases of perforating ulcer of the foot in which a complete examination has been made of the microscopic appearances of the nervous lesions are not as yet by any means common.

C. W—, aged forty-two years, married, had followed the vocation of porter for several years. When he was twenty-two years of age he was in the army, and contracted syphilis. Unfortunately the notes of the case when the patient first came under observation, and before he passed into Mr. Heath's care, are not so complete as could be wished, although the general course of the malady is obvious enough. In 1877 the patient suffered from a sinus in the sole of the left foot, the antecedent conditions of which are not recorded in the notes. Through this sinus pieces of dead bone escaped. About the same time a hard and very painful swelling began to be noticed in the middle of the sole of the same (the left) foot. In 1878 there occurs in the hospital note-book the observation of an ulcer in the sole of the right foot, situated over the fourth toe, for the healing of which the toe was amputated. In July, 1881, as the wound had not closed, and as the third toe of the right foot seemed to be involved, this toe also was amputated. The patient was thereupon sent to the Cheadle Convalescent Hospital for eleven weeks.

November, 1881.—The wound still remaining open, and the first and second toes having fallen

under the disease, Mr. Heath amputated the foot by Syme's operation. It had been remarked on several occasions that this foot sweated freely and often had a fetid odor. The nerves in the stump and in the amputated foot were much thickened, and presented the microscopic appearance to be afterwards described. In February, 1882, the swelling under the sole of the left foot was lanced.

In March, 1882, the patient was readmitted from Cheadle with an ulcer on the inner side of the Syme's stump, and a round ulcer, as large as half a crown under the sole of the left foot, lying over the bases of the third and fourth metatarsal bones. The ulcer (or rather the still unhealed portion of the cicatrix) of the Syme's stump disappeared with remarkable slowness; but it did finally become healed, more or less soundly, while the patient was in bed. Meanwhile the round ulcer on the left sole grew in depth and breadth. Its edges were heaped-up, crater-like, horny, and somewhat undermined. The base was even and filled with regular granulations. The whole foot was flat or even arched downwards, owing to the prominence of the region occupied by the base of the first metatarsal bone, the internal cuneiform and the scaphoid bones. The skin of the sole round about the ulcer was hyper-sensitive, as was also the skin of the dorsum of the foot and of the leg; there was not at any time anæsthesia of the leg or foot, and, according to the patient's statement, there had never been any free or fetid sweating in this limb; a statement which was corroborated by our observation of the case during the summer of 1882. Reflex action from the sole was remarkably increased. There was no retardation of sensation, and the patient could discriminate well between a pin-point and a pin-head lightly applied to the skin. The tendon-reflex at the knees was very active; ankle-clonus was marked; the cremasteric reflex was present; and the abdominal and interscapular superficial reflexes were also lively. The pupillary reflex to light and accommodation was normal. It was decided to amputate this leg high up above the thickened nerve-trunks, as the healing of the opposite foot after removal had been so slow and insecure. Amputation above the middle of the leg by a long posterior flap was therefore performed, and with the best results. The posterior tibial nerves from both amputated limbs were examined, as well as a portion of the posterior tibial nerve from the end of the stump in the second (leg) operation. This last named piece of nerve was apparently quite normal, and served as the standard with which to compare the thickened portions of nerve from the neighborhood of the ulcers. The thickened nerve in sections, stained with logwood or with carmine, exhibits a great increase of the connective tissue, especially of the peri and epi-neurium. The lymph spaces surrounding each nerve bundle in the trunk seem much expanded. The nerve fibres in the bundles are sparsely scattered, being fewer in a given area than in sections of the same nerve in the healthy mid-portion of the leg, and the intervening connecting endo-neural substance seems to be present in greater quantity than usual. In short, the microscopical appearances resemble very closely those figured in the illustrations to the article by Messrs. Savory and Butlin in the *Medical and Chirurgical Transactions*, Vol. lxii., 1879, p. 373.

The chief points in which the above case differs from some cases previously recorded are included in the clinical history—viz., (1) there was no anæsthesia of the affected limbs, but, on the contrary, in the case of the left leg at least hyper-sensitiveness; (2) there was no profuse or fetid sweating in the left leg and foot, although this seems occasionally to have been observed in the right; and (3) there

was no diminution of tendon reflexes. All these symptoms have been claimed by different observers as characteristic of perforating ulcer. The patient was seen during the first week of the present year (1883), and both stumps appeared soundly healed. He has already begun to wear a socket for the Syme's stump.

INFIRMARY FOR CHILDREN, LIVERPOOL.

CASE OF INTUSSUSCEPTION; OPERATION; DEATH.

(Under the care of Dr. POLLARD.)

For the following notes we are indebted to Mr. C. Couper Cripps, M.B., assistant house-surgeon.

Mary T—, aged three, was admitted on Dec. 12th, 1882, with a history of supposed injury to the abdomen about ten weeks previous, constant pain in this region since, gradual loss of flesh, occasional vomiting for about the last three weeks, and during the three days before admission passing nothing but clear muco-gelatinous matter from the bowels, which had been moved only with the aid of medicine.

On being presented at the hospital the patient was emaciated and weak and looked very ill. Examination under chloroform disclosed the existence of an elongated, firm, and somewhat lobulated tumour, apparently fixed, extending from the left iliac fossa below the umbilicus almost to the right side. On exploration with the needle of a hypodermic syringe nothing was obtained.

On the 14th a mass of prolapsed intestine could be felt with the finger in the rectum reaching to within two inches of the anus; it was firm, globular, and presented an opening (the continuation of the intestinal canal) into which the finger could be easily inserted. The abdomen, although tender, was not distended. Injection with inversion and gentle manipulation failed to effect reduction, but the bowels were afterwards moved twice, the motions being small and feculent.

The patient was kept under the influence of opium. Injection having again been ineffectually tried, it was decided on the 16th to perform abdominal section, the abdomen being now somewhat distended and bloody mucus being passed at frequent intervals with much tenesmus. Liquid nourishment had been fairly taken since admission, and had only been occasionally ejected, the vomited matters having no fecal odor.

The operation was as follows:—The child being as much as possible protected from cold, the abdomen was opened by an incision in the median line, extending from a point a little above the umbilicus to midway between this and the pubes. Some two feet of small intestine having then been drawn out on to the abdomen and protected with a cloth wrung out of hot water, reduction of a portion of the bowel was effected with difficulty by a process of pulling and kneading. During this proceeding a fissure occurred in the surface of the ensheathing gut by the giving way of the peritoneal coat, and finally this was converted into a rent during further efforts, exposing the invaginated intestine, the last two inches of which were found to be in a gangrenous condition, but with no signs of ulceration or separation. The intussusception having been thus reduced so far as the lower end of the ascending colon, and the adhesions being then found too strong to admit of any further reduction, the invaginated gut, which consisted of the cæcum and its appendix with about three inches of the small intestine, was then removed, the bowels emptied as much as possible of their contents (liquid feces), and the ends of the divided gut united by the continuous suture interrupted at intervals. The wound was then closed with wire sutures.

The child never rallied from the operation, but died three hours afterwards. On reopening the wound, the ends of the divided intestine were found in perfect apposition and the colon and rectum contained liquid feces, which had evidently passed down from above since the operation.

CASE OF RESECTION FOR OSSEOUS ANCHYLOSIS OF THE JAW.

(Under the care of Mr. RHINALLT N. PUGHE.)

Arthur S—, aged three years and nine months, was admitted into the Infirmary on April 26th, 1882, suffering from almost perfect inability to separate the jaws. The following history was obtained from the parents:—Two years before admission he was playing with a handcart, and was struck under the chin by one of the shafts. There was profuse hæmorrhage from the mouth, but no external wound. He was taken at once to a hospital, where he remained for three weeks. The parents were told by the house-surgeon that the jaw was not broken. They do not know what treatment the boy received at the hospital. "His jaw was very stiff, and the stiffness gradually increased," until he became quite unable to separate his teeth.

On admission the boy appeared healthy and well nourished. There was no scar about the face or neck, and no apparent displacement, the incisors coming well together. There seemed to be a little thickening about the left temporo-maxillary articulation, and the depression beneath the zygoma was more indistinct than on the right side; otherwise there was but little appreciable difference between the two sides. Not the slightest lateral and very little vertical movement could be produced even when the boy was completely under the influence of chloroform. The central incisors were wanting, and through the gap left the boy got his food into his mouth.

On April 30th the boy was put under ethidene, and an incision was made on the left side along the zygoma, and another from this in a line with the neck of the jaw posteriorly for a short distance downwards. This flap was turned down and the joint exposed. The neck of the jaw was found much thickened, being quite three-quarters of an inch across antero-posteriorly, and also much thickened from within outwards. The condyle was dislocated forwards and united to the zygoma, all appearance of the joint being lost. There was a superficial groove corresponding to the lower border of the zygoma, otherwise the fusion of the two bones was complete. Some fragments of bone were removed by chisel and gouge from the zygoma and the head of the lower maxillary bone, leaving a gap of about half an inch vertical. In doing this the ramus of the jaw was evidently splintered downwards. The chief difficulty about the operation was the removal of the bony fragments from the deeper part of the wound, as of course the vertical incision was necessarily limited, and care had to be taken not to injure the deeper structures. After the bone had been divided the jaws were separated by a screw-gag, which could now be done with comparative ease, leaving a space of about three-quarters of an inch between the incisors. There was considerable venous hæmorrhage during the operation. The carbolic spray was used the whole time, and the wound dressed antiseptically; slight rise of temperature (100° F.) followed next day, but no pain or other bad symptom. The boy was fed on fluid diet. On the fifth day, the antiseptics having broken down were discontinued, and the wound dressed with a strong lead lotion, which was continued till the wound was healed. Ten days after the operation the

mouth was again opened by the gag, chloroform being given; the jaws could be separated to the extent of about an inch. From this time the gag was used every two or three days, and, at the same time, he was given solid diet.

June 20th.—He can now open his mouth to the extent of about an inch without assistance, but there is no lateral motion whatever. The gag is still used every two or three days; wound quite superficial.

July 12th.—Wound quite healed. The boy has continued much in the same state up to the present date, Dec. 7th.

NATIONAL ORTHOPÆDIC HOSPITAL.

A CASE OF SPINA BIFIDA SUCCESSFULLY TREATED BY INJECTION OF DR. MORTON'S IODO-GLYCERINE SOLUTION.

(Under the care of Mr. E. MUIRHEAD LITTLE.)

MARGARET E—, aged three weeks, was first seen at the hospital last May, with spina bifida in the lumbar region, and strongly-marked congenital talipes varus on both sides. The tumour in the back was some three inches in diameter, and nearly circular; its walls, except close to the periphery, were very thin and transparent, and of a bluish membranous appearance. At the summit, which was raised more than an inch from the surface of the back, was a granulating sore, the size of a halfpenny. The cleft in the bones appeared to extend between the second lumbar and second sacral vertebrae. The child was pale and sickly-looking, with a somewhat large head. The tumour seemed in no way affected when the child cried. The mother stated that the tumour was increasing in size, and that the child moved its lower limbs very little. She was fully alive to the precarious condition of the patient, and readily consented to an operation as affording some chance of cure.

The mother and infant were admitted on June 1st. On the same day the tumour was aspirated and six drachms of clear fluid were withdrawn, and a pad and bandage were lightly applied. The sac was left three-quarters full. On the 3rd the sac had refilled and was again aspirated, and one ounce and a half of fluid was withdrawn. The child was very restless for several days and started at slight excitation. Cried constantly. On the 14th she was in her usual health. The sac was again aspirated and six drachms of fluid were removed. On the 21st the tumour was as large as ever. Half the contents was removed with the aspirator, and twenty minims of Morton's solution were injected. No bad symptoms followed injection. Next day the tumour was redder and more opaque; the sore was smaller. On the 23rd to be out-patient. On the 27th the tumour was much smaller and firmer. The sore was healed. The tumour having ceased to shrink, thirty minims of the solution were injected on the 28th. Collodion was applied on lint.

From this date the tumour rapidly shrank, and in two weeks had disappeared. The skin had much advanced over the surface, but there was still a membranous portion near the centre. A light truss was ordered as a protection, and the treatment of the talipes subsequently proceeded with. The necessary operations have produced no bad symptoms and the child's general health has improved.

Notes by Mr. LITTLE.—In any future case I should be inclined to discard attempts to obtain a cure by simple aspiration, but inject the iodine solution at once. The former plan was advocated by Dr. Morton in his original paper, but I am not aware

whether or no he still follows it. I am indebted to the courtesy of my colleague, Mr. Fisher, for the opportunity of treating this case in the hospital.

METROPOLITAN INFIRMARY, CLEVELAND STREET, W.

THREE CASES OF CARIES OF THE SPINE IN TAILOR-ESSES.

(Under the care of Mr. JOHN HOPKINS, F.R.C.S., and Mr. ROBERT PARRY, M.B.)

DURING the year 1882 three cases of death from caries of the spine having several noteworthy features in common have occurred at this infirmary.

CASE 1.—J. P—, aged sixty-nine, tailoress, was admitted Jan. 2nd, 1882, with paraplegia. She had always had good health, and had never been laid up except from an injury to the hip twenty years previously, occasioned by a fall. Afterwards the limb had become shortened, though it was not believed to be fractured at the time. She had subsequently been able to get about without the support of a stick. A fortnight before admission, while walking along the ward of the workhouse, she suddenly lost the use of both her legs. Previous to that occurrence she had suffered in no other way than from a feeling of dejection and indisposition to work; she then had painful tumefaction of the abdomen and incontinence of urine.

On admission, the lower limbs were powerless, but reflex movements were readily excited by tickling, pinching, or grasping the foot. The seventh dorsal spine was slightly prominent and a little tender on percussion. A triangular area of œdema well defined in outline occupied the loins, the apex of the triangle being situated at about the twelfth dorsal, and the base at the top of the sacrum. Pains occasionally shot down the front of the thighs, more particularly the left, and there were pain and tenderness over the abdomen, which was distended; the bladder was greatly distended and overflowing, and the bowels were confined. The urine withdrawn measured two pints and a half, and on the following day it contained much blood, but this disappeared in three days. The use of the catheter was discontinued after a few days, as incontinence without retention came on. The prominence of the seventh dorsal spine became more marked towards the last, and its distance from the eighth dorsal spine could be altered by raising the patient by the shoulders. A band of hyperæsthesia about the level of the seventh rib was noted on January 20th, and a small superficial bed sore.

The patient died on January 22nd, twenty days after admission and five weeks from the onset of the paralysis.

Necropsy.—The bodies of the seventh and eighth dorsal vertebrae were carious, and had fallen together, and the intervertebral substance had disappeared. The abscess in connection with the diseased bone contained inspissated pus, and formed a pouch on either side of the vertebral bodies larger than a hen's egg, to which the contiguous lung was adherent; there were three other small pouches projecting backwards into the spinal canal; two of these were placed symmetrically between the remaining portion of body of the seventh dorsal, and the posterior common ligament, leaving a furrow between them, at the lower end of which the third pouch projected backwards in the middle line. There was no congestion of the membranes or cord. On passing the finger over the cord a transverse sulcus was felt at the compressed spot. There were abscesses in both kidneys, with

deep congestion, consequent on cystitis and pyelitis. All other internal organs were healthy. There was an old intracapsular fracture of the neck of the left femur.

CASE 2.—Sarah M—, aged thirty-four, tailor-ess, was admitted on December 5th, 1881, with paraplegia. When a child, she had abscesses and necrosis. Six weeks before admission, while walking in the street, her legs gave way under her, and next day her legs were paralyzed. She kept her bed from that time, passed her urine under her, though at one time there was retention.

On admission, the patient was of spare build, thin, and anæmic. Several deep scars showed the seats of old abscesses and necrosis. The right eyeball was useless and shrunken, and part of the floor of the orbit had been removed by necrosis. The legs were somewhat wasted, useless, and flabby, and there was some anæsthesia of both feet. Reflex action was much heightened. There was incontinence of urine, and the bowels were confined. No prominence of the spines was made out on admission, but in January a note was taken that the seventh, eighth, and ninth dorsal spines were prominent, and the left transverse process of the eighth vertebra projected under the skin, the corresponding spine being directed to the right. Bedsores formed very rapidly, a night's rest in one position being enough to give an appearance of threatening gangrene on parts pressed upon. The patient became thoroughly emaciated, and many bedsores formed. She died exhausted, February 2nd, 1882. No post-mortem examination was made in this case.

CASE 3.—Elizabeth D—, aged forty-four, tailor-ess, was admitted March 24th, 1882, with a large, cold abscess over the left thoracic parietes. The woman was a native of North Wales. As a child was delicate, and about puberty acquired a lateral curvature of the spine. Some time after that she fell heavily over an iron railing and hurt her left side. At eighteen years of age she came to London, and soon afterwards took up her late employment, which she pursued for twenty years. For five years before admission she had been feeling ill, but had no pain, and could not say she had anything in particular the matter with her. Four or five months before admission a swelling appeared in the left side; it was free from pain and gradually increased in size.

On admission she felt very depressed but had no pain; she had a slight cough, and on the evening of the 28th her temperature was 100° F. The swelling was situated on the left side, and measured in circumference about as much as a fetal head at term, its centre being placed in the axillary line at about the fifth intercostal space. About a pint of pus was withdrawn by the aspirator, and when the matter had again collected a freer opening was made and a drainage-tube introduced. A few days afterwards a small piece of dead bone was found in the cavity and removed. After the permanent opening was made there was very little discharge, and the wound was subsequently allowed to heal. The matter again collected, at first over the scapula, and disappearing from that spot reappeared in a line with the fifth rib round the chest. An examination of the spine at this time elicited no pain on percussion.

The patient first complained of pain in the right shoulder in the end of April. In October the pain was severe, and extended down the right arm into the ring and little fingers, which felt numb. On Dec. 1st there were pain and stiffness in the neck. Pressure in the vertex could not be borne, and there was a little tenderness on percussion of the seventh cervical spine. An abscess was felt deep under the right trapezius. On Dec. 6th there were

retention of urine and weakness of the lower limbs, and three days later entire loss of power over the right foot, and partial loss over the left occurred. On Dec. 10th the paralysis was complete, and a threatening bed sore appeared over the sacrum, as well as incontinence of urine without retention. On Dec. 13th there were involuntary startings in the left leg and pain in the abdomen, "as if the bowels were being twisted into knots." On the 17th complete paralysis of right hand and weakness of left upper limb. Sensation in the lower limbs fairly good to both touch and warmth throughout. The feet felt numb and subjectively cold. A pain "like liquid fire" shot from the left shoulder across and down the right arm. Next day the tongue was red, marked by deep furrows, and patched with fur. There was a bed sore on the left heel. On Dec. 27th the bed sore over sacrum was the size of a half-crown piece, contained a deep slough. Accumulation of bronchial mucus occurred with dyspnoea, cyanosis, and death.

Necropsy.—There was well-marked lateral curvature to the right in the dorsal region. At the seat of the caries the cervical was flexed upon the dorsal portion of the spine, and rotated to the left. The rotation was due to dislocation forwards of the right side of the seventh cervical vertebra. The outer half of the right transverse process of the first dorsal was broken off, and reunited by firm fibrous bands both to the part from which it had been broken and to the posterior transverse process of the dislocated seventh cervical. The caries had destroyed nearly the whole of the body of the first dorsal, together with the under surface of the seventh cervical. A thin incomplete layer of cartilage loosely attached to the seventh cervical was all that remained of the intervertebral substance. That below the first dorsal had a thin layer of bone upon it, through which the caries had not quite penetrated. The abscess in connection with the diseased bone had come forwards in the neck upon the right side beneath the trapezius and sterno-mastoid muscles. On the left side it had not burrowed in any direction. In the spinal canal it had passed between the vertebral bodies and their posterior common ligament both upwards and downwards; upwards to the superior limit of the seventh cervical, and downwards lower than the inferior limit of the third dorsal. (The sixth and seventh cervical and the first, second, and third dorsal were removed at the autopsy and set aside for subsequent examination; thus the opportunity was lost of making out if the above-mentioned channel communicated through an intervertebral foramen with the abscess on the left side of the chest.) The posterior common ligament was separated in nearly its whole breadth; in the middle line it remained bound down in places, so that a double channel freely intercommunicating was formed. In this channel was a layer of friable material, partly broken down, measuring in its thickest part about a line and a half. The said ligament and the membranes were all deeply stained, and the antero-lateral columns of the cord were congested. In the thorax there were firm pericardial adhesions throughout, and between the adherent layers were four or five collections of cheesy pus varying in size from a pea to a hen's egg, the largest of them being to the outer side of the cardiac apex. The left pleura was adherent throughout, but readily detached, and there were perihepatic adhesions. The thoracic and abdominal organs were healthy.

Remarks.—In the year 1882 there occurred at this infirmary 125 deaths, and of these the above three occurred from caries of the spine in tailoresses, who followed an arduous occupation of twelve hours

a day in the same stooping position. These cases seem in a striking manner to bear out Mr. Hilton's statement in "Rest and Pain":—"I must state my belief that the majority of the cases of primary disease of the spine in children, and almost all those in adults, are the result of exercise persevered in after fatigue, etc."

STANLEY HOSPITAL, LIVERPOOL.

INTESTINAL OBSTRUCTION; BENEFICIAL ACTION OF THE EXTERNAL APPLICATION OF BELLADONNA.

(Under the care of Dr. COSTINE.)

For the following notes we are indebted to Mr. Charles Morton, house-surgeon:—

A man, aged thirty-five, was admitted on December 28th, 1882, suffering from obstinate constipation. The bowels had not been opened for fourteen days, with the exception of a little scybala passed after enemata occasionally. Until a fortnight ago the bowels had always been open regularly. The insuperable constipation had not been accompanied at its commencement by any acute symptoms, nor had blood ever been passed per anus. There was no history of his ever having had hepatic colic. There had been loss of flesh of late. For a fortnight he had vomited occasionally; had had much pain in his abdomen. The belly was much distended, but the walls were not tense. At times there was a soft, defined swelling in the right iliac region about the size of the cæcum. No lumps or bowel could be felt; there was no hernia. Nothing abnormal could be felt per rectum; a large quantity of fluid could be injected. He had taken all kinds of purgatives before admission, without any action of the bowels being produced by them. Ordered one grain of opium every six hours; also cold, strong beef-tea and milk in small quantities often. Next day he was free from vomiting and pain in the abdomen; bowels not open. On the 31st there was great prostration; the pulse was intermittent, frequent, and there was fecal vomiting; indeed, death seemed fast approaching. Ordered plenty of strong beef-tea and six ounces of brandy in twenty-four hours, and one ounce of belladonna ointment spread on a large poultice to be applied over the abdomen, and repeated frequently. Great emaciation had taken place in the last few days.

On Jan. 1st he had a large liquid evacuation. There was no pain in the abdomen, though the fecal vomiting continued. He seemed a little less collapsed. On the following day the bowels were still freely open, and there was no vomiting.

From this time he continued to improve; but on the 5th and 6th the bowels were not opened, and there was a return of rather severe abdominal pain. Castor oil failed to open the bowels; but the constipation and pain were removed by return to the old treatment of the external application of belladonna and the internal administration of small doses of opium. He left the hospital on Jan. 10th.

Remarks by Dr. COSTINE.—It is often very difficult to say in any case whether recovery be due to any special method of treatment; and perhaps in this case the obstruction might have been overcome without the belladonna, but for fourteen days the bowels were unable to empty themselves downwards, the patient was evidently dying, and the only alteration in treatment other than the application of the belladonna was to give brandy, so that I think the strong probability is that the belladonna saved his life. The belladonna was first applied during the afternoon, and the bowels were opened the same evening.

LEEDS PUBLIC DISPENSARY.

ENCHONDROMA OF BOTH LUNGS, WITH SECONDARY GROWTH IN BRAIN; NECROPSY; REMARKS.

(Under the care of Dr. CHURTON.)

For the following notes we are indebted to Mr. P. J. Hudson, M.B., senior resident medical officer.

Annie S—, aged eighteen years, came under observation on August 4th, 1882, complaining of shortness of breath and severe cough. The family history was good, except for the loss of a brother from consumption (?). The patient had always been delicate, and she had the left leg amputated four years ago for diseased knee. The nature of the disease could not be ascertained, only that matter had come away from the joint for months prior to the operation. For the last sixteen months she had been getting thinner and had had night sweats, but continued to work till a fortnight before admission, when she discontinued, owing to pain in the right chest, dyspnoea, and spitting up of bloody phlegm, attributed to frequent chills caught at a flax mill. She was a dark, thin girl, of a general icteric tinge, though slight. On examination the right chest presented the usual signs of effusion, there being dullness in front below the third rib on sitting up, below the fourth on lying down, with annulled vocal resonance and fremitus and absence of breath sounds. Above this point the latter were faintly audible, also a few moist *râles* on deep inspiration. Behind there was dullness from the third rib downwards; above this fair respiration, but resistance on percussion. No rub was heard or pain felt on deep inspiration. The left chest throughout gave a sense of resistance on percussion, and there was exaggerated breathing in front, but rather distant behind. Heart and other organs healthy. Temperature 101.4°. A hypodermic needle withdrew from the right chest fluid deeply blood-stained, and showing microscopically only many white and a few red blood-discs. The sputum was uniformly tinged with blood, and contained no elastic tissue. The symptoms not being urgent, she was ordered nutritious food, linctus morphine, and to take alternately, every hour and a half, one minim and a half of the solution of perchloride of mercury, and five-eighths of a minim of tincture of green veratrum.

Aug. 7th: Rather sick after the green (veratrum) medicine. Temperature 101°, morning and night. Has night sweats.—14th: Breath-sounds over right chest more distant; other signs as before; no sickness; temperature 100°.—20th: Can lie only on the right side; suffers from shortness of breath; gums slightly touched. There is fair resonance now from the fourth rib upwards in front, and faint respiration is heard throughout. The dullness in the axilla extends from the fifth rib downwards and behind from the fourth rib, and respiratory sounds are more audible than on the 14th. There is a rub on deep inspiration at the right base. To continue the medicines every three hours (i.e., half the quantity), and have a blister over the lower right chest behind.—22nd: Pain returned; some sickness. To take the medicines thrice daily.—25th: Mr. Hudson removed seventeen ounces and a half of blood-stained fluid from the right chest by the aspirator, a quantity being left. Only blood-discs were detected in this fluid.—26th: Feels easier, and has no dyspnoea; can lie on either side. Ordered one drachm of tincture of quinine with decoction of cinchona, an ounce thrice daily.—28th: The blood-stained expectoration, though slight, continues daily. Has much frontal headache; and is very sick. To have an effervescing

draught, with three minims of dilute hydrocyanic acid every two hours.

Sept. 1st: Signs of fluid in chest as before. Sweats much, but has no sickness. To have the quinine mixture again.—4th: Slight twitching of left arm and hand.—5th: Had a fit last night, being unconscious an hour, and the left arm and hand moved backwards and forwards. Is now quite sensible, complains greatly of frontal pain and of the left fingers being numb, though moved easily.—6th: Has slept well, but on waking felt the left arm heavy, and cannot now raise it or move the fingers. No anæsthesia. Reflexes abolished almost. Differences of temperature felt. Left stump normal, and no other paresis. Heart normal.—9th: Can move the arm from the left shoulder.—12th: Much cephalalgia, the pain shooting over the right temple and back to the occiput. Very sick, independent of food. Temperature normal. To have whisky and laudanum cloths to the head, and the effervescing draught with one drachm of the tincture of hop every two hours.—16th: Sickness relieved. Pain in the head and chest worse. To have morphia pill (one-quarter of a grain) every three hours.—24th: No pain or sickness for four days. To take ten grains of calcium hypophosphite with tincture of nux vomica every four hours.—30th: Had a second fit in the night. Has had great pain in head for two days and attacks of blindness. The left upper extremity remains as before, but is often attacked with twitchings. Distant respiration throughout the chest, other signs as before. Bowels not confined. Twenty grains of the bromide of sodium to be taken with the above draught every two or three hours.

Oct. 2nd: Is sinking, but has very much less pain since the last medicine.—3rd: Takes the bromide with brandy every hour and a half, and is quite easy. Temperature normal. Is quite sensible.—4th: Died comatose.

Necropsy, thirty-six hours after death.—The body was fairly nourished. There was no wasting of the left arm. On opening the chest the pericardium contained two ounces of serum. The heart and its large vessels were normal. There was a quantity of dark fluid in the right pleural sac. The right lung was much retracted in front, and was found partly fixed posteriorly and of a bony consistence, and was removed with difficulty. It weighed fifty seven ounces. The posterior portion or root of the lung was one mass of ossified tissue, and similar growths were scattered throughout the anterior portions. The left lung had a few nodular growths of the same character, mostly at its borders and root. The bronchial glands generally were much enlarged, and very hard. Except where adherent to the right lung behind, the pleura was free from the growths. The abdominal viscera were healthy; the vertebrae were normal. The skull cap being removed, and the dura mater divided, a growth almost round in shape was found situated on the surface, and in the substance of the right cerebrum as follows:—It was three-quarters of an inch from the superior longitudinal sinus on its left, extending to the interparietal fissure on its right. Posteriorly it reached to one-eighth of an inch from the parieto-occipital fissure, and anteriorly to the junction of the superior with the middle frontal convolution. It thus roughly occupied the place of (1) the superior parietal lobule; (2) ascending parietal convolution; (3) ascending frontal convolution; and (4) superior frontal convolution. It could be shelled out of its bed without lacerating the brain substance, and weighed nine drachms. Rest of brain normal.

A section of the lung growth showed it to be

ordinary osteo-chondroma. No lung structure was visible in the densest portion, but trabeculae and medullary spaces, the former of which were calcified, and contained angular cells, some surrounded by cartilage shells, others mature and partly calcified, the latter (medullary spaces) fibrous stroma. The cranial growth contained principally the latter and many bloodvessels, together with scattered centres of cartilage cells. Portions of the lung growth on being decalcified by chromic acid showed partly compressed and obliterated infundibula, etc., in the places least invaded, whilst others were almost dissolved by this process.

Remarks.—The hæmorrhagic character of the pleural fluid, together with the history of a (?) suppurating knee-joint four years ago and the general symptoms, led to the diagnosis of miliary tubercle of the lung rather than from direct physical examination. The fixed cranial pain following on the chest mischief, and itself followed by left brachial monoplegia, led to the diagnosis by Dr. Churton of a secondary growth in the brachial motor area in the cortex of the right cerebral hemisphere. It was impossible to diagnose osteo-chondroma of lung without a definite history of the former (?) knee disease, as no characteristic cells were found in the sputa or pleural fluid, and no needle probably could have withdrawn anything characteristic from the lung growth itself, nor were there any pressure symptoms or glandular enlargements externally. The multiple nature of the growth makes it still more likely to have been secondary to an osteoid sarcoma of the lower end of the femur four years ago. It is worthy of note that the convolutions occupied by, or obliterated by, the cerebral growth, correspond to those which, when stimulated in the dog (according to Hitzig and Fritsch), cause extension, adduction, flexion, and rotation of the opposite fore limb, and in the monkey, according to Ferrier, the various complex movements of the opposite arm, especially following irritation of the posterior portions (posterior parietal lobule, posterior end of superior frontal convolution, etc.), and which were affected by the cranial neoplasm which had not advanced anteriorly enough to affect the opposite leg, or, rather, stump.

BROMLEY COTTAGE HOSPITAL, KENT.

CRUSHED FOOT; GANGRENE OF TOES; SECONDARY AMPUTATION AT ANKLE (SYME'S OPERATION); RECOVERY.

(Under the care of Dr. HERBERT J. ILOT.)

W. T—, a boy aged fourteen, was admitted on the evening of March, 10th. He had been playing with other boys about the goods yard at the Bromley Station. Some of the porters were engaged in shunting trucks, and, it being dark, did not observe the boys. W. T— was knocked down by a truck, the wheel of which passed over his foot.

On admission, it was at once evident that a very severe injury had been sustained. The anterior part of the foot was pale; the posterior about the heel swollen and discolored. The curvature of the instep was increased. The boy could move his toes, and the sensation of the skin over the toes was not lost, although diminished. There was fracture of the second and third metatarsal bones, with partial displacement forwards of the distal bones of the tarsus; there was a lacerated wound about four inches in length obliquely across the dorsum of the foot, in which the extensor tendons could be seen, uninjured, as well as the dorsal artery of the vein of the foot; there was also a wound admitting the forefinger on the inner side

of the heel, extending down to the os calcis. Pulsation could be felt in the posterior tibial artery. Although the injuries were so severe it was determined, after consultation, to make an attempt to save the foot, in view of the patient's youth and station in life. After the parts had been well cleansed with carbolic lotion (1 in 20) a drainage-tube was inserted along the principal wound, which was closed with silver-wire sutures. The foot was placed in good position on a padded back-splint, and gauze dressings were applied under spray. Next morning the toes were bluish, but sensation was better. Free serous discharge soaked through the dressing. Over the stained portions fresh gauze soaked in 1 in 20 solution was placed, with a pad of tenax under the heel.

On March 13th, the wound was dressed under spray. There had been an abundant serous discharge, especially from the wound on the inner side of the heel. The foot was much swollen on the dorsum, where there was a large collection of fluid pent up. This was let out by removing one of the sutures. Pulse 84; temperature 102.6°. On the following day sensation was better. The boy could move his toes freely, and there was no pain; sleep disturbed. Pulse 86; temperature 100.2°. On the 17th, he was still free from pain; sensation in the toes was better; there was much discoloration, though without swelling or fetor. He passed a quieter night, but wandered at times; he had bad dreams. Pulse 88; temperature 98.8°. On the 18th, the foot was dressed under spray with gauze dressings. A large bleb on the dorsum was punctured and clear serum was let out. The anterior part of the dorsum and the toes were much discolored; the wound looked healthy; the skin at the margin of the discolored part of a purplish-red color; the heel tissues were warm and healthy in appearance; the ankle and leg were of a yellow color from bruising, not swollen. Pulse 100; temperature 99.2°. On the 21st, a consultation was held by the honorary medical officers, Drs. Beeby, Playfair, and Ilot, as to the advisability of amputation at the ankle. It was found that although there was a large slough on the outer side of the dorsum of the foot, and the three outer toes were much discolored and threatened to become gangrenous, the tissues on the inner side, as well as the heel and sole of the foot, were warm and healthy; and the line of demarcation being well defined, it was resolved to defer amputation. The antiseptic dressings were discontinued, and the foot enveloped in a charcoal poultice after the parts had been washed with carbolic lotion. The foot was placed on an iron back-splint and swung. On the 28th another consultation was held, and it was decided to amputate, as the gangrene was extending to all the toes, and the slough on the dorsum of the foot having separated, leaving an extensive granulating surface with no prospect of a useful foot. The foot was therefore removed the same afternoon by Syme's operation at the ankle. The patient was placed under the influence of an anæsthetic mixture (alcohol, ether, and chloroform). The heel flap was dissected down from the os calcis, which was done with ease, the tissues being much thickened. A short dorsal flap of sound integument was also formed. Both malleoli and the articulating surface of the tibia were removed by a frame saw. The anterior tibial and the plantar arteries were secured with carbolized catgut ligature. An opening was made through the centre of the heel flap, through which an india-rubber drainage-tube was passed. The flaps were united by silver-wire sutures. The dressing was lint soaked in carbolic oil, the whole stump being enveloped in salicylic wool. The leg was laid on a pillow and protected from pressure by a cradle.

The boy was sick a little after operation, and being in pain had eight minims of tincture of opium. Pulse 76; skin warm. A second dose of opium was given at 10 p.m. He slept well during the night. Next morning he was thirsty and feverish, and had had no action of the bowels. Pulse 128; temperature 102.8°. There was no oozing through the dressings. Ordered a dose of white mixture, with milk and cooling drinks.

On March 30th the stump was dressed, looking very well; union taking place; no tension or irritation. The same dressing was reapplied and the limb swung. Temperature 99.2°. Ordered a quinine mixture, with diet of beef-tea, milk, and milk pudding.

On April 3rd some of the sutures were removed; the flaps were gaping a little on the outer side; two small sloughs of cellular tissue were removed, one through the opening in the heel flap left by the removal of the drainage-tube. The flap was supported by strapping, and dressed with lint, soaked in terebene oil. Pulse and temperature normal, appetite and sleep good. He was put on ordinary diet.

From this time the healing process went on uninterruptedly well; a sound fleshy stump was formed, and the patient was discharged on June 3rd. Being promised with a letter for the Surgical Aid Society he was supplied with a socket lacing round the knee, and terminating in a rounded flat extremity. With this he gets about remarkably well, earning his living as house-boy and messenger, running and walking with ease, and without any limp. He can bear any pressure on his stump, which is quite painless.

UNIVERSITY COLLEGE HOSPITAL.

FIVE CASES OF SUBCORACOID AND ONE OF SUBGLENOID DISLOCATION OF THE HUMERUS REDUCED BY KOCHER'S METHOD.

(Under the care of Mr. C. HEATH.)

For the following notes we are indebted to Mr. W. Chisholm, house-surgeon, who effected the reduction in all the cases except the first.

In *THE LANCET* a short time since attention was called to a paper on a method of reducing dislocations of the shoulder, read by M. Kocher at the meeting of the International Congress in London. Referring only to the subcoracoid form of dislocation, M. Kocher directs that for its reduction the surgeon should sit on the left of the patient, then the elbow-joint is to be flexed at a right angle, and the joint firmly pressed against the side of the chest. Next, while the elbow is held in contact with the body, the arm is to be slowly, gently, and steadily rotated out until firm resistance is encountered; then while this rotation is maintained the arm is to be raised forwards, and a little in, and, lastly, to be rotated in, and the hand brought towards the opposite shoulder. This plan has been tried in six of the cases which have come to University College Hospital during the last five months.

CASE 1.—A muscular young adult, with left subcoracoid dislocation. An attempt was made to reduce it with the knee in the axilla, but as this caused much pain the patient was given an anæsthetic. While this was being administered it was decided to give Kocher's method a trial. The patient lying on his back, Mr. Heath flexed the elbow at a right angle, pressed it firmly against the side of the chest, the arm was then rotated outwards, and the head of the bone slipped into the glenoid cavity before the forward movement of the arm was commenced. This case came on a day just before

Mr. Heath's expected visit, and was kept so that the students might see it reduced.

CASE 2.—An adult female, with right subcoracoid dislocation. This was the first case attempted by this method without an anæsthetic. The patient was seated in a chair, and an attempt was made to reduce the dislocation in the manner described. This was unsuccessful, and the patient was told to lie down on the couch with a view to having an anæsthetic. While in this position, and before giving the anæsthetic, another attempt was made at reduction by manipulation, the arm being more firmly pressed to the side. On rotating outwards a little grating was felt, and just as the forward movement of the arm was commenced the head of the bone slipped into the normal position. Patient experienced very little pain.

CASE 3.—A young male adult with right subcoracoid dislocation. He said his arm had been "out" before. In this case reduction was effected with the greatest ease without an anæsthetic, patient being seated in a chair; the head of the bone returning to the glenoid cavity at the commencement of the forward movement.

CASE 4.—Similar to Case 3, except that there had been no previous dislocation.

CASE 5.—A coal-heaver, a muscular man, with a right subglenoid dislocation. Patient was seated in a chair and reduction effected with some trouble, and only after the elbow was very firmly pressed against the side of the chest; at the commencement of the forward movement the bone slipped into its place.

CASE 6.—A male adult, a muscular man, with right subcoracoid dislocation, was seen about noon. He had been drunk the previous night, and did not know how the injury was caused. In this case until an anæsthetic was given the bone could not be disengaged, and the attempt gave very much pain. When the patient was under chloroform reduction was readily effected. In this case the right hand was brought nearly to the opposite shoulder.

Out of the six cases five were subcoracoid and one subglenoid; and though M. Kocher's paper seems only to refer to the former injury, the subglenoid dislocation was reduced by his method without an anæsthetic. Of the five subcoracoid cases three were reduced without an anæsthetic; but in the first case Kocher's method was not tried until the patient was under chloroform. By this manipulation the margins of the rent in the capsule are relaxed, and the rent opened out, thus allowing the head of the bone to slip readily into the glenoid cavity.

QUEEN'S HOSPITAL, BIRMINGHAM.

GUMMATA OF THE TONGUE IN HEREDITARY SYPHILIS.

(Under the care of Mr. JORDAN LLOYD.)

H. M.—, aged eighteen, domestic servant, attended the hospital on June 22nd, 1882, complaining of a sore tongue. She was a big, dark, flabby, coarse-skinned girl of nervous habit, with a thick upper lip. Her teeth were rather peggy and rough, but not notched, and there were old white scars at both angles of the mouth, the size of sixpences. She had chronic interstitial keratitis in both eyes. Her father and mother died of consumption (?); one brother only was living, and he had bad eyes. There was no history of acquired syphilis in the patient. Her tongue had troubled her for nearly two years. At its left side, at about an inch from the tip, was a deeper ulcer, irregularly circular, the size of a threepenny-piece, with clean cut edges and dirty yellow base, surrounded by a zone

of induration, which faded gradually away into healthy tongue tissue. Posterior to this ulcer, in the middle of the left lateral half of the tongue, was an irregular cavity, filled up by a characteristic gummatous nodule, of the size of a horsebean and like yellow indiarubber. There was another ulcer, similar in appearance to that previously described, situated at the edge of the right side of the organ. These ulcers, of which she had had similar ones, began as nodules in the tongue; they then ulcerated on the surface, exposing yellow masses. She had no decayed teeth, nor any enlarged glands. A mixture containing five grains of iodide of potassium, with ammonio-citrate of iron, was given three times a day, and a borax gargle was ordered for the mouth.

After a few days the gumma softened and came away, and by Sept. 14th all the ulcers of the tongue were healed, leaving the tongue rather enlarged, with ragged, but perfectly soft, edges. The keratitis disappeared a few weeks later.

She was seen on January 18th, 1883, and continued quite well. The tongue was corrugated at its edges, and had several cicatrices in its anterior third. Its entire surface, except for the scars, was perfectly natural and quite free from the well-known appearance resulting from superficial glossitis.

Remarks by Mr. LLOYD.—The occurrence of gummatous tumours in the tongue as a result of hereditary syphilis is sufficiently rare, I trust, as to warrant me in placing this well-marked case on record. I can find few writers even who refer to them. Fairlie Clarke, in his work on "Diseases of the Tongue," mentions in a casual manner, at the end of a section upon one of the forms of syphilitic tongue disease, "that tumours are seen in the tongues of children which are evidently due to inherited syphilis." Dr. Drysdale records a case in the *Medical Press and Circular* for May 19th, 1875:—"A girl, aged sixteen years, with strong evidence of inherited syphilis, who had several nodules at centre of tongue." There was no difficulty in diagnosis in my case, the keratitis, the cicatrices at the angles of the mouth, the yellow rubber-like mass in the tongue, all pointing to the syphilitic diathesis. It is interesting to note the age at which the growths appeared, and also the perfectly healthy condition of the surface of the tongue, apart from the nodules and ulcers. Drysdale's case is reported as having the glazed tongue so commonly met with in the syphilized adult. The result of treatment still further establishes the correctness of diagnosis.

SEAMEN'S HOSPITAL, GREENWICH.

TWO CASES OF ULCERATIVE ENDOCARDITIS; NECROPSY.

For the following notes we are indebted to Dr. Penny, house-physician.

CASE 1. (Under the care of Dr. Curnow.)—William McC—, aged twenty-nine, was admitted on August 10th, 1882. He had ague nine years ago, and had had a cough for the past year. He was in the Seamen's Hospital at the end of June with pneumonia of the left base. Nothing abnormal could then be discovered about the heart. On August 4th he was taken ill with "ague" and had shivered several times afterwards.

On admission he was very ill; pulse collapsing. The heart's apex beat was found in the fifth space just inside the nipple line. A diastolic murmur was plainly audible to the inner side of the apex beat, and an indistinctly murmurish sound with the systole at the apex. Respiration was very rapid and shallow. Some moist sounds were heard at both bases. There was prolonged expiration

at both apices. Pulse 130; temperature 100.2°; respiration 60 to 70. Spleen felt just below the margin of the ribs. Urine, sp. gr. 1022, no albumen.—August 12th: Heart sounds muffled at apex. No distinct murmur could be made out. Second sound very accentuated at the base. Pulse still collapsing. Fine râles generally through the chest. Morning temperature 99.1°; evening temperature 101.2°.—13th: Much worse. Physical signs as before. Morning temperature 100°; evening temperature 100.6°.—14th: Respiration very rapid and distressed. Physical signs as before. Morning temperature 100°; evening temperature 101.6°. Urine, sp. gr. 1018. A slight amount of albumen now present.—15th: Much cynosis. Bowels open for first time since admission, loose. Morning temperature 101°. Died 3.30 p.m.

Necropsy.—The heart weighed fifteen ounces, relaxed, left ventricle dilated and hypertrophied. A large rounded mass of worm-like granulations depended from the angle of junction of the posterior and the left anterior segments of the aortic valve, and from the adjoining left half of the left anterior segment, this latter structure being enormously stretched; so that while the worm-like mass hung from its ventricular surface its aortic surface formed a cup-like hollow, in the centre of which two perforations had occurred, extending through the valve and through the mass of granulations beneath and opening into the ventricle. The granulations formed a mass of the size of a large hazel nut, and almost filled up the aortic orifice. Below the line of attachment of the base of the affected valve the tissue of the ventricle was much softened and pulpy, and from this ulcerated patch extended upwards in the middle coats of the aorta, a condition of extreme softening of the tissues, so that a probe could be easily passed along the softened tract. About one-third of an inch above the aortic orifice the probe thus passed entered the cavity of the aorta through an ulceration of the inner aortic coats, about a quarter of an inch in length, while exactly opposite this ulcer on the other side of the aorta was a smaller deep ulceration, quite unconnected with the softened tract running up from the heart, and extending nearly through the whole thickness of the aorta, leaving only a thin part of the outer coat intact, and this, dark in color, and bulging outwards, formed a minute aneurism which must soon have ruptured had life continued. The remaining valves, including the parts of the aortic not mentioned above, were quite healthy, and no sign of old-standing mischief could be found. The lungs were bulky, showing here and there star-like patches of pigmented fibroid tissue; tubes rather dilated; some of the lung tissue highly congested and almost airless; left lung adherent all over; spleen much enlarged; a single large wedge-shaped recent embolic patch in upper part; kidneys seemed healthy; liver rather soft; mucous membrane of stomach showed some small ecchymoses; the brain was normal.

CASE 2. (Under the care of Dr. Carrington.)—Horace L—, aged twenty-two, ship's steward, was admitted July 19th, 1882. The patient had scarlatina when ten years old, followed by dropsy, and (according to the doctor) heart disease. When fourteen years old he had rheumatic fever. He has also had small-pox and yellow fever. On July 13th he became ill with diarrhoea and pains in the head and chest, and delirium at night.

On admission he was too ill to give any account of himself. The heart's apex beat was found in the sixth space, two inches outside the nipple line. A very loud systolic murmur was heard over the aortic valves and upwards and to the right over the ascending aorta, though with diminishing loud-

ness downwards over the cardiac area, but becoming again somewhat intensified near the apex. A diastolic murmur was also present at the base, heard downward along the sternum. Cardiac pulsation very marked; pulse very collapsing, 116 per minute. Spleen felt about an inch below the margin of the ribs. Liver dulness extended two inches below the rib margin in the nipple line. Respiration very hurried (48 per minute); coarse breath sounds both sides. Complexion sallow, almost yellowish; sordes on lips, tongue dry and brown. Urine, specific gravity 1010, contained albumen in large amount, but no bile, and gave a doubtful reaction with the guaiacum test for blood; temperature 103° F.

July 20th.—Morning temperature 101.8°; pulse 128; respiration 56. Urine gave a decided blood reaction; no casts discovered. Evening temperature 102°; pulse 138; respiration 65.—21st: Morning temperature 101.2°; evening temperature 101°. Died 10 P.M.

Necropsy.—Pericardium contained about an ounce of blood-stained fluid. The heart weighed twenty-six ounces, and was enormously dilated and hypertrophied on both sides; the aortic valves were shrunken, contracted, and highly incompetent. The mitral orifice was contracted, and only admitted two fingers. On the posterior wall of the left auricle was a round patch of ulceration about the size of a shilling; its lower margin touched the rim of the mitral orifice along the posterior border, of which a thin line of ulceration extended, running about half-way round the opening. On the ventricular aspect of the larger mitral valve was a second patch of ulceration about the size of a threepenny piece, which extended upwards into the angle between the two corresponding aortic cusps; a third, and yet smaller, ulceration occupied the angle between the two anterior aortic cusps, extending downwards slightly on to the ventricular septum. The surfaces of the ulcers presented a similar appearance, being uneven, indeed, almost flocculent, and not sensibly depressed below the general surface. The lungs were adherent on both sides by old adhesions; both lungs highly congested and oedematous, the greater part sinking in water and almost pneumonic in appearance. The liver was large, pale, soft and opaque; a few ecchymotic points in the interior. Spleen much enlarged, almost diffuent; presented several large recent embolic patches. The kidneys weighed fifteen ounces, soft, so that the capsule, unless carefully removed, tore away the cortex. On section the organs presented thickly scattered points of ecchymosis, each spot being surrounded by an area of intense injection, the bases of the pyramids and the cortical portion being chiefly affected. Several firm, yellowish bands of tissue ran through to the cortex, extending from the base of the pyramid the surface (? old infarcts). The mucous membrane of the stomach showed numerous petechiæ; membranes of the brain injected.

SUSSEX COUNTY HOSPITAL.

TWO CASES OF POPLITEAL ANEURISM.

(Under the care of Mr. BLAKER.)

For these notes we are indebted to Mr. B. Scott, house-surgeon

CASE 1. Popliteal Aneurism cured by Compression of the Femoral Artery.—R. G—, aged forty-two, bricklayer, was admitted September 4th, 1882, with a pulsating swelling in the right popliteal space. Pain and swelling came on about two months previous to admission. For the last three weeks he had stayed in bed, owing to increase of

pain. The pain had kept him awake at night. He had had rheumatic fever. There was no history of how to account for the trouble.

On admission the following notes were taken. There is a swelling about as large as one's fist in the right ham. It can be felt pulsating behind and through the muscles on the inner side of the knee. It descends very low down between the heads of origin of the gastrocnemius. It is four inches and a half in length and three in breadth. There is a distinct aneurismal bruit. The leg is hotter on this side. The subcutaneous veins are enlarged. The tibial arteries at the ankle beat indistinctly. There is pain in the upper end of the tibia. The general health is good. To be kept in bed with his leg resting on its outer side on a pillow and flexed at the knee; and to have the ordinary meat diet.—Sept. 9th: The swelling is rather smaller. Fish diet ordered.—13th: Swelling harder and smaller. He now has a pint of gruel or arrowroot, a pint of beef-tea, and a pint of milk in the twenty-four hours.—20th: The aneurism is to be treated by compression applied to the femoral artery. The skin over the artery has been shaved, and sweet spirits of nitre has been rubbed in daily of late. The course of the vessel is marked out. Compression is accomplished by means of a thick brass wire, straight except at the top, where there is a gentle curve. To its lower end is soldered a circular piece of lead, convex below. This is padded thickly with wash leather. The apparatus is placed on the artery and lead weights are slipped on to the wire. It is kept in place by being tied with bandages round its curved upper end on to a body cradle. The brass wire is a foot long. The minimum weight which stops the circulation is 14 lb 14 oz. The whole can be made to slide up and down along the artery when it is necessary to alter its position without allowing any pulsation below. Five inches of the femoral artery below Poupart's ligament are available in this way.—21st, 10 P.M.: Compression, which has been continued now for thirty-six hours, is stopped. The tumour is hard, smaller, and quite free from pulsation. The patient has had very little inconvenience from the treatment. The weight has been shifted every quarter of an hour. It has been quite needless to give any sedative. He is an exceptionally good patient.

Oct. 12th.—He has not yet got up. The tumour decreases and is hard. No recurrence of pulsation. His diet is now being gradually increased.

Nov. 26th.—To-day he gets up for the first time. He has no pain now. The aneurism is felt converted into a hard non-pulsatile sausage-shaped tumour.

Nov. 28th.—Left the hospital.

CASE 2. Popliteal Aneurism cured by Manipulation and Rest.—C. W—, aged thirty-seven, laborer, was admitted on Nov. 24th, 1880, with an aneurismal swelling in the right popliteal space. He was a fairly healthy man; pulse 72, rather hard; had been married twelve years; and had had no children. He had a sore on the penis twenty years ago, of which the scar remained. There was no history of any secondary symptoms. About six weeks before admission, after walking about on a very wet day, he noticed pain at the back of the right knee. He discovered very soon afterwards a swelling there. This has never gone. He has continued doing his work.

On admission the following notes were taken:—There was a hard pulsating swelling felt in the popliteal space. It was about the size of a walnut. The tumour expanded from side to side. There were no signs of inflammation. It felt as if it contained some clot. No bruit was heard. On raising the limb the pulsation was diminished, and

less force was required on the femoral artery to stop the pulsation.

Nov. 26th.—Yesterday the limb was raised, and the tumour manipulated in various ways. To-day the pulsation has ceased entirely, and the tumour is harder.

Dec. 1st.—There is no pulsation, and the tumour is still more hard.

Jan. 12th, 1881.—There is now a small hard cord in the course of the artery.

On Feb. 5th he left the hospital.

COUNTY DONEGAL HOSPITAL.

CASE OF LARGE SPINAL ABSCESS FILLING THE ABDOMEN, OBSTRUCTING VENA CAVA; ASPIRATION; INJECTION OF TINCTURE OF EUCALYPTUS; CURE.

(Under the care of Dr. TRAVERS B. BARTON.)

RICHARD McL—, aged sixteen, was admitted on Oct. 1st, 1882. He had suffered from spinal curvature for five years. Two years ago the right side began to enlarge close to the umbilicus; since then the abdomen had gradually increased until the breath got short, when he sought advice. The abdomen was enormously distended and full of fluid; dulness from ribs to pelvis on right side to within an inch of the median umbilical line; the intestines were pushed *en masse* to the left side. The superficial veins were very prominent, some as large as a lead pencil in diameter; respiration was short and difficult; slight jaundice was present; measurement round umbilicus $32\frac{1}{2}$ in. The abscess seemed inclined to point in the nipple-line below the ribs. There had been extensive caries of the spine in the dorsal region; at least five vertebrae were implicated, their spines forming a prominent angle.

On the 4th sixty-nine ounces of greenish colorless pus were drawn off by an aspirator, the needle being introduced below the ribs in the nipple-line. Evening temperature 98° ; pulse 72. The abscess appeared about half empty. The needle became choked. The next day the veins were almost invisible; pulse and temperature normal; breathing comfortable; circumference round umbilicus $29\frac{1}{2}$ in. On the 10th the swelling was aspirated and eight ounces of pus withdrawn. The needle choked. On the 15th aspirated to six ounces, and the needle, having again become choked with flakes of pus, was removed and then reintroduced, but it at once became blocked. Three drachms of tincture of eucalyptus were injected through the needle. On the 21st seventy-six ounces of creamy pus were removed, and the abscess was completely emptied. The pus was of a uniform consistence, and flowed slowly but continuously through the needle. Measurement round umbilicus $27\frac{1}{2}$ in.

On Nov. 11th there was no appearance of the abscess filling. Sayre's jacket was applied, and the patient was allowed up. On the 24th the jacket was cut and reapplied, he having become too fat for it.

The patient was discharged cured on Jan. 13th of this year, with a fresh plaster jacket applied. Intestines in both sides of abdomen. No appearance of abscess anywhere. He has gained flesh, and wished to go home to work.

Remarks by Dr. BARTON.—There are some points of interest in this case—viz., the size of the abscess simulating ascites, it having taken five years to form; so little inconvenience was caused that the patient had walked six miles the day before admission; and, lastly, the curious effect the eucalyptus had upon the flaky pus that could not be removed through the aspirator needle. I have not yet heard of any other case in which eucalyptus

has been used in this way, and with a similar result. The pus removed (six days after the injection) had a strong smell of the eucalyptus.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

The Etiology of Scurvy.—Case of Scurvy with Dilatation of the Heart and Retinal Hemorrhage.

THE ordinary meeting of this Society was held on February 27th, Mr. John Marshall, F.R.S., President, in the chair. Two papers were read dealing with the subject of scurvy. Mr. Neale, late Medical Officer to the *Era* Expedition, contributed the first paper, which was listened to with great attention, and excited a very prolonged and interesting debate, which was shared in by Sir. W. Smart, Dr. John Rae, Dr. De Chaumont, Dr. Colan, Dr. Donnett, and others. The second paper consisted in the record of a case of scurvy associated with dilatation of the heart and retinal hemorrhages, conditions attributed by the author, Dr. Hale White, to the anemia present in the disease. At the close of the meeting, the President stated that further opportunity would be offered at an early meeting for the discussion of the questions raised by Dr. Hale White, as other papers on the pathology of scurvy were to be read before the Society.

Notes on some points in the Etiology of Scurvy, by Mr. W. H. Neale. The object of the paper was to discuss the etiology of scurvy, and to consider whether the experience of the late *Eira* Arctic Expedition could throw any light on the question as to how scurvy may best be prevented during an Arctic winter. The recognized predisposing causes of scurvy were bad hygienic conditions, long confinement, want of exercise, monotony, anxiety, exposure to cold and fatigue, to which might be added, in the opinion of the author, the use of an inferior quality of meat, whether preserved or not. The exciting causes were the insufficient supply of fresh, or of good preserved, vegetables, and, in default of vegetables, the want of lime-juice. Anæmia was one of the first symptoms of scurvy, and it was not difficult to account for its production if it were remembered that the life led by a body of men shut up in a ship for at least six months must lead to a deterioration of the quality of the blood. Though every attempt was made during the last Government expedition to provide for good ventilation, the general opinion was that the results were not satisfactory. With regard to the action of an inefficient quantity of vegetable food, statistics were very contradictory. The author proceeded to compare the dietary of the two most recent English expeditions to the Arctic regions. In the expedition under Sir George Nares the hygienic conditions, though not entirely satisfactory, were so good that the outbreak of scurvy could not be attributed to any defect in them, and compared favorably with those under which the crew of the *Eira* passed their winter. With regard to diet and ventilation, however, there were distinct differences in the two cases. From a consideration of the dietary, it was evident that the absence of scurvy in the *Eira* expedition could not be ascribed to the employment of a larger total weight of food, and in particular not to the use of a larger quantity of vegetable food, nor to lime-juice, which was not used for a whole year. No case of scurvy occurred among the crew of the *Eira*. But the diet of the two expe-

ditions differed widely in the kind of meat used; in the Government expedition the crews lived almost entirely on preserved meats, while the crew of the *Era* lived exclusively on fresh meat from animals killed on the spot. All flesh obtained in the Arctic regions can be kept in a state, though frozen, chemically like that in which it was when the animal was killed, and must therefore supply to the body those ingredients which are known to be diminished in scurvy far more readily and abundantly than can preserved meats. The importance of using the blood as well as the flesh was much insisted on. Blood obtained from the jugular vein immediately after death becomes frozen solid before any acid fermentation takes place, and in it exist all the components of healthy blood, some of which are deficient in scurvy. The author made the following suggestions with regard to the conduct of future Arctic expeditions:—1. That the crews should spend the winter in huts rather than on board ship. 2. That the albuminoid food should be abundant, and consist as much as possible of the flesh of recently killed animals. 3. That the meat should be cooked in the form of stews or hashes, to which the blood of the animals should be added. 4. That preserved vegetables should be mixed with every meal, to aid the digestion of the meat, but not because they possess in themselves any special, exclusive, antiscorbutic properties. 5. That lime-juice may be dispensed with if fresh meat can be obtained.

Dr. W. Hale White then read a paper on a case of Scurvy with Dilatation of the Heart and Retinal Hæmorrhages. Out of about twenty cases which were examined at the *Dreadnought* Hospital, only one presented retinal hæmorrhages, and that fell under the author's care. The patient was admitted on Nov. 13th, 1882. He had left Calcutta four and a half months ago, and whilst there had had dysentery. On admission he was very sallow, and his was evidently a severe case; there was swelling of the gums and the usual bruise-like swellings about the body. The apex beat was in the fifth space one inch outside the nipple line, the area of cardiac dulness was increased, there was in the third left intercostal space a loud systolic murmur, the first sound at the apex was muffled, and arterial murmurs were present in the neck. The pulse was weak and almost thready. In the right eye were two large hæmorrhages, one above and one below the disc; they were striated at the margin, and white in the centre. The blood showed only 40·5 per cent. of the normal number of white corpuscles, and only 20 per cent. of the normal quantity of hæmoglobin. The patient remained in the hospital a fortnight, and was treated with lime-juice and put on full diet. He steadily improved; the retinal hæmorrhages became less distinct. The red corpuscles increased to 63 per cent. of normal, and the hæmoglobin to 35 per cent. The basic systolic murmur disappeared, but the apex beat remained in the same position. It was pointed out that this case presented the following points of interest: First, the influence of the previous dysentery in making the attack of scurvy severe, which severity was evidenced by the marked blood changes; secondly, the presence of retinal hæmorrhages, a very unusual occurrence as compared with other anæmic diseases, and which was to be explained by the fact that scurvy as seen nowadays was not severe enough to produce retinal hæmorrhages; and, thirdly, the dilatation of the heart. It was shown that this is the only recorded example of this condition in scurvy, and, considering the close alliance of this disease to other anæmic diseases in which it was known that the heart was fatty, it was presumed that here also this was the cause of the dilatation.

The President said that the chief interest would no doubt be centered in Mr. Neale's paper, in which a decided challenge had been given to the old idea that lime-juice is the main and only antiscorbutic, or at any rate that vegetables are so. Scurvy is induced by diet, not by a mere deprivation of food, but by a lack of some constituent essential to the maintenance of the blood in a healthy state. They required the chemist to tell them if there were any recent facts made out concerning the blood in scurvy, particularly as to its deficiency in salts. Then they required to know what amount of albuminoid food was necessary to prevent scurvy, and particularly the influence of fresh albuminoid food; also whether carbohydrates were beneficial because of the carbon and hydrogen they contained, or because of the salts with which such food was associated, and the nature of the salts that were of benefit. He thought Mr. Neale's suggestion of the use of blood as a diet most valuable, since it is the blood that is at fault. They were honored by the presence of many medical officers of both services who had had experience in this disease, and he would follow the etiquette of the service by calling upon the juniors to speak first.—Dr. Colan said that his experience had convinced him that the essential cause of scurvy was the absence from the food of something which is supplied by fresh vegetables, probably an organic acid, free or combined. He enumerated the characters of the disease, and stated that the worse cases he had in the Polar Expedition were those in which there was hydrothorax and hydropericardium, owing to the heart's action being impeded. The blood may be altered by the addition or absence of ingredients, probably the latter. Assuredly under certain articles of food the blood quickly regains the normal; and of all scorbutic effects the serous effusions are the longest to be removed. The conditions of Arctic life might dispose to the disease; thus in the Nares expedition they were living in extreme cold, 105° below freezing point; were 140 days without the sun, and lived for six months on board without opening a skylight. Added to these conditions were depression of spirits and great physical fatigue, each man in the sledging parties having to drag 220 lb. weight over ice hummocks as large as houses. The great remedy is a sufficient supply of first vegetables and fruits, which contain malic, citric, tartaric, and other acids, and their potash salts, which are probably broken up into carbonates in the system, and supply some necessary element to the blood corpuscles, or albumen. He found lime-juice of the greatest possible service in that expedition. The supply came from Montserrat in the West Indies, and was fortified with 10 per cent. of spirit (it contained twenty-seven grains of citric acid to the ounce, the unfortified juice containing forty-two grains to the ounce). On the sledging expedition it was carried in skins containing eight ounces for eight men daily, and when frozen it was mixed with the pemmican. He insisted upon the pure juice being used, and thought no concentrated forms should be tried. In the absence of lime-juice, he advocated the alkaline citrates, tartrates, and acetates. Pressed vegetables were far less useful, they lost something in preparation, and he doubted if they could ward off scurvy, although a high authority in the French fleet considered that pressed vegetables did retard the progress of the disease. But in spite of the vegetable supply, scurvy broke out in six ships of that fleet, but it disappeared when, after arrival in port, a supply of fresh vegetables was obtained. He thought wine and beer were useful, but ardent spirits harmful. He also agreed with Mr. Neale as to the good derived from fresh meat, which should

be raw, and, if possible, in large quantity; he had given his men the skin of the narwhal and walrus flesh, and it was the best substitute for fresh vegetables, possibly because of the lactic acid in the flesh. He had given lime-juice to Esquimaux suffering from scurvy. Milk also is a very good antiscorbutic. The instances of scurvy occurring on vegetable diet may be due to the fact that the essential salts were absent. He trusted that they would soon cease to talk of the treatment of scurvy in the adoption of preventive measures. Every vessel making a quick passage should have an ample supply of fresh vegetables, and sailing vessels should be made to call at ports to renew their stock, and, if this failed, a ration of lime-juice should be served out, beginning with an ounce per man daily, and if the voyage were prolonged, this might be increased to eight ounces daily. Many cases of scurvy are complicated by inflammation of the lungs, liver, and spleen, which lime-juice cannot avail. In our Polar Expeditions, with all the attendant hardships and fatigue, lime-juice was indispensable; and it would be well if, in addition, there should be added such vegetables as raw potatoes preserved in molasses or in earth, which could again be utilized for sowing mustard and cress. It might also be right to send out a second ship with a supply of sheep, which could be killed and preserved in ice. Most of his men on their return looked unhealthy and blotched, but after a month in England they regained a fresh and healthy complexion. He believed with Mr. Neale, that the fresh air obtainable by the *Eira* Expedition was a great aid. They lived in a hut; but in his ship they had to live for six months in darkness between the decks, with an atmosphere charged with $\frac{1}{4}$ per cent. of carbonic acid besides great moisture. They would have been better off in a hut in spite of the cold, for cold was less harmful than bad air. He reiterated his opinion that the main prophylactic and cure for scurvy was a supply of fresh succulent vegetables or lime-juice or some of the organic potash salts. Next to that was fresh meat. In this he would be borne out by Dr. Ninnis, his colleague in the Arctic regions, who had had great experience in scurvy in other parts of the world, and whose absence that evening he regretted.

Dr. Donnett had never seen a case of scurvy on board any ship to which he had belonged, and his experience of the disease had been amongst seamen landed from merchant ships, often very badly provided with means for preventing the disease. From these cases he had drawn certain inferences as to its etiology—viz., that scurvy results from the absence of some protective influence contained in vegetable food, fresh flesh, and fish. He thought that neither cold, nor fatigue, nor mental despondency would induce scurvy of itself. In the Russian Campaign of 1815, in spite of intense cold, no case of scurvy occurred in the French army. Fatigue, no doubt, predisposes to it. In Markham's and Bowman's expeditions great fatigue was endured, the ice hummocks being represented as a city reduced to ruins by an earthquake. The essential element in diet that is protective of scurvy, the absence of which produced the disease, was probably some acid—e.g., citric, oxalic, tartaric, phosphoric—free or combined with an alkaline base. It was not true that certain races had immunity from the disease; he had seen it in Lascars, Chinamen, Esquimaux, as well as in Europeans. As to the value of lime-juice, he did not think that by itself it would prevent scurvy, but it should be associated with fresh food. Its value was great, however; for before its introduction, in 1795, ships could not put to sea on account of the disease, but five years later, in

Lord St. Vincent's expedition, only ten men had scurvy. He regarded the introduction of lime-juice as a boon parallel to the introduction of vaccination, or to the discovery of the circulation. Fresh meat, when obtainable, was better than lime-juice, and potatoes were valuable. Kane, who suffered dreadfully from scurvy, said that if he had only been able to have frozen walrus he would have laughed at it. Dr. Donnett had examined the men in McClintock's two expeditions, and, although they were a long time separated from their ships, they remained healthy. After eighteen days' journey they shot a reindeer, and consequently were able to have fresh animal food. Contrasting the *Eira* Expedition with the late Polar Expedition, he pointed out that the *Eira* men could do as they pleased, and were not exposed to nearly so much fatigue. He thought that the medical profession should take up the question of scurvy upon merchant ships. The men sign articles with no knowledge of their contents; the captain consults his own interest, and cares nothing about the quality of the food supply; he lays in bad provisions, a few vegetables, and a little lime-juice. The Board of Trade should institute a systematic inspection into this matter, and the certificates should be countersigned after such inspection. The Royal Medical and Chirurgical Society might bring its influence to bear on the Board of Trade to enforce such measures.—Dr. John Rae said that his experience of four years in the Arctic regions—not, to be sure, so far north as Dr. Colan was—had taught him that neither cold, nor work, nor other privations produced scurvy. He had been there in stormy weather, in a temperature of 30° or 40° below zero, without a fire; for in his first year they lived in a stone hut, and the door had to be opened whenever a fire was lighted to let out the smoke. Their food consisted chiefly of venison; they killed but few seal. They were perfectly healthy, and took a good deal of exercise. The confinement in the hut did not affect them. In the spring they started off and travelled some 1,400 or 1,500 miles, 500 miles being so rough that they had to carry everything on their backs, for the sledges could not be dragged over the high and rounded hummocks of ice. It was much harder work carrying fifty or sixty pounds' weight than dragging twice that amount. They got short of food, and consumed even the bones and claws of the few ptarmigan that they shot, but did not contract scurvy. They had no spirits or wine, only tea; and he valued highly some extract of tea supplied him by Dr. Bence Jones, of which they were able to make a warm infusion when the heat of the lamp was insufficient to boil water. He had suggested this extract for use in the Nares expedition, but his suggestion was not acted on. He travelled with two or three of his men about twenty miles a day, on one occasion twenty-four miles. He did not claim great credit for this. He and his men were accustomed to sledging, were able to kill game, reindeer, etc. The meat was chopped up fine and mixed with the animal's blood, which was preserved frozen in the stomach. Certainly they had not half the quantity of meat that the Leigh Smith expedition had; and perhaps if the *Eira* had been wrecked fifty miles away they might not have found any walrus. Again, the men of the *Eira* were all whalers and sailors, and yet were not under naval discipline. So in his own case; there were no officers, but he never had a word with the men. He opened a school and taught them. They first had to get food, which they risked their lives in procuring. His books placed against the wall froze together, and could be only thawed by taking them into their beds. In spite of this intense cold, etc.,

there was no scurvy. They had no lime-juice and hardly any vegetables. He was not afraid at all that scurvy would break out if men were given plenty of exercise and not kept too warm in winter. A great quantity of meat seemed necessary, about 8 lb. per man a day. Sir J. Richardson calculated that his men's ration was from 7½ to 7¾ lb. The reason why so much meat is needed is perhaps because the system requires something that is present in meat in but small amount. His own experience of scurvy was when he went to Hudson's Bay forty-nine years ago, as a newly qualified surgeon of twenty years of age. Scurvy broke out, and they had only a scanty supply of lime-juice, salt junk, and barely any vegetables. The men fell ill one after another; the captain and first mate died, both of them being rather addicted to taking too much grog. As the spring advanced, the snow cleared off a hill near them, and a bed of cranberries was disclosed. He turned the scorbutic men to feed on these cranberries, and before the ship was ready for sea they had all recovered. There was also some wild vetch, with which they made soup. He agreed that people can live without vegetables, provided they have fresh food; and he had always recommended that cranberries should be taken on Arctic expeditions, for he believed they contained substances most likely to drive away scurvy.

Sir W. Smart had listened with great pleasure not only to the papers that had been read, but to the statements of those who had had experience of the disease. Although as a naval officer, it had been his duty to acquaint himself with the literature of the subject, he had never seen scurvy except on the coast of Africa and in the Crimea. For, although he had charge of Haslar Hospital for four years and a half, he had never seen a case of scurvy there. An animal diet is of the highest importance in the prevention and treatment of scurvy. He had read in Churchill's voyages how eight Englishmen in 1630 were left without food on the coast of Greenland in the month of July. They remained there till the following May, having no vegetables, but subsisting on the animals they could kill. When rescued, in May, 1631, not one of those men had a symptom of scurvy. In Kane's expedition, where the men passed a winter upon the ice, no scurvy broke out; their food being composed of the animals they killed. It was not necessary to cite other instances after Dr. Rae's testimony on this point. He could only say that an animal diet would suffice for six months to ward off scurvy as well as a vegetable diet could. The men of the *Investigator*, although shut up for two winters and three summers, did not begin to suffer from scurvy until the third summer. They had been able to obtain animal food—reindeer, musk ox, and ptarmigan—in great abundance, and had subsisted on it. But in the second spring they began to find they would not get out for another year, and with the warm weather scurvy appeared. This instance showed that an animal diet was preventive of scurvy up to a certain point; moreover, mental despondency was added to the causes of the disease from which more than one died after the rescue. Sir John Ross in 1830-33 obtained a good deal of fish as well as animal food, and the amount of scurvy amongst his men was very small. The valuable and interesting paper by Mr. Neale not only raised the question of animal diet being antiscorbutic, but it proved the advantage of living in huts, rather than on ship-board. He believed that men are kept too warm when confined to the ships, and that the heat and moisture are harmful. Parry in one of his voyages says that he considered damp and heat the principal causes of scurvy. Ross showed that

in his hut men could bear a very low temperature, and Dr. Rae and Mr. Neale had borne this out in their experience. Therefore he believed that the prevailing system of making the ships a kind of hot stove in the Arctic climates is a great mistake. Dr. Colan had told them what was the state of things on board the *Alert*, and he (Sir W. Smart) had always maintained that this was the reason why the men who went on the sledging expedition returned to the ship in a worse state of scurvy than if they had lived in a hut. The use of antiscorbutics was the only rational means of preventing or curing the disease; and if scurvy breaks out on board ship, if fresh meat or vegetables cannot be obtained, then lime-juice should be given; vegetables, of course, could not be got at the North Pole. During 150 years the importance of lime-juice had been fully proved. Vegetable food alone was not sufficient; scurvy broke out in a French vessel laden with citrons. Dr. Colan's suggestion that a shipload of sheep should be sent with every expedition was valuable; but why was not time for ships to stop in Smith's Sound allowed to permit of a sufficient supply of fresh meat being stored?—Dr. De Chaumont said that he had no experience of scurvy in the Arctic regions, but had met with it in the Crimea and in civil life. Mr. Neale's paper and Dr. Rae's remarks were very valuable as showing the importance of a diet of fresh meat. In the Crimea, in the spring of 1856, the men were left on one occasion fourteen days without fresh meat, and scurvy began to appear among them. There was a tolerable supply of vegetables, chiefly dried potatoes; and officers, on paying large sums (as 2s. 6d. for a cabbage, and £4 for a small sack of potatoes), could get fresh vegetables. The fact was that the commissariat, having salt rations on hand, kept the men on these, although there were 10,000 cattle eating their heads off in the neighboring plain. The want of fresh meat was then a cause of scurvy. His opinion as to the disease had not been altered by what he had heard that night. It was 'a disease of the blood due to deficiency of organic acids and salts, and the reason why lime-juice and fresh vegetables were of value was because they contained these substances in the largest and most concentrated form. If the *Eira* Expedition had lived entirely on walrus meat, it would have been a crucial test of the efficacy of such a diet; but they also had a very large quantity of vegetables, nearly half a pound daily for the fifty weeks. Affairs were very different in the Nares' Expedition, the crews there were under bad hygienic conditions; they had a large quantity of vegetable food, pressed potatoes, pickles, jam, lime-juice. Indeed, Captain Nares gave his men a double allowance of lime-juice, thinking it would the better ward off the scurvy; but he did not consult his medical officer on the point, or as to the victualling of the sledging parties—viz., one pound of pemmican, no lime-juice, and two ounces of dried potato. It had been said that dried potato was equivalent to five times its quantity of the fresh tuber, but this was an error. There was no wonder that the men knocked up on this ration, particularly when the work they did was considered. On the most moderate computation, he had calculated that each man on one of these sledging expeditions did work equivalent to 500 foot-tons per diem. For a well-fed, healthy man 300 foot-tons is a good day's work; and it must also be remembered that the men on the expedition were often unable to swallow their pemmican, and were exhausted by diarrhoea. The conditions, therefore, of the two expeditions were totally different. The damp and foul air on board ship must be put aside as a cause, for the men did not get the scurvy till they went on the sledging expedi-

tion. A main cause of the outbreak of scurvy among the crew of the *Investigator*, referred to by Sir W. Smart, was that the supply of lime-juice failed them. It was probably the lactic acid in fresh meat that gave it antiscorbutic qualities, which was further supported by Dr. Rae's remarks as to the large quantities of meat that the men required. It would be suicidal of any government to equip an expedition without fresh vegetables or lime-juice. Dr. Rae told him that in one of his expeditions he had found fresh fish of service, as salmon. As to the supposed immunity of the Esquimaux, it must be remembered that they freeze and store up for consumption all the vegetable matter found in the stomachs of the reindeer and musk ox. The Kafirs are in the habit of eating the contents of the stomach of oxen, no doubt with the same object. In the Cape scurvy has broken out at times amongst our soldiers, although it is a warm climate, but where no vegetable food was at hand. Then there are cases in civil life among people who neglect eating vegetable food; they have scorbutic symptoms, which are cured by lime-juice. Dr. Aitken had told him that one of the worst cases he had seen was in civil life; the patient had been living almost entirely on roast mutton and bread. He was cured by vegetables. Dr. De Chaumont thought that it would be very dangerous to apply the results obtained from the *Eira* Expedition under favorable circumstances to all circumstances. In some cases of scurvy vegetables have been used more or less, but until we can get freedom from scurvy in cases where diet is restricted entirely to meat, the view of the influence of vegetables cannot be discovered. But it must not be supposed that all those who are placed under conditions liable to produce scurvy will get it. Some people are exempt from typhus fever, although exposed to infection. There may be found in picked crews men who are capable of withstanding the evil influences which produce scurvy.—Sir Joseph Fayrer pointed out the enormous decrease in cases of scurvy admitted into the Naval Hospital on the introduction of lime-juice at the close of the last century; before then there were 2,000 cases in the fleet; but after the introduction only one man a year. He remembered the intense desire for vegetable food he and his companions experienced when shut up in Lucknow during the siege. Men risked their lives to obtain the small species of cruciferous plant that grew outside the walls, which were sold to the besieged residents for its weight in silver. Scurvy attacked many of them, who (he among them) had to be sent home. The hygienic conditions under which they had lived during these five months had been very bad, and these coupled with the utter absence of vegetable food, produced scurvy. At the same time people do get scurvy although having vegetable food, as he had seen in malarious districts in India cases presenting all the features of scurvy, in the condition of the gums, hemorrhages beneath the skin, and in the sheaths of tendons.

Dr. Robert Barnes had some experience of scurvy as physician to the *Dreadnought*, and had spent a year on board a merchant ship. He concluded that the absence of lime-juice, as representative of food containing the essential salts for healthy nutrition, was the cause of scurvy. Other substances possessed the same properties. Men and women had lived for a considerable time on a floe of ice, subsisting on raw flesh, which might be likened to milk. Dr. Rae's experience bore this out. At the same time vegetables will largely supplement animal diet. If a government could be found which would send out an expedition to the Pole without supplying lime-juice, or its equivalent, it ought to

be indicted before the opinion of the world. In merchant ships scurvy is a disease of the fore-castle, not of the cabin. If the captain and his officers can take care of themselves as to diet, he should be bound to look after his men too. There should be an inspection, not of the food alone, but of the crew, and the captain should be held as responsible for their health as the master of a household is for those under his care. It had been conclusively shown that night that raw meat and blood were admirable adjuncts to lime-juice as antiscorbutics. Although bad hygiene has some influence, it must be remembered that scurvy has broken out in the open air—in Canada, in the tropics, and elsewhere.—Dr. Rae, referring to Dr. Barnes's remark, mentioned that of the twenty-nine deaths in Franklin's ships nine were officers.

Dr. Barnes said he was alluding to the merchant service; he was aware that in the Army and Navy officers always endure privations with their men.

Dr. Buzzard said that even if he had not recorded his convictions about scurvy in an article he wrote in Reynold's "System of Medicine," fifteen years ago, he should have felt it unnecessary to say anything after the speeches they had heard from Drs. DeChaumont and Barnes. He wished, however, to ask Mr. Neale a question: Did Mr. Leigh Smith suffer from scurvy?—Mr. Neale: Not in the slightest degree.—Dr. Buzzard: Then, did Mr. Leigh Smith eat any of the fresh meat?—Mr. Neale: No; Mr. Leigh Smith only partook of the soup, but always insisted on his portion being well thickened with blood. He was unable to eat the coarse animal food.—Dr. Buzzard continued, pointing out that the pressed potatoes are only half boiled, and are not dried or submitted to prolonged heat, which might affect their antiscorbutic value; and no less than half a pound of these pressed vegetables was available for each man of the *Eira* during their sojourn.—Dr. Reginald Thompson said that as a little doubt had been raised as to the possibility of a man living on an exclusively meat diet, he would mention that when he met Dr. Rae in Rupert's Land he was in charge of an expedition of half-bred natives. They had no vegetables, but some tea, sugar, and flour. He was never in better health, and ate enormously of meat, which, on the only two occasions he had an opportunity of employing it, amounted to 8 lb. a day. This supported Dr. Rae's remark that if one has to subsist on a meat diet enormous quantities have to be taken.—Mr. Neale, in reply, suggested that Dr. Colan should have made use of the acids, of which they had such abundance. The vegetable supply on the *Eira* was not more than other expeditions had. These men were subjected to fatigue. Dr. Rae and Sir W. Smart had given instances of the value of fresh meat. The failure of a meat diet in summer, as in the *Investigator* case, might be explained chemically by changes which the flesh underwent after being killed. It was very important that the meat should be quite fresh, and the blood unchanged. The crew of the *Eira* were not picked men. They were collected from Peterhead and Dundee after the whalers had left. Some of these men had had scurvy, when kept on board ship on previous voyages. One of these, who had had scurvy three times, on one occasion was so bad that he was sent on shore to die; but he was put between two Esquimaux women and had flesh diet, and recovered. Captain Murray, of Peterhead, had wintered in the Arctic regions eleven or twelve times, but had never had scurvy, living on seal meat. He did not wish to say for a moment that vegetables and lime-juice do not act as cures for scurvy, but to suggest that fresh meat would be found equally efficacious.

The President apologized to Dr. Hale White for

not calling for a discussion on his paper, but there would be an opportunity for his observations to be dealt with at a future meeting, when two other papers dealing with the pathological aspect of scurvy were to be read. He thanked the writers who had contributed so much that was interesting. Hitherto scurvy has been dealt with on empirical principles; none of the trials made were scientific, they all contained fallacies, such as Dr. DeChamont had indicated. If any Government inquiry were instituted it ought to be a scientific inquiry, and they should first have scientists to tell them what scurvy is, and then inquire as to its rational treatment. This was one of the cases where English medicine was on its trial, and he trusted that the subject would now receive full and complete scientific investigation.

Annual Meeting.—President's Address.

The annual general meeting of the Society was held on Thursday, March 1st, 1883, Mr. John Marshall, F.R.S., President, in the chair.

The President, on taking the chair, declared the ballot open for one hour, nominating Dr. C. H. Carter and Mr. George Eastes as scrutineers. The report of the President and Council, which was read by the Secretary (Mr. Berkeley Hill), announced to the meeting the continued prosperity of the Society, and the progressive increase in the number of its Fellows. The number of deaths among them had been nineteen, which was about the average of the last twelve years, and among these were two of the honorary Fellows, Mr. Charles Darwin and Dr. John W. Draper. The new elections had been twenty-six (twenty-one resident and five non-resident). A few minor changes among the Fellows as to non-residency, etc., were enumerated, and the number of subscriptions was stated to be 301, against 292 in the last report, and the total number of the Society, resident, non-resident and honorary, was 704. The items of receipt and expenditure were, in most cases, much the same as in recent years, an increase, however, being observable in the expenditure on the library, stationery, and repairs account. There had been also a large "extraordinary" expenditure on repairs of the exterior of the house, which the ground landlord had required to be done, and which, with an expenditure on the seats of the meeting and other decorative improvements, amounting in all to about £250, had been defrayed, with the exception of a small balance, out of the current receipts of the last two years. It was stated that these alterations, much to the Society's benefit, had been carried out with great judgment and economy under the careful supervision of the retiring secretary, Dr. Reginald Thompson. The payment of the sum of fifty guineas to the Harvey Tercentenary Memorial, voted at previous anniversary meetings, having been shown to be illegal, the amount had, owing specially to the exertions of the treasurer, Mr. Cooper Forster, been made up by a subscription among forty of the Fellows. The report also alluded to the time having arrived for a second award of the Marshall Hall Memorial Prize, and that the Council recommended to the Society its presentation to Dr. David Ferrier for his investigations into the physiology and pathology of the nervous system. A change in the character of the printed proceedings had been made by the introduction of reports of the discussions at the meetings, and, to facilitate these discussions, abstracts of the papers had been printed for distribution before each meeting. The report of the librarians stated the number of additions to the library (467 works), and, after referring to the triennial inspection of the library by the committee having taken place, and

the library found in excellent condition and perfect working order, gave full details as to the number of volumes in the library (33,500), the number of books taken out, of daily visitors, etc. The adoption of the report was moved by Dr. Julius Althaus, who congratulated the Society on its prosperous condition, and praised in eloquent terms, and with reference to the contemporary condition of scientific research on the nervous system on the Continent, the judicious award of the Marshall Hall Prize to Dr. Ferrier, whose researches rendered him so worthy a recipient of it. The motion was seconded by Mr. Pickering Pick, and carried unanimously. The President then called upon Dr. David Ferrier to come forward, and addressing to him a few complimentary words upon the grounds upon which the award had been made to him, presented him with the diploma recording his selection as the second Marshall Hall prize-man, and with a cheque for the amount of the prize (£85) at the same time. Dr. Ferrier thanked the President and the Society for the high honor they had conferred upon him by their selection of him as a recipient of the prize.

The President in addressing the meeting introduced at once the subject of the losses the Society had sustained among its Fellows during the past year, which he said were so numerous and important that he must defer the task of considering more general questions relating to the Society and to the progress of medicine and surgery to a future opportunity. The President gave a short classified enumeration of the deceased Fellows, of whom the non-resident were nine, including three, Drs. F. E. C. Hood, F. R. Hogg, and Charles Morehead, who had served with the army in India; three others, Drs. Richard Elliot, of Carlisle, Richard Cross, of Scarborough, and William McEwen, of Chester, who had been engaged in practice in large provincial towns; and three, Drs. W. W. Johnson, Joseph Williams, and George Budd, who had retired from metropolitan practice to reside in the country; one deceased physician, Sir James Alderson, though he had ceased to belong to the Society, was connected with it for many years, partly as a non-resident, but chiefly as a resident Fellow, and had in 1865-6 been a President of the Society. There were eight deceased resident Fellows, Dr. Robert W. Lyell, Dr. Alexander Silver, Mr. J. T. Clover, Dr. Robert Taylor, Mr. George Critchett, Dr. Peacock, and Sir Thomas Watson; and there were two honorary Fellows, Dr. John William Draper, of New York, and Mr. Charles Darwin. The President went into full details of the lives of the deceased, taking the individuals in each class in the order of the duration of their fellowship, beginning with the youngest, which he said he found to correspond with their ages, influence, and position in the profession. For such statements, he said, as were not based on his acquaintance with the deceased, or on circumstances regarding them which had come within his own cognizance, he was much indebted to obituaries which had already appeared in the public journals.

In his notice of Dr. George Budd, the President referred to the interesting fact of so many of his brothers (seven out of nine) having become members of the medical profession, he being third wrangler at Cambridge, and his successive connections with the Middlesex Hospital, the *Dreadnought* Hospital Ship, and King's College, the offices he held at the College of Physicians, and the production of his standard work on Diseases of the Liver and Stomach. In the notice of Mr. Clover, he went very fully into the points of the amiability and unselfishness of his character, his patience and cheerful resignation under the wearing effects of chronic pulmonary disease; and his large expe-

rience and wonderful ability in the administration of anesthetics, so well illustrated in his valuable article on the subject in Quain's "Dictionary of Medicine." Full notices of the life-incidents, character, and works of Mr. George Critchett, Dr. T. B. Peacock, and Sir Thomas Watson, concluded the obituary portion of the address, in which the speaker largely dwelt upon Mr. Critchett's excellence as a teacher and his acknowledged dexterity as an operator, his promptness in consultation, and considerate kindness to his patients; Dr. Peacock's predilection for pathological investigations, and his gradual concentration of them on the malformations and diseases of the heart; the presentation of his unrivalled collection of examples of these diseases to the Hunterian Museum; his strongly marked individuality, precision, conscientiousness, and simplicity of character; and his fondness for foreign travel and frequent journeys abroad for the recuperation of his energy. The origin, and collegiate, and early life of Sir Thomas Watson, the "Nestor of English Medicine," who had died at the patriarchal age of ninety years and nine months; his connections as physician and lecturer with the Middlesex and King's College Hospitals and their outcome in the publication of his celebrated Lectures, the estimation of which has been in our time almost unique, the description of disease in them being so full and clear as to cause him to be compared with Sydenham, and their scholarly style having gained for him the appellation of the Cicero of English medical literature; his professional eminence, moral worth, sagacity, integrity, and steady adherence to those high principles of duty which made him so fit to advise on all ethical questions relating to our profession, entitled him justly to the name of the "greatest English physician of the present century." The President then gave biographies of the two Honorary Fellows: Dr. James William Draper, the physicist, chemist, and physiologist, and Charles Darwin, the great naturalist; with notices of their works, and a discussion of the question of the important influence they had had, especially those of the latter, on the science of the day; and then summed up his address with reflections on the lessons we might derive from these histories of the careers of the deceased members, from which peroration the following words are extracted:—"The thought has often occurred to me, and no doubt to many besides, what an amount of accumulated experience and wisdom is blotted out at the death of each master of the craft of medicine and surgery; and if we reflect on the number of gifted, learned, and industrious men who have passed from our ranks during the last twelve months, we may well feel dismay that so much slowly acquired individual knowledge has been here extinguished, and so much personal power has thus died out. But, fortunately, owing to the liberal intercommunication of ideas which distinguishes the real from the false disciples of Esculapius, amongst the instruments of which are societies or brotherhoods like ours, such knowledge and power are handed on from period to period, and the example of one generation is emulated by its successors. If we study the record of the lives of our deceased Fellows which I have put before you, we find that they possess one common characteristic—viz., devotion to work. Whether they were born to affluence, or entered upon life supported by moderate or scanty resources; whether their early education was of the highest order, or of humbler pretensions provided for them or secured with difficulty; at whatever medical school they were trained; whatever professional titles they acquired; whatever the branch of practice to which they had recourse; whether in Lon-

don, the provinces, or abroad; whether they had the early support of powerful friends, or struggled upward by themselves; whether they were shaped by circumstance or compelled circumstances to bend to them; whether they aimed solely at professional eminence or sought relief to their redundant energy in the duties of citizens besides; whether they were rewarded by the rich or the poor, by the public, the profession, the Government, or the Crown; and, lastly, whether their lives were so prolonged as to secure the full fruition of their aims, or were cut so short that they saw but visions of future success—it is apparent, I say, that all were devoted to their work." After a few words relative to the special interests of the Society in relation to the deceased Fellows, the President concluded by exhorting the Fellows to continued efforts towards increasing the prosperity of the Society.

A vote of thanks to the President for his address was moved by Mr. Spencer Wells, and seconded by Mr. H. W. Page; and the motion, having been put to the meeting by the Treasurer (Mr. Cooper Forster), was carried with acclamation. Thanks were also voted, on the motion of Mr. Thomas Smith, seconded by Dr. Macfarlane (of Kilmarnock), and carried unanimously, to the retiring vice-presidents and other members of the Council; and a vote was also moved by Mr. Christopher Heath, seconded by Mr. R. W. Parker, and carried with applause, to the retiring secretary, Dr. Reginald Thompson, and the retiring librarian, Dr. Edward H. Sieveking, for their zealous and valuable services, the mover especially referring to the rather severe addition to the usual secretarial duties which had fallen to the lot of the retiring secretary, who, during the three years of his holding office, had had to superintend repairs, alterations, and improvements, external and internal, of the Society's premises, in which his valuable knowledge and judgment in these matters had been of the utmost service to the Society.

During the course of the meeting, the President announced the result of the ballot for officers and council for 1883-84:—President: Mr. John Marshall. Vice-Presidents: Dr. John Russell Reynolds, Dr. Reginald Edward Thompson, Mr. William Scovell Savory, Mr. Richard Barwell. Treasurers: Dr. Charles Bland Radcliffe, Mr. John Cooper Forster. Secretaries: Dr. Reginald Southey, Mr. M. Berkeley Hill. Librarians: Dr. Charles Hilton Fagge, Mr. John Whitaker Hulke. Other Members of Council: Drs. G. F. Blandford, Dyce Duckworth, Gee, Pavy, J. E. Pollock, and Messrs. Cowell, Henry Power, Howard Marsh, Septimus W. Sibley, and Spencer Watson.

CLINICAL SOCIETY OF LONDON.

Hydrophobia.—Pseudo-hypertrophic Paralysis.

THE ordinary meeting of the Clinical Society of London was held on Friday, Feb. 23rd, Dr. Andrew Clark in the chair. In reference to Dr. Broadbent's cases of true and spurious hydrophobia, we are requested to state that the committee appointed by the British Medical Association to investigate this disease is still continuing its investigations, and the members of it would be glad to have the opportunity of themselves examining any cases of this disease.

Dr. Broadbent's first case was one of supposed Hydrophobia, treated by Chloral; recovery. The patient, a boy, aged twelve or thirteen, was admitted into St. Mary's Hospital on Feb. 20th, 1876, suffering from violent convulsive attacks, which had been going on for two days. The paroxysms

were ushered in by a loud, deep breath, and there was first momentary rigid extension of the body, followed by rapid rotary movements of the head, with loud laryngeal sounds, which lasted two or three minutes, after which the boy moaned and complained of pain in the head. These attacks were at once brought on by an attempt to drink, by the sight or sound of falling water, by the contact of a cold object, or pressure over the heart, or by light thrown into the eye in attempts at ophthalmoscopic examination. In the intervals the boy was conscious and fairly clear in intellect; his countenance was pale and anxious; the skin clammy; temperature normal; pulse 108, small, weak, and hesitating; respiration sighing. There were frequent extensive jerks of the body and limbs. The idea of hydrophobia had occurred to his parents, but the only dog the boy was known to have played with was alive and well. When asked if he had ever played with a strange dog, the boy said that he and some companions had found and shut up a strange dog, and that it had bitten him on the hand, but he had forgotten which. There was found, however, on the fleshy part, between the thumb and finger of the right hand, a small scar, surrounded by an extensive induration like that of a chancre. After a trial of nitrite of amyl, with no good effect, twenty grains of chloral, one ounce of brandy, and two ounces of beef jelly, were given by the bowel every three hours. The boy slept, had only slight occasional spasms, and was soon able to drink milk. On the 28th he was apparently well, and the chloral was suspended; but on the evening of the 29th he had a violent relapse, which continued. On March 1st chloral was again given till the 11th, when he had been up and running about the wards for several days. He remained in the hospital till April 2nd, and was kept under observation for some time longer. When he was taken to the hospital chapel, the first notes of the organ threw him into a state of uncontrollable excitement, with violent throwing about of the arms; and he could not for a time bear the sound of a barrel-organ. The case was submitted to the Society exactly as it was written out six years before from the notes of Mr. Jackson Garritt, at that time resident medical officer. If the boy had died there would have been no doubt of the disease being ascribed to hydrophobia. The symptoms, while not corresponding in all particulars with those seen in some fatal cases, were closely similar, and the induration round the bite was corroborative evidence. The circumstances excluded emotional excitement as a cause of spurious hydrophobia; and there was nothing in the boy's previous history or character to suggest that he was a likely subject for hystero-epileptic simulation of the disease. Chloral was given, partly because it seemed best adapted, from its physiological effect, to relieve the spasm, partly in the hope that it might rob death from such a disease of part of its horrors.—Case 2: A healthy girl, a month after being bitten by a strange cat, complained of nausea, sickness, and loss of power in the arms, and next day, after feverishness and thirst, became excited and unmanageable, and was brought to the hospital at 10 p.m., July 31st, 1881. She was excited and delirious, but could answer questions; asked for water, though she could only take it out of a spoon after hesitating and with evident effort; it was swallowed with difficulty and provoked spasm of pharynx and neck. Chloral and bromide of potassium were given in beef-tea by the rectum. During the night the child became rapidly worse, more delirious and excited, with expectoration of viscid mucus and complete inability to swallow. She died exhausted less than twelve

hours after admission. At the post-mortem examination there was some congestion of the brain and upper part of the spinal cord, especially in the floor of the fourth ventricle, and sections of cerebral cortex and all other parts showed congestion of vessels, and a few punctate extravasations into the perivascular spaces but no cellular infiltration.

Case 3 was one of pseudo-hydrophobia. A man aged twenty-six, who had gone through much excitement and anxiety, which had led to more or less alcoholic excess, five years after being bitten by a dog was suddenly seized with choking while drinking spirits after giving evidence in a court of law. Apparently some of the liquid got into the larynx. He was seized with panic that he was going mad. After three days of excitement and sleeplessness he was brought to St. Mary's Hospital, on Oct. 25th, 1876, about 10 a.m., in a wild and anxious condition, dreading the approach of liquids, and on any attempt to swallow them seized with spasms of the pharynx and neck, and gasping for breath. He swallowed solids. He could be quieted by firmness, but soon relapsed. He hawked, spat, and pulled at his throat. During the evening, after removal to an isolation ward, he was quieter, and could drink liquids. In the night he slept at times; but at others he was noisy, and he tried to strangle himself, and to get out of the window. On the morning of the 26th he was calmer. Through the day his condition varied; but at 4 p.m. he was rational and tranquil, and took bread-and-milk. Soon after this the visit of his wife and child brought on a paroxysm of greater and more violent excitement. In the evening he was put under chloroform, and could then both breathe and swallow. The excitement, however, returned, and was followed by exhaustion, and he died about 10.45 p.m. At the post-mortem examination, fifteen hours afterwards, the rigor mortis was very great. All the internal organs, but especially the lungs and kidneys, were congested. The membranes, cortex, and white substance of the brain, pons, and medulla were greatly congested, as was also the spinal cord.—Case 4: The patient, a boy aged thirteen years and a half, was admitted on Jan. 18th, 1883. He had been bitten by a puppy five months previously on the finger; the wound was cauterized within five minutes, and twice subsequently. The dog was confined, and a week later killed, because it was then thought to be going mad; the boy constantly talked about hydrophobia. On Jan. 15th he had pain in his back, but up to the 17th had only symptoms of a bad cold. On January 18th he could not swallow liquids or suck an orange; spasms were induced by the attempt. There was an excessive flow of saliva, with foaming at the mouth. He started up at times, saying he could not breathe, and was excited. On admission the prominent symptom was emotional excitement. He would not allow liquids to be brought near him; the abdomen was retracted and hard, and the face flushed and wild. Pulse frequent; temperature 100°. An enema of gruel and castor oil was ordered, and after this an enema of beef jelly, half an ounce of brandy, and twenty grains of chloral, every three hours. Three hours later he asked for, and tried to drink, milk; it was with much difficulty that he got the spout of the feeding cup to his mouth, and when he did so the fluid provoked a most violent spasm of the neck and arms and great respiratory distress. He afterwards, however, sucked an acid drop, and swallowed the saliva. Respiration was irregular and jerky (36), much moaning and whining, pain and tenderness at the epigastrium. The gruel and castor oil did not return, and the beef tea and chloral had to be given upon it at seven o'clock. During the even

ing and night the patient became more and more excited and violent; the respiration was rapid, catching, oppressed; the pulse extremely frequent, perspiration pouring off the face, at times convulsive paroxysms of neck and arms. At 11 p.m., after a second enema of chloral, brandy, and beef-tea, he was so violent that restraint by bandages, etc., was necessary. At 2.45 a.m. twenty grains of chloral were given hypodermically, and the patient slept three hours. At 10 a.m. of the 19th he was quiet, listless, and drowsy, but contact of the hand or turning down the bedclothes caused a long deep inspiration. He made no complaint of pain. Respiration more even; pulse 130, small and weak; temperature 101°. At 11 a.m. the urine had to be withdrawn by a catheter, the amount was sixteen ounces, the sp. gr. 1030, no albumen or sugar, but urates thrown down on cooling. After this the spasms were slight and infrequent, but the exhaustion increased; there was much foaming at the mouth; the temperature remained at about the same point. Sordes formed on the teeth. The patient died at 10.25 a.m. on the 20th, about forty-three hours after admission. The administration of chloral was suspended when the spasms ceased, beef-tea and brandy being given. At the necropsy three hours after death, the rigor mortis was extremely pronounced; the cerebral meninges, cortex, and white centres were extremely congested; puncta cruenta, too, numerous and large, membranes over pons and bulb slightly congested. No excess of serum in ventricles. Nothing noteworthy in chest or abdomen except two living round worms in small intestine just above the valve.—Dr. Clark asked if the urine of the first boy was examined.—Mr. Broadbent replied that it was often examined and always found normal.

Dr. Dyce Duckworth thought that in all particulars the first case resembled cases of hydrophobia, and he could not doubt that it was that disease. He referred to a case he had treated in which life was certainly prolonged for some days by chloral. He thought that chloral was as useful as any other remedy in hydrophobia. The mode of action of chloral suggested its value; it should always be given with nutrient enemata. With reference to spurious hydrophobia, he said that if the patient be very gently blown upon, and the effect watched, it greatly aided the diagnosis, for the slightest stream of air induced severe paroxysms in the true hydrophobia and not in the false; he thought that chloral, at any rate, gave time during which the poison might be eliminated.—Mr. Pick did not think the first case was certainly one of true hydrophobia. There generally appeared to be some premonitory symptoms, one of which was an aching pain about the wound; this was absent in Dr. Broadbent's case, and there was malaise with a sense of impending evil, and when the attack came on there was between the paroxysms excessive mental terror; these also were absent in Dr. Broadbent's case. He therefore could not speak with confidence of the diagnosis.—Dr. Whigham asked whether the spasm in the neck was always present in human hydrophobia. In neither of three cases in animals which he had seen was there any spasm in the neck excited by the sight of water. One was in a sow, another in a dog which tried to drink from a pond, and there was no spasm whatever, the third was also in a dog which tried to eat some bread-and-milk, but there was no spasm of the glottis or of the muscles of the neck.—Dr. Ewart thought Dr. Broadbent's cases were very valuable, even if the disease were spurious. Hydrophobia was quite a misnomer as applied to animals. If there was a specific virus at all, what was rabies in the dog was rabies in the man. If rabies were true hydrophobia, what was false hydrophobia? What

were the cases in which the symptoms were exactly the same? One set of cases might show special pathological changes and the other not; but we yet lacked a proof that the transmitted virus actually produced the cell infiltration in every case. The test of the incurability of true hydrophobia was unworthy of this age of medicine. The dog communicating a fatal attack might himself recover.—Dr. Longhurst asked the total amount of chloral given in the first case, as it was a very powerful remedy, and the pathological changes might have been caused by the chloral.—Dr. Clark asked Dr. Broadbent to state exactly what led him to call the first true and the two latter false hydrophobia. The age of the first boy was one liable to *bizarre* nervous conditions, as intense excitement.—Dr. Mahomed asked if it was not incumbent upon all physicians meeting such cases to try the effect of inoculation in lower animals.—Dr. Clark said that the law did not permit of this.—Dr. Duckworth said that at St. Bartholomew's Hospital Dr. Brunton had practiced inoculation in their last case, and had obtained no result. They therefore had abandoned the experiment.—Dr. Broadbent quite agreed that there ought to be a distinct name for rabies and similar diseases arising from other causes than rabies. The evidence of specific inoculation, and the presence of an indurated painful scar, enabled him to make the diagnosis. In the two spurious cases there was a history of great previous excitement, such as would lead to the paroxysms. But in the first boy there was an entire absence of any such condition. The last boy had 220 grains of chloral altogether; it was suspended for the last twelve or fifteen hours before death. He had not added up the total in the case of the boy who recovered.

Dr. J. Kingston Fowler exhibited two cases of Pseudo-hypertrophic Paralysis in adults of the same family, and read notes of their cases. Case 1: H. F.—, aged forty-four, a blacksmith's striker, married, ten children. A careful examination of the family history, and especially of the collaterals of the parents showed that no instances of the disease had occurred amongst them for at least three generations. The patient had had three attacks of acute rheumatism. When a young man he was remarkably strong. The first symptom of the disease, a peculiar swaggering gait, was noticed at the age of twenty-eight. This was followed six years later by a considerable loss of strength and weight. At the age of thirty-six he began to experience a sense of fatigue in the legs on over-exertion and a difficulty in mounting a flight of steps. He frequently fell down whilst at work, and when on the ground had much difficulty in rising again. He continued at work until 1879, when he was admitted into Middlesex Hospital under Dr. Cayley, and his calves then presented considerable enlargement, whilst the biceps and pectoral muscles were wasted. The patient was a healthy and cheerful-looking man of medium height. Intelligence was normal, and there was no affection of special or tactile sensibility. The sterno-costal portions of the pectorals, the biceps, rhomboidei, serrati, latissimi, and erectores spinae were wasted. The triceps, the muscles forming the thenar and hypothenar eminences, the dorsal interossei and the external vasti and calf muscles were large and firm. There was no marked talipes equinus; the enlarged muscles generally were weak; the head and shoulders were thrown backwards. There was well-marked lordosis of the spine, disappearing on sitting down, the latter movement being accomplished with difficulty. When placed on his back he was unable to turn over or to resume the erect position. His attempts to do so

were characteristic of the affection as seen in children. The patient had kept records of the circumference of his right arm and calf from the age of eighteen; these compared with the present measurements showed a diminution of four and a half inches in the girth of the former, and two inches in that of the latter. The electrical reactions, ascertained by Dr. Hughes-Bennett, were normal with faradism to the nerve trunks and to most of the muscles; the responses from the affected muscles were much diminished. Galvanism to the nerve trunks gave normal reactions, and also to most of the muscles, but with increased A.C.C. To the affected muscles the contractions were much diminished in quantity and altered in quality the A.C.C.—C.C.C. The knee-jerk was absent. The temperature of the skin over the atrophied muscles was about 1° higher than over the enlarged muscles. Iron, quinine, strychnine, and cod-liver oil had been given without much benefit resulting. Improvement had been observed under arsenic and faradism. Case 3: R. F—, aged thirty, brother of the first patient following a similar occupation. In this patient the disease was in a much earlier stage; nearly all movements could be performed without difficulty, but muscular power was weak. At the age of twenty-seven he was noticed to have a difficulty in ascending a flight of steps, using the banisters to pull himself up. At the same time the arms and legs began to waste. The patient was a slightly built man, intelligent, and free from any obvious disorder. The sterno-costal portions of the pectorals, the latissimi, serrati, rhomboidei, teres, and biceps muscles were wasted; the triceps, infra-spinati, external vasti, and muscles of the calf were enlarged and hard. This patient had also kept records of the girth of his right arm over the contracted biceps, and also of his calves, from the age of twenty-one; a comparison of these measurements with those taken recently showed a diminution. This patient had not been under medical treatment. The opinion was expressed that these were cases of the same affection seen not unfrequently in children, and first named by Duchenne pseudo-hypertrophic paralysis. Reference was made to similar cases of this disease as it appears in adults recorded by other observers. It was thought that these were the first cases recorded in which the disease had appeared at adult age in members of the same family.

Dr. Broadbent said the cases were very interesting, and were recorded with most praiseworthy accuracy. He had come to the opinion that the hypertrophy was an incident of age, in support of which he had alluded to two sisters in whom the disease came on between eighteen and twenty, and in whom the hypertrophy was much less than in children. This fact was also to be noted in Dr. Fowler's cases. He had seen a case coming on in a man about fifty. The disease was that of pseudo-hypertrophic paralysis in all its features except that there was scarcely any hypertrophy. Dr. Ross had described a similar case. He, therefore, thought the disease common in children prevailed also in later life, but that the hypertrophy was an accident of the active growth of childhood, while later the atrophy existed but was not masked by any hypertrophy in those of less active general nutrition.—Dr. Green said that the case he had recorded was twenty-two years old, and the disease followed an injury; the hypertrophy there was very considerable. He thought it was a question whether the wasting was not due to atrophy of the muscle tissue itself, which varied in different cases.—Dr. Ewart mentioned that he recently saw a case in which he was in doubt as to the diagnosis, because the patient was a woman aged thirty-five,

and there was no evidence of marked hypertrophy in any of the muscles; all the other symptoms were characteristic. He asked Dr. Fowler whether he had met with the records of the disease in any other adult females.—Dr. Clark thought it was important to call attention to the diseases of anatomical units and systems of organs of which this affection was a good example.—Mr. Fowler, in reply, stated that the disease was transmitted to males through females. The enlargement was chiefly due to the deposit of fat in the muscles. There was progressive atrophy preceding the hypertrophy.

Before the meeting Mr. Parker showed a child with Congenital Dislocation of the Hip Joints; and a case of obscure Lymphatic Affection of the Arm in a boy.

Excision of Ulna.—Necrosis of Roof of Orbit.—Picric Acid Test for Sugar.

The ordinary meeting of the above Society was held on March 9th, Dr. Andrew Clark, President, in the chair. Before the meeting Dr. Dyce Duckworth showed a case of remarkable hardness of the ears, and a woman with rheumatic subcutaneous nodules. Dr. Stephen Mackenzie showed a case of subcutaneous nodules without any rheumatic history. Mr. Godlee read an important paper, and Dr. G. Johnson demonstrated his mode of using picric acid as a qualitative and quantitative test for sugar.

Mr. R. J. Godlee related a case of Fracture of the Radius and Dislocation forwards of the Ulna at the Wrist, in which the lower end of the latter bone was removed to effect reduction. The patient, who was aged twenty, was jumping a high jump at a gymnasium when his feet slipped forwards on a badly secured mat, and the whole weight of his body fell suddenly on his hands, which were placed behind him. The left radius was fractured at the junction of the middle and lower thirds; the upper end of the fracture being compound, the lower end of the ulna was displaced forwards, and projected in front of the carpus beneath the skin. All attempts at reduction with and without an anæsthetic proved unsuccessful. An incision was made over the lower end of the ulna, and a hook was placed under the tendon of the flexor carpi ulnaris which had slipped behind the bone, but the bone could not be replaced until, first, the styloid process and then the lower end of the ulna had been sawn off. The wound was treated antiseptically, and healed without any inflammatory disturbance. In ten days it was placed in a plaster-of-Paris apparatus, and in about six weeks passive movement was commenced. The limb is now almost as useful as the other, and can be employed for gymnastic exercises as well as the ordinary uses of daily life; but pronation is not quite as free as before. The patient was shown at a previous meeting.—Mr. Clement Lucas had a somewhat similar case last autumn in a feeble old lady, who fractured the lower end of each radius by a fall on the hands. On one side, where the fracture was compound, the lower end of the ulna was also dislocated and fractured, but there was no difficulty in reducing it. Erysipelas and diffuse suppuration ensued, and amputation was performed, but death resulted. The lower end of the radius was in front of the upper fragment. He referred also to a case of excision of the lower end of the ulna, in which no adduction afterwards occurred, and suggested that this was because the radial muscles were stronger than the ulnar muscles. Excision of the lower part of the ulna was a good operation, as the wrist-joint was not opened.—Mr. C. Heath had a patient last year with a sinus over the end of the ulna; he

excised the end of the bone; the man recovered, with an extremely useful hand. He considered such an operation a great advance in modern surgery. He had seen Mr. Godlee's case, and thought it a most satisfactory one.—Mr. Godlee suggested that the explanation of the abduction of the wrist in cases of congenital absence of the radius, and of non-adduction after excision of the ulna, was that the carpus articulated much more with the radius than with the ulna.

Dr. Pearson, in conjunction with Dr. Broadbent, read an account of a case of Acute Necrosis of the Right Orbital Plate of the Frontal Bone, in a girl aged nine years and eight months. Four days after exposure to cold, symptoms of stiff neck, relaxed throat, causing restless nights, began, but so gradually that a medical man was not called in till the fourth day. When first seen the noticeable point in the case was that the child, when asked to sit up in bed, put both hands to her head to lift it. On the fifth day of the disease, there was marked improvement after saline aperient and four-grain doses of salicylate of soda, every four hours. In the morning the right upper eyelid was puffy, but the swelling went down again. There were slight droppings of blood from the nose three several times during the day. On the sixth day, after a restless night with some wandering, followed by a morning sleep of two and a half hours, the child woke up sufficiently well to listen to fairy tales and talk about them. She felt the neck so much better that she volunteered to get out of bed alone to show her throat, but still holding one hand lightly to the head. There was some sensitiveness to light, and the right eyelid was again puffed. The same evening great restlessness set in, the child throwing her legs and arms about and calling out. The tumefaction of the right eyebrow had now markedly increased, and there was strong delirium. Temperature 103.3°; pulse 140; respiration 38. Bromide of potassium was added to the salicylate mixture. After a sleep of an hour and twenty minutes the pulse was 120 and the temperature 101.6°. On the seventh day the right eyebrow was quite tense, glazed and livid, and delirium continued. At 10 a.m. the temperature was 104°. Two leeches were applied to the right temple, and three grains of calomel were given, to be followed by a saline purge. Towards evening the strength perceptibly diminished. Just after midnight the pulse was 138, respiration 52, temperature 105.7°. At 4.30 a.m. the temperature was 106.4°; at 6.30 a.m. the temperature was 107.7°; at 9.45 a.m. the temperature was 107.9°, and death took place at 10.45 on the morning of the eighth day from the commencement of the symptoms. The autopsy was made five hours after death. At once on removing the calvaria, the frontal portion of the longitudinal sinus showed itself overcharged, staining the periosteum externally. On lifting the brain, the dura mater covering the petrous portion of the right temporal bone was found smeared with thick yellow lymph. The same lymph smeared the pons and the parts comprised in the circle of Willis. The right temporo-sphenoidal lobe of the brain was protuberant, due to serous infiltration from obstruction to the venous return. The right optic nerve and the fat surrounding it were stained with the same clinging yellow lymph. The periosteum of the right orbital plate of the frontal bone was stained with inflammation, and destroyed in patches; the bone beneath was dead.—Mr. Pearce Gould asked if there was any pulsation noticed at any time in the orbital swelling, for thrombosis of the cavernous sinus had been alleged to be one cause of pulsating exophthalmos.—Mr. James Black asked if any fluctuation was made out, and whether an incision would

have been of any avail.—Dr. Mahomed asked if there were any blush or redness in the early history of the case. A case of necrosis of the frontal bone he had lately seen began as a red erysipelas-like swelling, and there were other signs of a septic nature of the affection, in the shape of multiple abscesses on the brain.—Dr. Broadbent said there was no pulsation and nothing like fluctuation in the swollen lid, which was quite soft and loose. The chief mischief was on the cerebral side of the bone; the dura mater was pierced in several places, while the periosteum of the orbit was intact, and the effusion within it was serous. He had considered that the free mobility of the eye and the entire absence of proptosis excluded any inflammatory effusion within the orbit.

Dr. George Johnson gave a demonstration on the Use of Picric Acid as a Test for Albumen and Sugar in the Urine. He said that although picric acid had for ten years or more been used as a test for albumen in the urine, its value had not been fully appreciated. It might be used in the form of a saturated aqueous solution, made by dissolving the crystals in about fifty times their volume of boiling water, or in the form of powder, which could conveniently be carried in a pocket-case. The solution poured on the surface of the urine in a sloping test-tube caused opalescence in a specimen of albuminous urine diluted much beyond the point at which nitric acid failed to act. The powder or crystals, equal in bulk to a peppercorn, when shaken up with about a drachm of urine would be dissolved, and immediately coagulate any albumen present. Picric acid boiled with a solution of potash was a most delicate test for glucose. The reduction of yellow picric to the deep-red picramic acid by glucose when boiled with potash, although noticed by Braun nearly twenty years ago, appears not to have been utilized as a practical test. One drachm of a solution of grape sugar, one grain to one ounce, was mixed with half a drachm of liquor potassæ (B.P.), ten minims of a saturated solution of picric acid, and made up to three drachms with distilled water. The mixture was placed in a boiling-tube ten inches long and three-quarters of an inch wide, having a mark made at the height of three drachms. It was then heated to the boiling point, and kept boiling for sixty seconds. The resulting color indicated a quarter of a grain of sugar to one ounce. This color might be exactly imitated by a solution of acetate of iron, with excess of acetic acid, which was used as a standard in making a quantitative analysis. The depth of color was directly proportioned to the amount of sugar present to decompose the picric acid. When the color was deeper than the standard, the dark liquid was diluted until it and the standard had the same tint. The dilution was effected in a tube twelve inches long, divided into equal 1-10 inch and 1-100 parts. By the side was a tube of equal size, containing the standard color. A more exact comparison of the colors was made by looking through equal columns of the saccharine liquid, and the standard in flat bottomed tubes held over white paper or porcelain. Ten minims of solution of picric acid is rather more than equivalent to the sugar (1.8 grain) in one drachm of a solution containing one grain to one ounce. In making an analysis the picric acid must be in proportion to the amount of sugar. If the proportion of sugar were as high as six grains to the ounce, about a drachm of solution of picric acid would be required for a drachm of the sugar solution. When the amount of sugar is more than six grains to the ounce, the liquid should be diluted in a definite proportion before it is analyzed. Distilled or pure rain water was used for dilution. If undiluted urine were rendered turbid by phos-

phates in process of testing, it should be cleared by filtration. The presence of albumen even in large amount does not interfere practically with the picric acid test. The accuracy of the test was proved by practically identical results from analyzing the same specimens by Dr. Pavy's ammonious cupric solution, and by the picric acid and potash. Some tabular statements of results were given. An analysis of about 300 specimens of normal urine by the picric acid process indicated the constant presence of a substance capable of reducing picric acid and cupric oxide in proportions equivalent to from 0.5 to 0.7 grains of glucose per ounce, but apparently differing from glucose in the fact that it cannot be made to undergo the vinous fermentation under the influence of heat, etc.—Dr. Andrew Clark thanked Dr. G. Johnson for his very interesting clinical communication. He thought that they had acquired a very important and quick method of analyzing with precision, both albuminous and saccharine urines.—Dr. Southey said that Dr. Johnson had exhausted the subject and had left little for others to say. He was very much indebted to him for his demonstration of the test. He had used picric acid since Dr. Johnson's first paper on it, and had found it very reliable and convenient. It had now been proved that normal urine contained minute quantities of albumen and sugar, and these very delicate tests were very important in enabling us to detect these small traces. It was daily coming out that normal urine of high specific gravity and of acid reaction contains albumen.—Dr. Mahomed asked for information on Dr. Ralfe's communication at the Pathological Society, in which he stated that it was also necessary always to test with heat to determine the kind of albumen present. They had heard that picric acid showed the presence of forms of albumen which were not thrown down by heat and nitric acid. He thought that more delicate tests for albumen were not wanted, but they did require a good simple working reaction which would quickly detect the presence of morbid quantities of albumen.—Mr. McHardy had found the picric acid test most valuable. He was sure it was important to recognize the presence of albumen in urine in which it could not be detected by boiling and adding nitric acid. He referred to a case of black eye which he examined ophthalmoscopically, and he then felt very sure there was albumen in the urine, as was shown by picric acid, but albumen could not be detected by heat and nitric acid. The man had tense arteries and distinct albuminuria retinitis. He had tried pouring strong nitric acid into a test tube, on to that suspected urine, and above that a concentrated solution of picric acid, and while a very slight reaction may be indicated at the lower edge of the stratum of urine, a very marked reaction will be obtained at the upper edge; kreatine masks the presence of saccharoid matter in the urine.—Dr. Johnson doubted very much whether there is even the smallest trace of albumen in urine as a physiological result. In reply to Dr. Mahomed, he contended that more rather than less delicate tests for albumen were needed. Dr. Mahomed had published several cases of Bright's disease (granular contracted kidney) in which he had failed to find albumen in the urine—many more cases than he himself had ever seen. Dr. Johnson thought that this discrepancy might have been avoided if Dr. Mahomed had used delicate instead of rough tests in examining the urines.

An inquiry is to be instituted into matters connected with the management of the Bedminster Fever Hospital.

PATHOLOGICAL SOCIETY OF LONDON.

Hypertrophy of Lower Jaw.—Rheumatoid Arthritis.—Fracture of Sternum.—Exostosis on Fibula.—Sacculated Bladder in Female.—Sarcoma of Bladder.—Sarcomatous Myo-fibroma of Uterus.—Charbon.—Tests for Albuminuria.

THE ordinary meeting of this Society was held on March 8th, Mr. J. W. Hulke, F.R.S., in the chair. Several specimens of considerable interest were shown, among which we may specially refer to the charbon pustules and bacilli from Guy's Hospital. Dr. Ralfe gave a very useful demonstration of practical points in connection with testing urine for albumen, and clearly showed that in the urine from a case of Bright's disease heat alone determined the presence of serum-albumen, the other tests only showing that some form of albumen was present in the other specimens.

Mr. C. Heath showed a woman of thirty-six years of age with Unilateral Hypertrophy of the Ramus of the Mandible. At twenty-five years of age she had an attack of left hemiplegia implicating the face; her limbs recovered, and so did her face, at least partially. During the last ten years the face had become deformed. The chin was pushed over to the right by hypertrophy of the left ramus of the jaw, the body being unaffected. The vertical length of the left ramus was three inches, the right one inch and a half. The motion of the jaw was restricted. The pathology was obscure. He referred to a somewhat similar case in Dr. Adams' work on Chronic Rheumatoid Arthritis, but in it there was distinct rheumatoid affection; there was nothing of this kind in his case. He regarded it as a case of hypertrophy which could be remedied by removing part of the jaw and producing a false joint.—Mr. Roger Williams said he had a specimen of hyperostosis of the angle of the jaw. The patient was a healthy young man. The angle of the jaw was removed; the bone was exceedingly dense.—Mr. Hulke said that in Mr. Heath's case there was no great enlargement of the articular end of the bone; in Mr. Adams' case there was.—Mr. Croft asked Mr. Heath what there was in this case to distinguish it from osteitis deformans, which it somewhat resembled. Had the woman had pains in the bones? This disease was very rare in so young a person. He thought the vascular supply was interfered with on account of the remarkable unilateral character of the affection.—Mr. C. Heath replied that the patient had had no pain. Sir J. Paget had declined to recognize it as a case of osteitis deformans. He would show a piece of the bone after removal.

Dr. Norman Moore brought forward Dorsal and Lumbar Vertebrae, showing rheumatic arthritis, from a Roman tomb discovered in digging the foundations of the library at St. Bartholomew's. The skeleton to which the bones belonged was entire, and lay in a stone sarcophagus preserved at St. Bartholomew's. The vertebrae showed lipping of the edges of the centra, irregularities on the intervertebral surfaces, and in some places anchylosis with considerable formation of osseous tissue. There was nowhere any loss of substance. In the middle dorsal vertebrae there was bony union on both sides, but lower down, though both sides of the centra were lipped, fresh bone had been formed on the right side only. Della Chiaje had described rheumatic arthritis in bones found at Pompeii, but the St. Bartholomew's tomb, ascribed by antiquarian authorities to the fifth century, had, perhaps, furnished the earliest case of the disease in England.—Mr. Bruce Clark men-

tioned a specimen, four or five centuries earlier, in the museum at Oxford—an atlas ossified to the skull. It came from a tumulus of before the Christian era, and was regarded by Professor Rolleston as the earliest specimen extant.—Mr. Croft said the term rheumatoid arthritis was loosely used, and he urged that it should only be employed in cases with a clear history of rheumatism.

Mr. Hulke said that many years ago an old Roman cemetery at Saffron Walden was dug up, and a large number of the bones presented the changes seen in these bones.—Dr. Norman Moore said it was very common to find deposits of urate of soda in joints without any history of gout; he therefore could not attach much importance to the absence of a history of rheumatism in cases of arthritis. He thought the changes in the bones were characteristic.

Mr. Arbuthnot Lane showed a specimen of Fracture of the Sternum at the junction of the first and second pieces, and Dislocation of the Second and Third Left Costal Cartilages from their Ribs. There was no fracture of ribs and vertebrae. He also described a form of articulation that was found in the first costal cartilage when it became sheathed in bone. This might be either a single arthrodial joint or one of two forms of mixed articulation. These conditions were exemplified in the specimen shown. Their purpose was to obviate the rigidity of the cartilage, and to allow of the free movement of the sternum in respiration.—Mr. Pitts thought it was difficult to account for the nodule of bone on the back of the sternum, which appeared to be a fragment of a comminuted fracture, and yet there was no indication of where the piece was detached from. Could the nodule be due to some secondary change about an old fracture? The point in reference to the joint of the first costal cartilage was a very interesting one.

Dr. Hale White showed a peculiar process on the Fibula in the Fibres of the Soleus, beginning one inch from the top of the fibula springing just above the oblique line on the inner side. He thought it was unique.—Mr. Morris asked if it was true bone or ossification of part of the tendon of the soleus. Such ossifications of tendons were not uncommon, especially in the tendons fixed to the great trochanter.—Mr. Hulke thought it similar to the processes developed in the adductor and deltoid muscles from constant riding and frequent bruising by the musket.—Dr. White said it lay in the muscular fibres; it was on one side only of the body; it was true bone.

Dr. Hale White also showed a Sacculated Bladder from a woman who had been under Dr. Wilk's care for hæmaturia and pyuria. She died, and on post-mortem all the viscera were healthy, except the bladder, where there was a small opening between the left ureter and the orifice of the urethra, which led into a cavity containing very offensive purulent fluid. This was a diverticulum from the bladder and larger than this viscus. There was a small abscess in one kidney and behind the uterus. The urine got shut up in the diverticulum, then decomposed, and it was impossible to cure the cystitis so caused. A sacculated bladder was extremely rare in the female, and one so large was very rare even in the male. In 3,000 autopsies twenty sacculated bladders were found all in men. In none of them was the sacculus large enough to attract notice during life. The only cause of sacculated bladder in the female was either spinal disease or pelvic cellulitis, setting up cystitis or causing abscess opening into the bladder.—Mr. Eve thought that such sacculatation formed as it were a safety valve, and that dilated ureter was infrequent

in such cases.—Mr. Barker asked if there was any evidence of obstruction in the urethra. Had the wall of the sacculus been examined? Dermoid cysts had been found to rupture into the bladder, and this might be such a case.—Mr. Croft asked whether if the bladder had been examined by the finger passed through the dilated urethra, the opening of the diverticulum could have been felt.—Mr. Morris asked if among Dr. White's cases there was any instance of sacculatation from enlarged prostate, which had caused the most marked example he had ever seen.—Dr. Norman Moore referred to the fact that Casaubon's bladder was sacculated; this was caused by enlarged prostate.—Mr. Hulke referred to a case recorded by Pott, who operated for a supposed hernia, and urine escaped, and it was believed that a bladder sacculus had got into the hernial sac.—Dr. White said no cause for the sacculatation was found in the urethra. To the naked eye there was no evidence of the sac being a dermoid cyst. Out of nearly three thousand autopsies at Guy's, there were twenty cases of sacculated bladder, eleven caused by stricture, five by stone, two by spinal disease, one by enlarged prostate, and one through epithelioma.

Mr. R. Williams showed two specimens of Sarcoma of the Bladder. In the first there was enlargement of the prostate, with a diverticulum of the bladder and a medullary sarcomatous growth in the diverticulum. The man had had difficulty in micturition for many years. A No. 10 English catheter passed easily. He complained of pain and weakness in the left leg. A tumour in the pelvis was detected, manipulation of which caused hæmaturia. At the autopsy the pelvic peritoneum was found pushed up almost to the umbilicus by a pelvic tumour. The bladder was flattened and compressed by the growth, and there was suppuration behind the bladder. The walls of the bladder were hypertrophied. About an inch above the orifice of the left ureter was the opening into a diverticulum larger than the bladder, and springing from the posterior wall of this diverticulum was the tumour above mentioned. The growth had pressed against one part of the bladder, and just at that spot was a small secondary growth from direct local implantation. The growths consisted of round cells, with tracts of spindle cells and myeloid cells, but no alveolar structure or cell nests. The second specimen was from the museum of the Middlesex Hospital. The viscus contained a growth fluffy on the surface. It was removed from a man aged sixty. No secondary deposits. Microscopically it consisted of branched villi covered with spheroidal epithelium; the deeper parts of the tumour were infiltrated with small round cells.—Mr. Bowlby doubted whether these cases were either of them sarcomatous. In the first the clinical history was too long, the suppuration was also very unusual, and microscopically the tumour consisted to a great extent of fibrous tissue. As to the second case, it was very rare to find sarcomata papillated, while under the microscope the fibrous tissue preponderated. He thought it was a soft fibroma; the cells found were simple connective-tissue cells.—Dr. Hadden stated that he recently made an autopsy on a man, aged sixty-three, who had suffered from pain and hæmaturia. He found a very large malignant growth springing from the trigone, white and fibrous. Behind the bladder were some enlarged glands.—Mr. Eve agreed with Mr. Bowlby that the tumours were not sarcomata. He thought that in the second case there were alveoli containing epithelial cells, and that it was a papilloma or carcinoma.—Mr. Williams replied that the two tumours were evidently quite unlike. In the second case there was fibrous tissue, no doubt, but the bulk of the tumour was

made up of small round cells. Villous sarcomata had been often described before. The first tumour was almost entirely composed of cells, and fibrous tissue was only seen where the tumour was lobulated. The local infective nature of the tumour was opposed to the theory that the tumour was a fibroma.

Dr. Finlay showed a specimen of Fibro-myoma of the Uterus becoming sarcomatous. The specimen was removed from a woman aged fifty-nine, who was admitted into the Middlesex Hospital under his care on October 4th, 1882. The patient had observed it for fifteen years, and it was only comparatively recently that it had given her any trouble. Eight days after admission she was seized with symptoms of peritonitis, and died on October 17th. Post mortem, the tumour was found to measure six inches by four and a half inches. It occupied the pelvic and lower umbilical regions, and was adherent to numerous coils of the intestines, one of which it had penetrated. It was attached to the fundus uteri by a pedicle about an inch in width. Its upper part was converted into an irregular ragged cavity, containing soft debris and blood-stained fluid; the lower part being firm in consistence, presenting the appearance of a uterine fibroid; it was whitish in color, and was surrounded by a distinct capsule. A smaller tumour about the size of a walnut, and presenting the ordinary appearance of a fibroid of the uterus, was attached to the lower part of the uterus. Secondary growths were formed at the base of the right lung, in the heart, and in the left kidney. Microscopically the tumour was found to consist in some places of round, and in others of spindle-celled growth separated by tracts of the normal structure of the fibro-myoma. There were also here and there patches of mucous degeneration; and in parts a considerable development of new bloodvessels, the walls of which were closely surrounded by the new cell formation. The secondary growths presented the same characters, except that in them the round-celled growth predominated over the spindle-cells. The generally accepted view that such tumours were degenerated fibro-myomata was adopted, and the fifteen years' history, the appearance of the growth itself, and the co-existence of the smaller benign growth pointed to as corroborating this opinion. Two cases figured by Schroeder in Ziemssen's *Encyclopædia* were referred to; and also two of a similar nature recorded by Mr. Hutchinson, and the late Mr. Callender, respectively, in the *Transactions of the Society* twenty-five years ago.—Mr. Eve said that in striped muscle fibre tumours of the kidney, round and spindle cells were found, which were transformed into muscle fibre. In Dr. Finlay's case might not the cells be developing into plain muscular fibre?—Dr. Dawson Williams said that in his case it was quite easy to see all stages between round cells and striped muscle; but it was not possible to assert that these round cells actually developed into muscle.—Dr. Finlay said that the fact of the metastatic deposits quite disposed of Mr. Eve's objection.

Mr. Davies Colley showed specimens from a Case of Charbon, which were obtained from a patient aged forty-three, who worked in leather. Five days before admission to Guy's Hospital he was struck in the face by a hide and scratched. He became restless and delirious that night; had a rigor, and severe itching in the scratch. On admission there was a bright-red swelling on the cheek, with abrupt edge, and a dark slough in the centre; the glands behind the angle of the jaw were enlarged. The man was very ill; temperature a little raised. The tumour was at once excised. The serum of the tumour contained abundant bac-

cilli (shown). The blood contained only micrococci. The patient has gone on well ever since. Next day he expectorated much mucus; his urine, faeces, and sweat contained bacilli (shown). They had had many cases lately at Guy's, as many as twenty-three in eleven years; already there had been four this year. In this case there was not a distinct ring of vesicles round the swelling as seen in the other cases, but the slightly depressed blackened centre was very characteristic. The constitutional symptoms came on very early, and although they had been present for four days, operation had apparently been successful. The bacilli were being excreted in very large numbers.

Mr. Bryant showed a specimen of Charbon Pustule taken from a man aged thirty-three, admitted a week after Mr. Davies Colley's case. He awoke three days before admission and noticed a small pustule on his face; the next day he was very ill, the swelling much increased, and the glands below the jaw were enlarged. He was admitted on the fifth day, almost cyanotic, very torpid, pulse 130, temperature over 100°; he had been retching. The characteristic sloughing condition of the skin was found in the face. The part was excised, but the man died collapsed in ten hours. Bacilli were found in the saliva and urine. Dr. Mahomed made the autopsy in Mr. Bryant's case. The stomach, intestine, and lung were diseased. The stomach and intestine were affected like the skin; a central slough with a halo of congestion surrounded it. Some of the sloughs were being detached; in the intestines the sloughs ran along the free margin of the valvula conniventes; in the cæcum the mucous membrane was immensely cedematous. In the lung little nodules occurred, about twenty in number; on section, they looked like hæmorrhagic infarcts; some were solid, others were hæmorrhages into the tissue. They, too, were probably of the same nature as the other lesions. The mesenteric glands, many of them, contained small hæmorrhages from infarcts of bacilli. There was an absence of the general oedema of the loose connective tissues which was commonly found. There were no subserous hæmorrhages nor pleuritic effusion. There were two pints of dirty bloody fluid in the peritoneum. At Bradford, where the poison was inhaled, nearly all the cases showed pulmonary symptoms and changes. The intestinal lesions were completely absent. At Strasburg the intestinal lesion was constant, probably from eating diseased animals. At Guy's the anthrax nodules were seen on the skin. The variations in the disease had led to varied classifications. The case showed recovery from intestinal anthrax; the sloughs were being separated satisfactorily. The patients died from cyanosis, the bacilli deriving oxygen directly from the red corpuscles. This might give an indication for treatment, to oxygenate the blood.

Dr. C. Ralfe showed four specimens of Albuminous Urine, each of which contained a distinct variety of albumen. He brought forward the subject with no view of deciding the merits of the rival tests, as suggested by Dr. G. Johnson, Dr. Pavy, and Dr. Oliver, but to draw attention to the fact that heat, and heat alone, would decide whether the albumen was serum-albumen or not, the really important clinical question after all. Dr. Ralfe pointed out that the cumbersome spirit-lamp might be done away with altogether if only a one-inch square of copper gauze were carried in the pocket; this held above the gas or candle-flame would prevent the test-tube becoming blackened. After the meeting Dr. Ralfe briefly demonstrated his facts. He spoke highly of Dr. Oliver's test-papers, which, if heat were employed in all cases as well, would give reliable results.

MEDICAL SOCIETY OF LONDON.

Elephantiasis of the Lower Limb.—Recto-Vesical Fistula; Colotomy.—Femoral Hernia, with Rupture of all its Coverings.

THE ordinary meeting of this Society was held on February 19th, Mr. Francis Mason, President, in the chair.

Dr. Heath Strange exhibited a girl seventeen years of age, the subject of Enormous Dilatation of the Lymphatics of the Left Lower Extremity, leading to great enlargement of the thigh, calf, and foot (elephantiasis), and a discharge of milky fluid from rupture of vessels in the thigh. She had been under observation since infancy. Vaccination at three months of age was followed by a general eruption on the face, hands, and buttocks, leaving scars, especially on the left side. At seven years of age the calf commenced to swell, the swelling, which was painless, gradually extending to the thigh and foot. At the age of nine she was an inmate of Great Ormond-street Hospital, under Dr. Cheadle's care for three months, the swelling having diminished, but her general health was greatly debilitated. The swelling returned, with attacks of pain, heat, and redness of the surface of the leg, and severe constitutional disturbance. The skin became darker, tubercular patches formed on the dorsum of the foot, at the roots of the toes, on the inner ankle, and on the margin of the inner side of the sole of the foot, after exercise. A small punctiform opening appeared on the inner side of the thigh, and commenced to discharge a white, milky fluid, having a faint, disagreeable odor. The fluid was often ejected with considerable force, and later there was discharge also from the tubercles on the foot. Crusts formed on the foot, and the leg again swelled; then, after an attack of severe inflammation and great pain in the knee, "something appeared to give way," the pain ceased, and the limb has gradually decreased, although there has been no discharge for the past five months. The calf, which measured eighteen inches and a half in circumference, and the foot, fourteen inches and a half, are now reduced to nearly the same size as the right, but the shaft of the tibia appears enlarged, and the left foot is still slightly larger than the right. Treatment was rest, bandaging, generous diet, and alterative tonics, cod-liver oil, and the syrup of the iodide of iron.—The President asked as to the duration of the discharge, and alluded to a similar case under his care.—Sir Joseph Fayrer pointed out the distinction between local affections and elephantiasis. There was similar hypertrophy of the tissues, etc., but true elephantiasis is the local expression of a constitutional disease, and is limited to certain tropical regions and their seaboard, not extending far inland. He doubted the origin of the disease from filariæ of the blood, as they were sometimes absent, and he had never known local treatment of any avail except in some young people, who could be moved from place to place. Elephantiasis occurred very seldom in persons of unmixed European blood. In some nations removal to a drier climate appeared to have been of service. He had tried ligature of the femoral artery without success; the swelling was reduced as long as the patient remained in bed after the operation, but recurred on his resuming work. Similar temporary reduction followed bandaging. In elephantiasis of the scrotum excision of the tumour often removed the constitutional disease.—Mr. Edmund Owen thought the term "elephantiasis," as applied to these cases of simple hypertrophy, to be of no pathological value, merely suggesting a superficial

resemblance. Although hypertrophy due to disease of the lymphatics was more common in the tropics, still cases are occasionally met with here, and he was inclined to attribute them to chronic inflammatory changes.—Dr. Routh inquired if the source of the lymph used in vaccinating the patient was known. He thought it possible to produce an artificial elephantiasis, and had seen such a case where nitrite of amyl had been accidentally introduced into a morphia injection.—Mr. Bryant thought the possibility of curing the disease by removing the local manifestation not inconsistent with received views of a filarial origin. He knew of a case in Leicester where the disease had apparently been transmitted through three generations, and none of the members of the family had ever left the town. Although unable to explain the good effects of ligation of the femoral, complete cure had followed this procedure in a case of his, and in another case temporary cure had followed ligature of the superficial femoral alone. He had seen elephantiasis in a man who had never left England, and in two boys, sons of a West Indian, but brought up in England.—The President exhibited three photographs of Elephantiasis Scroti. Sir J. Fayrer did not consider the cases met with in England as examples of true tropical elephantiasis, which begin with febrile disturbance and rapid hyperplasia, followed by slower growth. On removal of the growth the constitutional disturbances cease.—Dr. Crocker said that the condition of elephantiasis might be produced in various ways. He had had much success with the elastic bandage.—Dr. Heath Strange, in reply, said that the discharge continued constantly for several months, and then ceased altogether. The fluid was not examined. The veins were not apparently enlarged. The aspect of the limb was that of phlegmasia dolens.

Mr. Ballance related a case of Fæcal Abscess communicating with the rectum, ileum, cæcum, and bladder. A navy lieutenant, twenty-seven years of age, was the subject of chronic dysentery following an acute attack three years previous to coming under notice. Eighteen months later flatulency began to pass per urethram, and continued to do so for three months before any fæcal matter was observed to escape by this channel. When first seen he was greatly emaciated, and was suffering from a spurious diarrhoea. Much feculent matter and gas passed by the urethra; the urine was very offensive. There was fulness above the pubes, extending more to the left than the right; constant and severe pain was experienced at the neck of the bladder and the posterior part of the urethra, which morphia at least failed to relieve. The small intestine was thought not to be involved, because of (1) the length of time the patient had lived since the onset of symptoms; (2) the character of the fæcal matter; and (3) the history of dysentery. Right colotomy was performed. Death occurred suddenly on the tenth day. The post-mortem examination revealed a tight stricture of the rectum, above which three apertures led into a fæcal abscess situated above the bladder. The abscess also opened freely into the bladder, and by smaller apertures into the ileum and cæcum. Mr. Ballance remarked that the colotomy would probably have been more successful if it had been performed earlier, when only the rectum was involved, and raised the question whether in such a case as the above external urethrotomy would have been the better course. Such a measure would have given rest to the bladder and urethra. He also suggested in such cases of vesico-rectal fistula the performance of a colotomy—stretching the proximal end of the divided colon to the abdominal wound; but after uniting the cut margins of the distal end

returning this portion of bowel into the abdominal cavity.—Mr. Black thought colotomy the best mode of giving relief in this class of case.—Mr. Bryant thought the cause of the fistula in this case more common than was usually believed, and more common than in cancerous ulceration. He had performed colotomy in two such cases with permanent relief, and argued against the postponement of that measure. He thought the perineal drainage hardly feasible.

Mr. Bernard Pitts read notes of a case of large Femoral Hernia, where sudden rupture of its coverings occurred, and a portion of intestine was protruding for several hours after reduction. A woman, aged forty-six, who had a large femoral hernia of twenty years' standing, and who had been operated on at Guy's Hospital for strangulation of the same two years previously, had lately left off wearing her truss. On the evening of December 4th, whilst walking upstairs, she sneezed violently, and immediately felt something give way in her right groin. She found on examination that a portion of intestine had escaped through a rent in the skin covering the hernia. She was sent to St. Thomas's Hospital, and operated on directly after arrival there. A portion of the small intestine with mesentery about one foot and a half in length protruded through a rent in the skin one inch long, situated a little above the old operation cicatrix. The intestine was very bruised, dirty, and cold. It was well cleansed with carbolic lotion. The opening in the skin was enlarged freely, the crural ring slightly enlarged, and the protruded intestine, together with several feet of intestine found in the sac, were returned into the abdominal cavity. The sac and the redundant skin were afterwards removed, and the neck of the sac secured with stout catgut. The patient made a good recovery. Mr. Pitts remarked on the singularity of the accident and the reasons that led him to attempt a radical cure.—Mr. Edmund Owen observed that the case was probably unique. Femoral herniæ which had once been operated on were apt subsequently to assume large proportions. A few years since he had operated on a lady for strangulated hernia, who, twenty years before, had passed through the same kind of trouble. After this first operation there had been free sloughing of all the integuments. The patient did well after the second operation. In neither of these operations, nor in the present case, had the spray been employed.

Excision of Hip in Early Stages of Disease.—Dupuytren's Contraction in a Female.—Ascites in a Child.

At the meeting of the Medical Society of London on Feb. 26th, Mr. Francis Mason, President in the chair, Mr. Pye read notes of a case of Early Excision of the Hip-joint, and rapid recovery with a very movable false-joint. The child, between three and four years old, was admitted into the Victoria Hospital for Children four weeks after the onset of symptoms of hip-disease; but there was so much suppuration and exhaustion that operation was not delayed. A large abscess in the upper part of the thigh was laid open, and on exploring the cavity the head of the femur was found to be all but detached, and it broke off in the fingers. The excision was performed in the usual manner, the bone being divided below the great trochanter. The acetabulum was healthy. A Bryant's double splint was applied, and the prone position maintained for three weeks. Convalescence was rapid. There is one inch shortening; but movements of rotation, flexion, and adduction are perfect; abduction is limited. Attention was drawn to the com-

pleteness of the recovery; the early age of the patient and the growth of the limb since the operation, the extreme rapidity of the destructive process and the advantage of the prone position in after treatment.—The President said he was rather in favor of waiting in such cases.—Mr. Edmund Owen said that had not the result in this case been so satisfactory he would have suggested that the excision might have been limited to the intracapsular portion of the femoral diaphysis.—Mr. W. Adams thought excision should be undertaken as soon as the presence of diseased bone was made clear.—Mr. Pye in reply, said Listerian precaution was not followed in this case.

Mr. Fisher exhibited a female patient, fifty-two years of age, with well-marked Dupuytren's Contraction of both Hands. It commenced two years ago in the left hand, with drawing down of the little finger. The first phalanx is drawn to nearly a right angle with the metacarpal bone, and the second phalanx is flexed in the first, almost touching the palm; on the right hand the ring and little fingers are involved. The condition is rare in females. The present subject does much hard manual work; has never had gout, but her father suffered from it. Mr. Fisher contrasted this with a condition of flexion of the little finger, independent of contraction of the palmar fascia, the first pharyngeal joint alone being implicated, a condition common in young females. In answer to the President, he stated that no operation had as yet been performed, but he intended to undertake it on both hands in succession.—Mr. W. Adams had only seen three cases of Dupuytren's contraction in women, two depending on gout. Contraction of the fascia and its digital prolongation was essential for certainty of diagnosis.—Mr. Black stated that an example of this contraction in a female was at present in the dissecting-room at Westminster Hospital.—Dr. Hare protested against attributing this and similar affections to gout without full evidence from family or personal history, and the result of examination of the blood or serum. He had seldom seen this affection in cases of gout.—Dr. Roedel said the affection was common in Germany, where gout was very uncommon.—Dr. Ewart thought the affection frequently associated with gout; at any rate, contraction of the fingers was often found in persons who inherited or manifested gout. Were not the various forms of contraction but stages of one disease?—Mr. Adams, who replied for Mr. Fisher, admitted that the pathology of these cases was very obscure. He had never operated on those cases which could be treated successfully by prolonged mechanical means. Other forms might depend on contraction of the tendon, but in Dupuytren's contraction the fascia was implicated, and he believed it to be gouty in origin because of its being found more often in the upper classes of society, and in butlers and footmen rather than in the working classes, because of its being symmetrical, often inherited, and often associated with gout.

Dr. Day exhibited a girl eight years of age, who, on May 6th, 1882, was admitted into the Samaritan Hospital under his care, with symptoms of abdominal dropsy. For three months before admission her abdomen had been increasing in size. Copaiba, iron, digitalis, and purgatives failing to diminish the dropsy, paracentesis was performed on June 16th, and fifty ounces of fluid withdrawn. This was followed later by elaterium, and she subsequently became quite well under iron and digitalis. Dr. Day thought that anemia and some cachectic states of the system arising from deficient food and insanitary conditions might alone produce ascites. When the fluid resisted absorption and the general health was failing, he recommended

paracentesis, followed by tonics, good living, and active aperients.—Mr. E. Owen suggested that the case was one analogous to hydrocele.—Dr. Routh had met with cases of ascites dependent on faecal accumulation.—Dr. R. Lee alluded to the transitory enlargement of the abdominal glands in children apart from tuberculosis, and depending on slight intestinal derangement. In scrofulous children such enlargement becomes permanent. In other cases, the temporary obstruction to the portal circulation from pressure by these glands passed away under rest and proper diet. In Dr. Day's case, however, active interference was necessary.—Dr. Ewart said the glandular condition would not account for the effusion, though it might explain the slowness of absorption. The greater number of cases of ascites are due to portal obstruction; in children from a condition of subacute cirrhosis, frequently associated with rickets; often from tuberculosis of the liver. Mercurial treatment and purgatives were of most avail in such cases.—Dr. Day, in reply, did not think the ascites in his own case was due to glandular or portal affection, but to debility or some constitutional condition; and, in fact, was analogous to hydrocele. Cases which recovered under mercurials and purgatives were usually of this class.

The annual general meeting of this Society was held on March 5th, when the election of officers and Council for the ensuing year took place, and the reports of the Librarian, Treasurer and of the Council were read and adopted. The report of the Council entered into full detail concerning the important building operations which the Society had initiated during the past year, and which were now well advanced. The number of new Fellows admitted showed an increase over former years, and the Society has every reason to be satisfied with its position. By next session it will be in possession of premises which will not only afford it ample library accommodation, but a meeting room of considerably larger size than the present. Silver medals were awarded to Mr. Edmund Owen, the retiring Secretary, and to Dr. Whipham for his valuable paper on Bacilli in relation to Tuberculosis. The Fothergillian Gold Medal has been awarded to Mr. Norman Porritt, of Huddersfield, for the best essay on the Operative Treatment of Intrathoracic Effusion; five essays were received in competition for this prize. Votes of thanks were cordially passed to Mr. Francis Mason, the retiring President, to the retiring members of Council, and to Mr. Edmund Owen, the retiring Surgical Secretary; and the votes were acknowledged in suitable terms by Mr. Mason and Mr. Owen, who alluded to the fact that, in spite of the inconvenience attending the building operations, the Society had continued its weekly meetings without interruption. At the close of the business of the general meeting, Dr. Broadbent read notes of two cases illustrative of the value of the cold douche in delirium tremens and in pyrexia, and a discussion followed, in which Sir Joseph Fayrer, Dr. Althaus, Dr. Gilbert Smith, and others took part. The following gentlemen were duly elected to the several offices:—President: Sir Joseph Fayrer. Vice-Presidents: Dr. J. Hughlings Jackson, Mr. John Cawood Wordsworth, Dr. John Bruntton, Mr. Alfred Cooper. Treasurer: Dr. Alfred Wiltshire. Librarian: Dr. William Henry Allohin. Honorary Secretaries: Dr. Isambard Owen, Mr. Alfred Pearce Gould. Secretary for Foreign Correspondence: Sir William MacCormac. Council: Mr. Henry Francis Baker, Mr. Samuel Benton, Dr. Sidney Coupland, Mr. John Hamilton Craigie, Dr. Henry Radcliffe Crocker, Mr. John Henry Drew, Dr. Wm. Ewart, Dr. James Kingston

Fowler, Dr. Heneage Gibbes, Mr. David Henry Goodsall, Mr. George Lawson, Mr. Henry Morris, Mr. Francis Mason, Mr. Edmund Owen, Dr. Sansom, Dr. Charles Brodie Sewill, Dr. Gilbert-Smith, Dr. William Heath Strange, Mr. W. J. Walsham, Dr. Theodore Williams.

On Thursday, March 8th, the Fellows of the Society dined together at the Criterion Restaurant.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

THE ordinary meeting of this Society was held on March 8th. Mr. Mason, of Bath, presided in the absence of Mr. Bowman, and announced that the meeting in June will be devoted to a discussion on the relation of eye diseases to affections of the spinal cord. Dr. Gowers is to be invited to open the discussion.

Mr. James E. Adams showed drawings of the Fundus Oculi from a milliner, aged sixty-one (exhibiting the ophthalmoscopic appearances at periods long subsequent to embolism of the central artery), who suddenly lost the sight of the right eye on July 5th, 1871, and of the left in a precisely similar manner on Aug. 24th, 1881. The arteries in each eye contained scarcely any blood, and many of them were quite thread-like; the veins here and there showed old inflammatory changes, and one large trunk in the left eye was "beaded." There were also well-marked traces of old neuro-retinitis, and the maculae were occupied by well-defined patches of chroido-retinitis.—Mr. Nettleship asked if the patches near the yellow spot were due to secondary chroiditis or to retinal swelling, which seemed to him to be more likely.

Mr. Adams thought that the changes were at first purely retinal. He believed such changes would be found more frequently if they were looked for.

Dr. C. E. Fitzgerald, of Dublin, read a paper on the Connection between Disease of the Eye and Affections of the Sexual Organs in Females. The author, after alluding to Dr. Mooren's paper on Disturbances of Vision and Uterine Diseases, said that though the existence of a connection between diseases of the eye and affections of the genital organs in females would probably be admitted by most medical men, yet the literature on the subject was extremely scanty. Professor Förster (article in the handbook of Graefe and Saemisch) had placed the matter on a surer basis, but nevertheless it was unsatisfactory. He then related a case in which a violent neuro-retinitis occurred some time after a sudden cessation of the menses. The vision improved under treatment and with the reappearance of the menses. In a case of disseminated chroiditis with floating opacities in the vitreous, multiple fibroid tumours of the uterus were found; and it was suggested that possibly these tumours affected the circulation, so as to react injuriously on the delicate vascular tissue of the eye. Dr. Mooren had drawn attention to the subject of masturbation in proof that an irritation of the vagina might have an influence in producing retinal hyperaesthesia or accommodative asthenopia. Dr. Fitzgerald believed that the habit was practiced by females much more frequently than was generally supposed, and mentioned three cases in which he believed it had acted most injuriously upon the eyes. He considered the subject one of grave importance; and that, however unpleasant it might be, it ought to be thoroughly investigated.—Mr. Hutchinson could add little of a definite character to what Dr. Fitzgerald had stated on this very important matter. He had

given a lecture on this subject, in which he stated that there were organic diseases of the eye produced by masturbation in both sexes. But such cases had been very few in his own experience. Muscæ were common as a result of masturbation. He had no evidence of choroiditis disseminata from reflex disturbance from genital disease. He had seen several cases of softening of the vitreous from masturbation. He saw much of the ill effects of the habit in both sexes, cases in which the nervous system suffered greatly and in which the eye remained intact. He could not contribute any facts in connection with uterine fibroids or chronic metritis as exciting diseases of the eye. He referred to a severe case of muscæ in a lad of fifteen, caused by repeated sexual intercourse.—Mr. Spencer Watson thought that there were some cases illustrating the connection of sexual disorders and ophthalmic diseases. At the menopause, congestion of the head often occurred, and if the choroid were diseased, hæmorrhages were liable to occur. He had brought forward a case in point.—Mr. Benson thought that masturbation was not a disease of the sexual organs; it was often a symptom rather than a disease, and a central nervous lesion might be the cause of both the ill habit and the eye affection. He suggested that the eyes of monkeys should be examined with a view of throwing light upon this subject.—Dr. Buzzard had seen cases of disturbance of the general nervous system from masturbation, but nothing more serious than difficulties in accommodation in the visual organs.—Mr. Fitzgerald said that in many cases masturbation was not due to central affection; asthenopia was very frequently associated with leucorrhœa, which he thought was often produced by masturbation.

Mr. W. Adams Frost exhibited a living specimen of Pulsating Exophthalmos, affecting both Orbits. The patient was a man, aged thirty-eight, who, when ten years old, was run over, and had symptoms of fracture of the middle fossa of the skull. Since the accident a pulsating swelling had existed above the left eye, and he had heard a drumming noise in the head. Until within the few last years the left eye was very prominent. When exhibited, however, the eye had ceased to be prominent, and he suffered no inconvenience. The eye was rotated inwards, and beneath the eyebrow was an oval swelling the size of a filbert; in the angle between the nose and the orbit there was a flatter and more diffuse swelling. There was pulsation in both swellings, and a thrill in the nasal portion. Above the right eye was a small soft pulsating swelling. A loud bruit was audible over the left orbit. Pressure on the left carotid arrested pulsation in both orbits. Mr. Frost was of opinion that the symptoms were due to a fracture of the base crossing the left internal carotid artery, and establishing a communication between it and the sinus, which had led to varicose distension of the orbital veins, and that this varicose condition had extended by the circular and transverse sinuses to the veins of the opposite orbit. He reviewed the evidence afforded by the necropsies of nineteen cases which were on record, and pointed out that, in the majority of these, an arterio-venous communication was present, and that in nearly all the cases the pulsating swelling was formed by the distended orbital veins. The frequency with which symptoms of fracture of the skull were present in similar cases was also referred to.—Mr. Higgins suggested that an arterio-venous communication within the orbit might in some cases account for the symptoms.—Mr. Pearce Gould stated that a case of pulsating tumour of the orbit was in Middlesex Hospital under Mr. Hulke's care at the present time; the common carotid artery was liga-

tured, and it was hoped that a cure had followed, when a slight thrill and pulsation recurred at the inner corner of the orbit. He also referred to a specimen in the museum of the hospital taken from a man in whom during life there were all the signs of pulsating exophthalmos, but nothing abnormal could be found after death.

Dr. D. Little related a case of Sarcomatous Tumour of Iris, with successful removal. The subject was a young and healthy woman, aged twenty, and was first seen by him on June 20th, 1880. Sixteen months previously her left eye became suddenly blind while in the act of stooping, and remained so for a week. On recovering sight she for the first time observed a spot on the colored part of the same eye. Her family history was good. The tumour was situated on the lower and outer quadrant of the iris, extending from the papillary margin to the periphery of the iris; it was the size of a small pea, of a pale-brownish color, with a few fine vessels on its surface and numerous red points. The eye in every other respect was healthy, and free from irritation, and the vision was normal. On November 20th, 1880, the tumour had slightly increased in size, and it was decided to remove it. The patient was put under ether, and a linear incision was made with a Graefe's knife close to the corneo-scleral junction; the tumour and the corresponding piece of the iris were removed without difficulty; there was no bleeding into the anterior chamber. In the course of three weeks the eye had fully recovered, and the vision was equal to 20-20. It was then more than two years since the operation was performed; and up to three months ago there was no evidence of recurrence, and the vision was normal. The specimen was handed to Dr. Dreschfeld, Professor of Pathology, Owens College, for microscopic examination. The mass consisted almost entirely of round cells, containing a large round nucleus, filling up nearly the whole of the cell, and showing in its centre one or more highly refractive nucleoli. There were also a few spindle-shaped cells with nuclei; only a few cells contained brown pigment; the blood-vessels were all of the embryonic type. The microscopic examination thus showed the tumour to be a pigmented, round-celled sarcoma. A similar case had been recorded by Dr. Kipp in the *American Journal of Ophthalmology* for 1876, and three others by Dr. Knapp in the same journal for 1879.

Mr. Arthur Benson (Dublin) read a paper on Paralysis of some of the Ocular Muscles after Diphtheria, and gave some particulars of a case which had recently been under his care. The patient was a girl, aged eleven years. The primary throat affection was cured in four weeks. The ciliary muscles were affected in the fifth week, and continued so for about seven weeks. The soft palate was affected in the sixth week, and remained so for about two weeks. The hearing was affected in the sixth week, and remained so for about one week. The levatores palpebrarum were affected in the ninth week, and continued so for about one week. The recti externi muscles were affected in the ninth week, two days after the levatores palpebrarum, and remained so for about three weeks. The strabismus and diplopia convergens were present during the tenth week, and lasted for about four days. The weakness of the lower extremities began in the tenth week, and lasted for about three weeks. Numbness and tingling in the feet began about the tenth week, and lasted for about the same time as the weakness, three weeks. He regarded paralysis of the ciliary muscle, without alteration of the condition of the iris, as the most frequent implication of the intrinsic muscles of the eye. The seat of the lesion was, he be-

lieved, in the brain and spinal cord, and he combated Dr. Hughlings Jackson's sympathetic theory on the grounds that disease of the lenticular ganglion would be accompanied by some change in the action of the pupil. The portion of the nervous system, lesion in which would cause isolated bilateral paralysis of accommodation, was, he thought, Hensen's and Voelcker's centre for accommodation in the hinder part of the floor of the third ventricle. The deafness, on which Dr. Jackson laid stress as confirmatory of his theory of disease of the optic ganglion, was, Mr. Benson thought, more likely to be the result of the palate paresis, with which it was accompanied, than of interference with the nervous supply to the tensor tympani muscle. Paresis of both levatores palpebrarum and of both external recti muscles, as well as the frequent occurrence of paralysis in distant parts of the body, and perverted sensation, all disproved the sympathetic hypothesis. Dr. Ferrier had found that, at the base of the first frontal, and extending partly into the second frontal convolution, there was, in the monkey, an area of irritation of which caused elevation of the eyelids. Disease of this centre would account for the ptosis, which was bilateral. As to the nature of the lesion, but little was known. Post-mortem examinations had shown in many cases numerous hæmorrhages into the nervous centres, and in some cases a swollen condition of the large motor cells in the anterior cornua of the cord. Such changes, though they might occur in fatal cases, seemed unlikely to be the cause of paralysis, so fugitive and harmless as diphtheritic paralysis usually was. Mr. Benson thought that hæmorrhages, larger or smaller, numerous or few, as the case might be, were a more probable cause. Hæmorrhages had in several cases been found in diphtheritic paralysis. Hæmorrhages might be of any size, and the symptoms would be severe in proportion to the extent and position of the extravasation. Small hæmorrhages might be absorbed with great rapidity, and have but little, if any, ill result; larger hæmorrhages would account for the hemiplegic and other grave forms sometimes seen.

The following card specimens were shown by Mr. Arthur Benson: 1. A retino-ciliary Artery—i.e., a branch from the central artery of the retina, which apparently went to join the ciliary arteries by doubling back, and penetrating the disc near its border. 2. A Recent Spontaneous Detachment of the Retina, showing a rent in its structure. 3. Retinitis from Cerebral Disease, simulating retinitis albuminurica. 4. Retinitis Albuminurica (typical). 5. A peculiar condition of the Vitreous, with Disease in the Macula and Metamorphopsia. 6. Opaque Nerve-Fibres (typical case), with some disease about the macula.

Dr. Samuel West exhibited a woman with Dislocation of Lens of twelve years' standing, who, twelve years earlier, had "knocked her eye against the corner of a table;" vision at once became gravely affected. The right pupil was dilated to the extremest degree, and presented a notch on the upper part, corresponding with a linear scar in the sclerotic and cornea. The lens lay free in the vitreous, and moved with the eye; the retina, optic disc, and choroid were atrophied.

EPIDEMIOLOGICAL SOCIETY.

A MEETING of this Society was held on Feb. 7th, 1883, Dr. George Buchanan, F.R.S., President, in the chair.

Deputy-Surgeon-General A. C. C. De Renzy, C.B., read a paper on the Sanitary State of the British Troops in Northern India, of which the

following is an abstract. The object of the paper was to estimate the results of the measures taken to improve the health of the British troops in India since the date of the issue of the report of the Royal Commission on the Indian Army. The author first proceeded to fix a standard of comparison. He rejected the oft-quoted death-rate given by the Royal Commission—viz., 69 per 1,000—as a standard, because it was founded on the results obtained in a period of incessant war—viz., from 1800 to 1856—and was to be regarded rather as a statement of the cost in life at which the British Empire in India had been built up, rather than as an estimate of the rate of mortality existing at the time when the report was issued. He took the death rate of 1862, the year in which the Royal Commission submitted its report, as closely approximating the average death-rate of the troops at that time. The death-rate of that year, which was by no means a healthy one, cholera in a virulent form having visited many stations, was 27·25 per 1,000. The author then referred to a table showing the death-rate for each year from 1862 to 1880. This period was one of almost unbroken peace, except in the years 1879 and 1880, and, in order to make the statistics of those years fairly comparable with those of the previous years of the series, the figures relating to the troops on field service in Afghanistan were excluded from the table. The most marked feature in the table was the extraordinary fluctuations in the death-rate, which ranged from 11·64 to 42·89 per 1,000. The death-rate of the later years was shown to be quite as high as that of the earlier ones of the period. The death-rate of 1880 was 27·73, that of 1862 being 27·25, per 1,000. The death-rates of individual stations, as shown in another table, confirmed the conclusions indicated by the statistics of the Presidency as a whole. The stations continue as before to be subject to the most destructive epidemics, one or two years healthy, and then visited by cholera or enteric fever in a most virulent form. In 1877, for example, Morar had a death-rate of 12, and in 1878 one of 65, per 1,000. Peshawur had a death-rate of 3 in 1877, and one of 141 in 1879. Another point clearly shown by the statistics of stations was the fact, of constant occurrence, that in the same season, of two stations at a very moderate distance apart, one was extremely healthy, while the other was decimated with cholera or enteric fever, proving conclusively that the epidemics were not due, as was usually supposed, to some general atmospheric influence. After showing that nearly half of the total mortality was due to cholera, dysentery, diarrhoea, enteric, and other fevers, the author discussed the causes of the excessive mortality from diseases so eminently preventable. He sketched the general sanitary conditions of Indian cantonments, but entered into a very full description of the state of the water-supply, which he considered the key to the whole matter, and he gave in detail an account of the numerous opportunities which occur in that country for the pollution of drinking water. The Royal Commission summed up their conclusions on the water-supply as it existed twenty years ago in these words: "It will be seen that the supply for permanent stations is the same as that usually adopted for armies in the field, somewhat similar methods have always been in use in uncivilized, or imperfectly civilized, populations." Great improvements have been made in other matters; magnificent barracks have been built at a cost of ten millions sterling; 26 per cent. of the troops have been located in the hills, but the water continues, in the author's opinion, in a state unworthy of a civilized people, and this is the reason why the death-rate has not fallen, and why epidemics

of cholera and enteric fever continue so common. After quoting several high authorities, whose opinions on this point differ widely from those of the author, the case of Fort William, in Calcutta, was referred to as one in which sanitary requirements, as they are understood in England, were fairly satisfied. It is surely an encouraging fact that, while in the decade ending in 1880 the average death-rate of the troops stationed in the United Kingdom was 8.68 per 1,000, the death-rate of the troops stationed in Fort William in the same period was only 10.60 per 1,000. The prevalence of intemperance was referred to as an indirect effect of the present system of water-supply, cool, drinkable water not being procurable, the men acquire a craving for alcoholic drinks. The paper concluded as follows:—"The subject thus imperfectly dealt with is one of immense importance. The fabric of the British Empire in India visibly rests on the health of the British troops; but the importance of the subject extends far beyond them, it concerns the teeming millions of the native population. Orientals are fatalists; epidemics, they believe, are special dispensations of Providence with which it is idle, if not injurious, to interfere. When, as a sanitary commissioner, I endeavored to convince native municipalities of the error, I was met by the argument, that if epidemics were preventable, why did not Government prevent cholera among the British troops? The constant recurrence of destructive epidemics among the British troops is the greatest obstacle to the progress of sanitary improvement. To refute Oriental fatalism, a clear demonstration of the preventability of epidemics is required; and such a demonstration can be best made in military cantonments." The author then submitted that the facts and figures laid before the meeting warranted the following conclusions:—1. That since the publication of the report of the Royal Commission in 1862 there has been no appreciable reduction in the rate of mortality among the British troops in Northern India. 2. That, with very few exceptions, the water-supply remains substantially in the state described by the Royal Commission. 3. That so long as the water-supply remains in this state the health of the troops will be at the mercy of any accident which may convey to them the contagia of such diseases as cholera and enteric fever. 4. That the case of Fort William affords ground for hope that the measures which have so reduced the rate of mortality in that fortress would produce equally good, if not better, results in the naturally more healthy stations of the North-West Provinces and Punjab.—In the discussion which followed, the President, Sir Joseph Fayrer, Drs. Dickson, Gordon, Soriven, Manifold, Murray, McConnell, and Mr. Shirley Murphy took part.

MIDLAND MEDICAL SOCIETY.

At the ordinary meeting held in the Birmingham Medical Institute on Feb. 21st (Dr. Malins, President, in the chair), Mr. Eales showed a young girl, aged fourteen, who had been affected with a sudden and rapidly increasing Exophthalmos accompanied with Optic Neuritis. After a few days' duration the exophthalmos began to subside, a discharge of fetid pus taking place from the right nostril at the same time. There was no conclusive evidence of hereditary syphilis or struma, but frontal headache had been experienced for three months before. Mr. Eales considered this to be a case of caries of the bones between the cavities of the orbit and the nose,

with formation of pus and perforation into the orbit, thus setting up orbital cellulitis.

Mr. West exhibited a boy whose left knee-joint had been widely opened, the result of an accident. Suppuration followed, but under strict antiseptic measures there was a perfect recovery in six weeks.

Mr. Chavasse showed two large Sarcomatous Tumours recently removed. The first originated at the upper third of the shaft of the tibia in a girl, seventeen years of age, and was as large as a foetal head. The history extended over a period of six months, and before admission to the General Hospital the tumour had been incised as an ordinary strumous swelling. The limb was removed at the upper third of the thigh and a rapid recovery ensued. The second case was that of a girl, aged twelve, who had complained of pain in the right shoulder joint for two months, which was attributed to rheumatism. One month before admission to the hospital a tumour was noticed over the right scapula; this rapidly increased until it was the size of a man's clenched fist, and was accompanied by emaciation. The whole of the scapula was removed, but the patient died of shock seven hours after the operation. Both tumours were mixed forms of sarcomata, and of periosteal origin.

Dr. Windle exhibited the following specimens: 1. A large deposit of carcinoma in a left kidney, secondary to scirrhus mamma of two and a half years' duration; the patient was a female aged sixty-two. This is the only secondary deposit. After removal of the breast very little urine was passed, and none at all the day preceding death. The fatal termination occurred six days after the operation. 2. Renal calculi. Right kidney very small, containing several calculi, and the gland structure was very much destroyed. The left kidney was larger than normal, but otherwise unaltered. 3. Right kidney containing one large branched calculus and one small round one. The substance of the gland was much destroyed. The left kidney was a mass of structureless fat containing a small calculus.

Mr. Priestley Smith read a paper on the Use of Eserine in Glaucoma, in which the action of the drug in the usual forms of the disease was discussed. It was shown that the opposite effects of eserine and atropine on glaucomatous tension are not due to any influence over secretion, but to changes in the mechanical relations of the iris. Whenever atropine or eserine produces any pronounced changes in the tension of the eye, they do it by altering the relations of the iris in such a way as to injure or promote the escape of the intra-ocular fluid. This assertion was supported by comparing clinical experience with the facts discoverable by dissection in the chief varieties of glaucoma. A series of drawings from specimens of glaucoma were exhibited. In forming an opinion as to the propriety of using eserine in any individual case, the question should be asked, Is there any obstruction in the eye which is capable of reduction by contraction of the pupil? The author advocated caution in the use of the remedy; inasmuch as where it does no good it is apt to do harm, because it increases the flow of blood through the vessels of the iris, and indeed it has been known to induce hæmorrhage. Also it should never be allowed to stand unduly in the way of operative treatment, for the cases in which eserine by itself suffices to cure are few in number.

Mr. West read a paper on Chronic Joint Inflammations and their Treatment, which he illustrated by various cases that had been under his care. He reviewed the pathology of such inflammations as they occurred in the synovial membranes, ligaments, and bones, and the effects which were subsequently produced on the cartilages. He advo-

cated immobilization of the limb, or rest by the weight extension, together with the application of ice and freezing mixtures to the surface of acutely inflamed joints; where considerable effusion exists aspiration and free antiseptic incision should be employed. Mr. West considered that Listerism had revolutionized the treatment of joint inflammations, and there should be no hesitation in laying open any inflamed articulation.

HARVEIAN SOCIETY OF LONDON.

At the meeting on March 1st, 1883, the President, E. Symes Thompson, M.D., in the chair, Mr. Edmund Owen made some remarks upon the simple treatment of Congenital Talipes. He said the commonest form was that in which the heel was drawn up and the foot inverted, talipes equino-varus. He had found the best treatment for this form was division of only the tendo Achillis, then the application of a tin splint for three days, after which gentle manipulation should be practiced, the heel being brought down and the foot everted. Then a plaster-of-Paris bandage should be applied to the limb in its corrected position, and kept on for three weeks, and then reapplied if necessary. Mr. Owen showed a patient with double talipes equino-varus, on whom he was practicing this method of treatment, and put on a plaster-of-Paris bandage.

Dr. Percy Boulton then read a paper on the Treatment of Post-partum Hemorrhage. He pointed out first the differentiation between this and other forms of puerperal hemorrhage, and after speaking of ordinary cases and their treatment, he discussed the treatment of extraordinary cases or those of the major degree, and passed in review the value of cold, heat, injections of iron, and transfusion. He particularly urged the more frequent use of transfusion, believing that 50 per cent. of those who now die from puerperal hemorrhage would be saved if no woman were allowed to die without transfusion having been previously tried. He was in favor of direct or immediate transfusion from vein to vein with the simple apparatus used by Professor Schäfer in his experiments on animals, which was cheap, took up no room in the obstetrical bag, and did not get out of order. In the absence of a human blood-giver, he thought a salt-and-water solution, at a temperature of 110° F. and of a strength of one drachm to the pint, should be always used, the quantity of the injection being determined by the result. He gave the following objections to mediate transfusion, in which the blood is drawn first into a vessel and defibrinated: 1. Loss of time during bloodletting. 2. Cooling of blood during whipping, which necessitated artificial heating and further loss of time. 3. Chances of embolism from imperfect defibrination. 4. The necessity of a more or less complicated pumping apparatus, very apt to get out of order and to have fibrin deposited on its valves, and so cause embolism. 5. Contamination of blood with bacteria, either during defibrination or from the instrument rarely used getting fouled inside. He thought the use of a cheap, portable, simple instrument such as he exhibited to the meeting, which could not get out of order, and could always be at hand, and the adoption of a saline solution when a blood-giver was not forthcoming, were the most likely means of popularizing this operation.—A discussion ensued.

—We regret to notice the death of Dr. Palfrey, the senior Obstetric Physician to the London Hospital.

Editorial.

KOCH ON THE BACILLUS OF TUBERCLE.

DR. R. KOCH seems determined to plunge into controversy. Hardly has he delivered himself of an attack upon M. Pasteur's methods and conclusions upon the subject of anthrax vaccination than he feels called upon to reply to the various objections that have been raised to the import of his discovery of the bacillus tuberculosis. In the issue of the *Deutsche Medizinische Wochenschrift* for March 10th he pens a lengthy reply to each writer who has ventured to deny the specificity of the bacillus, and this without discriminating between criticism that was based on actual research and that which is almost purely theoretical. Nor is the manner of his reply to be commended, for it certainly will not conciliate. Indeed, at Vienna it has already raised a spirit of opposition, which can bode no good for the attainment of the truth. He finds opponents to his doctrine mostly in America and Germany. In the former country there is Cutler, who regards the bacilli as the embryonal forms of the mycoderma aceti; Rollin Gregg, who suggests that they are really only fibrin filaments; Schmidt, of Chicago, who believes they are fat-crystals. Such statements are so easily disproved that one wonders that Koch takes the trouble to refer to them. More powerful opposition comes from Formad, who has not only declared his inability to detect the bacilli in some cases of caseous destruction of the lung, but avers that other forms of bacteria give the same result to staining reagents. He also reviews the fact of the proclivity of certain animals to tuberculosis after non-specific inoculations, being, as Koch remarks, apparently ignorant of the work done by Cohnheim and Salmonson on this point. Koch advises Formad to make himself acquainted with the recent literature of artificial tuberculosis, and to distinguish between spontaneous and inoculated tubercle. Strassburg's failure to find bacilli put him out of court in the denial of their existence. Turning to German opponents, he first meets Beneke, who doubts the significance of bacilli from the fact that alcoholic and ethereal extracts of blood yield products having the reaction of the bacillus; and upon this Koch merely recalls the fact that in 1876 a well-known botanist declared the anthrax bacillus to be merely a form of crystal. Cramer has found in healthy stools bacilli giving the color reactions of the tubercular bacillus, but other observers, as Menche and Gaffky, have also examined these excretions in non-phthisical persons with negative results. Even granting the resemblance between such bacteria and the bacillus tuberculosis, it has yet to be shown that they possess the same pathogenic characters. Koch says he has never denied the possibility of other bacteria having like color-reactions to the bacillus of

tubercle, but he has never met with such, the bacillus lepræ excepted. He likewise throws doubts on Baloch's alleged discovery of similar bacilli in the slime from the Berlin drains. Schottelius is another adversary who has lately written in support of tuberculation by non-specific substances, disregarding the extension of tuberculosis and its infectivity, and considering that the bacilli have no etiological relation to the disease. The same writer also contends against the identity of human with bovine tuberculosis, and advances facts against the communicability of the latter to man. Dettweiber discriminates between phthisis and general tuberculosis, and, although he has found the bacilli largely in cases of phthisis, does not admit their causal relation. Koch, however, gathers from his remarks that he has incompletely grasped the teachings of bacterial pathology. The last and most important observer who has thrown doubts upon the discovery of Koch is Dr. Spina, assistant to Professor Stricker, of Vienna, who has recently issued a *brochure* in which he goes over the whole ground covered by Koch, the first attempt, according to the latter, in this direction. His conclusions were wholly at variance with those of Koch, who deals very severely with him. Koch points out that the method followed by Spina is very defective, that he has not followed the precautions which every worker in the subject of micro-organisms must adopt if he wishes to avoid error; that consequently his "cultivations" are untrustworthy and his inoculation experiments (limited to but two rabbits) inconclusive. Koch does not think such work, in spite of the high praise accorded to it in Vienna, should for one moment be reckoned on a level with his own experiments, conducted upon hundreds of animals, with every precaution. He goes further, and avers that Spina shows himself to be ignorant of the methods of examination, cultivation, and inoculation of bacteria. He believes that the result of his labor will be to discredit not only the observer himself, but the institute to which he belongs, and satirically recommends him to study bacterial pathology *de novo*. From this it will be gathered that Dr. Koch has written very warmly in defence of his facts—perhaps too warmly—and has, moreover, not been free from a certain tone of contempt which hardly befits his position, and is less likely to advance his cause than if he had discussed the matter more temperately and judicially.

At the time of writing we learn that Professor Stricker has entered the list in defence of Dr. Spina, who has worked in his laboratory for thirteen years, and is at present virtual director of the microscopical department. Stricker desires to share the responsibility of Spina's publication, with the main points of which he was acquainted. He further declares that Koch's experiments prove nothing as to the contagiousness of tuberculosis, and refers to his own work on the subject, and the abundant testimony from observers in all parts of

the world, as to the production of artificial tuberculosis by inoculations of indifferent materials. He also points out that the fact that putrefactive bacteria stain with Koch's reagents (a fact discovered by Spina and vouched for by Stricker himself), destroys the main argument advanced by Koch in favor of the specific characters of the tubercle bacillus. Professor Stricker's remarks were made at the annual meeting of the leading medical society at Vienna; and he concluded by saying that Spina is preparing a further statement, which will clearly expose the position taken by those who speak so magisterially without previously testing by experiment the work they criticise. There is thus open war between Vienna and Berlin about the tubercle bacillus.

VIVISECTION.

THE current number of the *Contemporary Review* contains an article on the Anti-Vivisectionist Agitation, by Dr. E. De Cyon, and a reply by Mr. R. H. Hutton. We must confess to being at a loss to understand the exact object aimed at by thus again introducing this subject in such a place, and having read the articles, we fail to see that either of them advances the discussion in any particular. It is but fair to remember that Dr. De Cyon is writing chiefly, if not entirely, in fulfilment of a pledge, that he is writing not in his native tongue, and with confessedly an imperfect knowledge of the details of the "agitation" in this country. Dr. De Cyon is quite as much annoyed with the conduct of the profession in this country in this matter as he is with that of his opponents. He considers that the profession has made a grave error in carrying on "a scientific discussion with the persons whom interest or eccentricity has led to declare against the laboratories," with "outsiders whose judgment has no value at all in matters of science." Such a line of conduct he regards as excessive condescension, and as certain to be unsuccessful, and he would have preferred to see agitation met by agitation, petition by counter-petition, and every weapon turned against the enemies of science which had been so skilfully and unscrupulously used against themselves. We do not agree with Dr. De Cyon, but we thank him for his statement, as it has been the cause of eliciting from Mr. Hutton a sweeping condemnation of the policy and action of his many "anti-vivisection" allies. These are Mr. Hutton's words: "No reasonable person ever fancied for a moment that any one but a physiologist is competent to criticise the physiological ends which the physiologists propose to themselves in vivisection." We are glad to have such high authority for considering many of the opponents of vivisection mere unreasonable agitators. Dr. De Cyon gives several examples of the wholly dishonest use made by the "anti-vivisectionists" of this country of diagrams and garbled sentences from his "*Physiologische Methodik*." In this there is nothing new, but the facts stated

are so disgraceful, that we are astonished that any body of men and women professing to be moved by more than ordinarily high and pure motives should resort to such contemptible and dishonest means of prejudicing their opponents and of furthering the adoption of their views among the unthinking and the ignorant. Mr. Hutton is silent in regard to this, and writes as if this meanness were consistent with a "sheer sense of justice and humanity" by which alone he is influenced in this matter. After defending himself from the charge of cruelty, Dr. De Cyon criticises with some severity his assailants, and shows that of the two leaders of the movement against vivisection in Germany, one was ignorant of the matter, and the other, well-informed, was actually insane at the time he wrote against physiological experiments. Mr. Hutton's article deals exclusively with Dr. De Cyon's, and he has somewhat closely followed the latter in all those features which he indicates as errors. Attaching blame for imputing motives to the leaders of the "anti-vivisection" agitation, he does the same himself not only by assuring his readers that his associates "have joined in the movement from a sheer sense of justice and humanity, and for no other motive whatever," but by repeating the odious charge against Dr. Klein that his correction of his first evidence before the Royal Commission was untrue, and that his later statements did not represent the true state of his mind. Mr. Hutton's argument is summed up in one sentence: "What we do maintain, however, is this—that there is a much higher moral object in prohibiting torture, *even for the discovery of new truth*, than any which you can plead for experiments involving torture; and of the relative importance of cherishing humane habits and promoting scientific discovery the general public are just as good judges as" Dr. De Cyon. What Mr. Hutton may mean by "torture" we cannot pretend to know, for it is used in the most various senses; but if we take it as denoting severe and prolonged suffering, it is at once evident that Mr. Hutton's "moral object" is not obtained by prohibiting the larger number of physiological and pathological experiments. His words surely mean, in reference to any vivisection, "no pain, no immorality." He is scarcely, therefore, in a position to support the existing law, much less to advocate a more stringent measure for the complete suppression of all vivisection. But of course we cannot accept Mr. Hutton's view even in this sense, for we believe that the "moral object" in pursuing investigations for the discovery of truth which shall be of advantage to all succeeding generations of men or animals, or both, and the means of prolonging or saving life and mitigating suffering, is far greater than any which can arise from the protection of a few individuals from pain, in most cases very slight, and in but rare instances severe. Such a view is in harmony, we believe, with the truest philosophy and the workings of nature, and is a

principle of almost universal application. But after being told by Mr. Hutton that no "reasonable" layman is competent to criticise the physiological ends which physiologists propose to themselves in vivisection, it is surprising to find him stating that the general public are as able as the profession to judge of the importance of promoting scientific discovery. Can Mr. Hutton give one single instance in which the public have shown as correct an appreciation of the value of scientific discovery as the laborers in science themselves? And to be ignorant of the value of a discovery carries with it ignorance of the value of promoting such a discovery. Nor is the other part of the comparison Mr. Hutton would draw more valid. We very much doubt whether the general public know much about the value of humane habits. Certainly inhumanity stalks through this and every other land, and the true meaning of humanity is understood by few and practiced probably by fewer still.

OBSERVATIONS ON LEPROSY.

THE problem as to what is to be done towards lessening the prevalence of leprosy and mitigating the sufferings of lepers in our dependencies, appears from papers before us to have advanced a step in the Bombay Presidency. From returns furnished by the Commissioners of the several Divisions, at the instance of the Bombay Government, it appears that there are, excluding Bombay city and the district of Ratnágiri, where there is a leper hospital founded by private munificence, 9,483 lepers ("black" or true leprosy). The disease prevails only to a slight extent in Sind and Kánara, to a greater extent in Gujerát and the Southern Marátha country, and is common in the Deccan and the coast districts of Thána and Kolába, reaching a maximum in Khándesh, where there are 2,186 lepers, forming 177 per cent. of its population. This return, which was instigated by the application of the joint secretaries of the Sassoon Infirm Asylum at Poona for a Government leper asylum to relieve their institution and allow it to more fully carry out the object for which it was originally founded, seems to have powerfully impressed the Government with a desire to mitigate the evil, and to act on the able and repeated suggestions of Dr. Vandyke Carter, that the only practical method of dealing with the matter is by the *segregation of lepers*. In short, the Governor fully recognizes the desirability of establishing leper asylums in the Presidency, and as sufficient Government funds are not available, he earnestly seeks to enlist the help of private philanthropists. Meanwhile valuable observations are being made in the contagion and heredity of leprosy in countries where the conditions are more favorable than such a region as India. Popular belief has pointed all the world over and in all times to the propagation of leprosy by contagion, but the writings of Daniellssen and Boeck, and the reports of Virchow

and the English College of Physicians, seemed to show that leprosy was hereditary, but not contagious by mere contact, although it was left an open question as to inoculation through abraded skin. Since the date of these reports many have come forward to dispute the conclusions, especially with regard to contagion. Heredity has not been so much assailed, and we have in syphilis an instance that a disease may be both contagious and hereditary. Hansen, in Norway, it is well known, has adduced strong arguments in favor of the contagiousness of the disease, but he attacked the view of its hereditariness. The inquiry, in regions where leprosy is endemic, is almost hopelessly confused by the fact that it is impossible to exclude the possible factors of contagion and the common exposure to the influence of some morbid agent. It is objected to the heredity view that the numerous statistics show a wide divergence of results as to its degree, and that the evidence of direct heredity is not strong. It is also a matter of common experience that only one or two of the children of a leper may be attacked, and these not in any regular order in the family. Then, again, in all probability children are never born with the evidences of leprosy upon them. Mr. Hillis says that although very favorably placed for the observation, he has never seen it; yet this may be explained by the very chronic evolution of leprosy. Hansen noted that in a district where leprosy is of recent origin, the indications of heredity are slight or absent, and that it is not until the disease has become endemic that the supposed proof is forthcoming. Lastly, Morehead, as well as Lewis and Cunningham at Almora, came to the conclusion that heredity could not be a great factor in the increase of leprosy in a district, inasmuch as lepers have comparatively small families, who suffer a high rate of mortality, and, therefore, the survivors are only just numerous enough to replace their defunct progenitors.

Dr. I. E. Atkinson published in the *Archives of Medicine* for June, 1882, the details of the case of undoubted tuberculated leprosy in a married woman, forty years of age, of German parentage, who had never left the State of Maryland. Her children and husband were healthy, and the only traceable origin was to a tuberculated leper whom she had known for two years, and who lived next door for one year. Dr. James C. White, of Harvard University, also recently contributed to the *American Journal of the Medical Sciences* an ably-written paper on the question of Contagion in Leprosy, in which he concludes that heredity is not the all-important factor in its propagation, though he would not exclude the possibility of its operation in individual cases, but that leprosy is communicable from man to man by direct transference, like syphilis, probably by inoculation of some of the juices and products of disintegration of the leprosy foci.

DIABETIC COMA.

THE subject of sudden death and fatal coma in diabetes is one so intimately bound up with the nature of the disease itself that it is surprising that attention should have been paid to it only in recent years; for of all modes of termination this is perhaps the most frequent, and the explanations put forward for its occurrence have none of them been found of general application. In a valuable paper contributed to the last volume of Guy's Hospital Reports, Dr. Fredk. Taylor reviews the subject in the light of the experience of that hospital, and deals with twenty-nine cases of diabetic coma out of a total of forty-three fatal ones. Fourteen of these twenty-nine cases were uncomplicated; and of the remainder, three were combined with old phthisis, seven with recent phthisis or pneumonia, one with ulceration of the bowels, two with pyelitis and suppurating kidneys, and one with carbuncle and granular kidneys.

The same subject is dealt with by Professor Frerichs, of Berlin, in the current number of the *Zeitschrift für Klinische Medizin*, and its appearance is a timely one for physicians in London, who are now engaged in discussing the morbid anatomy and pathology of diabetes at the Pathological Society. The writer speaks from a large experience of the disease, no fewer than four hundred cases having passed under his hands; but he refrains from any statistical conclusions as to the frequency of death by coma and collapse, as many patients passed away from notice, or died at a distance from causes of which he has no accurate record. He is, however, possessed of a sufficiently large record to show that a rapidly fatal termination is more frequent in this disease than is generally accepted, and to justify the remark that the diabetic lives in constant jeopardy. The fatal result may occur through syncope from cardiac paralysis, from collapse, with more or less general functional nervous disturbance, insensibility, delirium, somnolence, and coma, often, but not always, accompanied with a sense of anxiety and by severe dyspnoea. Sometimes no exciting cause can be discovered for this event. In other cases, excessive physical exertion, mental emotion, or anxiety determine it; and more often still it is preceded by some local disease, such as gastric catarrh, constipation, tonsillitis, alveolar abscess, etc., or the more formidable onset of bronchitis and pneumonia. Whether they be only of the nature of epi-phenomena or not, the urgent symptoms (which occasionally pass away for a time) may be arranged into three distinct groups, each of which Professor Frerichs illustrates by examples. In the first group he places those cases where the diabetic, generally after some exertion, is attacked suddenly with general weakness, cold extremities, feeble pulse, somnolence, and loss of consciousness, death ensuing in a few hours. In the second group the symptoms are more pro-

longed, and are usually preceded by symptoms or such local affections as are above mentioned. Then occur headache, restlessness, delirium, great anxiety, sometimes a maniacal state, dyspnoea with or without cyanosis, a weak and rapid pulse, low temperature, somnolence, and coma. The breath in these cases has often the odor of chloroform or acetone very marked. Exceptionally the drowsiness passes away, to recur later, or to be followed by more lasting improvement. The whole cycle of events may be run through in twenty-four hours, but the condition generally lasts from three to five days, sometimes longer. In the third group of cases there is no dyspnoea, and the strength seems fully maintained, when the patient is attacked with headache, giddiness, and drowsiness passing into coma; the breath here also has the characteristic odor, and the urine yields the burgundy-red tint when tested with perchloride of iron. Any or all of these events may be associated with the inflammatory local affections met with in diabetes—as erysipelas, pneumonia, meningitis, etc. Professor Frerichs makes a few remarks upon the diagnosis, prognosis, and treatment of the condition, and shows how futile have been all attempts to save life on the several plans proposed; and he passes on to discuss its cause and nature. These have been sought (1) in changes in the nerve centres, and the most various lesions have been described—as hyperæmia, œdema, hæmorrhage, etc.; but none of these are constant, and are all probably explicable as results rather than causes of the initial disturbance. Nor is there any solid evidence in support of the view that the symptoms are due (2) to an inspissation or other alteration of the blood; microscopical and spectroscopical examinations show no evidence of such change. Again, the symptoms have been attributed (3) to uræmia, and there is a certain similarity in the symptoms due to this cause and to diabetic coma. Moreover, in some cases the urine is much diminished or suppressed, or albumen may appear in it; but this is by no means invariable, and the symptoms are not the same as those of uræmia, which does carry off a certain number of diabetics who have organic renal disease. Of late years much attention has been directed to another process—(4) fat embolism—to the occurrence of which the cases related by Dr. Sanders and Professor Hamilton afforded such strong support. Frerichs remarks that fat embolism has not been observed in the brain, although met with in many other organs; and he has never detected it himself, although he has carefully sought for it. In only one case was the blood at all milky, and in that case no emboli were found. Moreover, examination of the blood during life does not reveal an excess of fat. Then comes the question (5) of acetonæmia, which, since the discovery of acetone in the urine in diabetic coma by Pelters, in 1857, has been regarded as the cause of this condition. Much remains to be ascertained concerning the occurrence of acetone

and the products that precede its appearance; but this much is known, that acetone injected into the blood of animals does not produce symptoms of coma; and Frerichs thinks that the term "acetonæmia" should be discarded. The characteristic reaction with perchloride of iron is due to the presence of acetic ether, but the same reaction is given by aceto-acetic acid, and neither of these substances produces the characteristic symptoms of diabetic coma in animals. Lastly, the symptoms have been referred (6) to defective elimination, based on the fact that more or less extensive necrotic changes occur in the renal and other epithelia in diabetes, as well as a hyaline degeneration of the tubes of Henle in the kidney. But, as is shown in an appendix to this paper, these renal changes are due to the deposition of glycogen in the affected tissues; and they occur in all cases of diabetes, whether death be ushered in by coma or not.

The conclusion at which Professor Frerichs arrives is not, then, very satisfactory, but it shows how much yet requires investigation. There are probably various causes in operation, and the first group of cases differs markedly from the others. In it death takes place from cardiac failure; there are no nervous symptoms, and the characteristic odor of the breath and reaction of the urine are absent. It is due to cardiac degeneration, owing to rapid tissue-waste, and other unknown factors which may operate in preventing tissue regeneration. The symptoms of the second and third groups are those of intoxication. A series of changes take place in the blood, the final products of which—aceto-acetic acid and acetone—are known, but the initial products of such fermentation in the blood itself are unknown and difficult to ascertain, from the rapidity with which the process takes place. The value of the paper is enhanced, by two elaborate appendices, one by Dr. Ehrlich, demonstrating by means of iodine the invariable presence of glycogen in the renal cells at the junction of the medulla and cortex of the kidney in diabetes, the presence of the same substance in other tissues and in inflammatory exudations being as constant as in the non-diabetic organism; and the other by Dr. Brieger upon chemical researches with respect to diabetic coma, particularly as to acetone and its allies.

THE MORAL OF THE MONASTERIO "CASE."

THERE is nothing that calls for special remark in the Monasterio case. It is simply an instance of misadventure, possibly of intentional wrongdoing, though upon that issue we cannot offer any opinion, in the working of a system which, except to those who are officially committed to its approval or support, seems to be specially devised with a view to facilitate the occurrence of grave misadventures and the doing of great wrongs. The Lunacy laws of France may be worse in their

minor details, or they may be either more carelessly or less conscientiously administered than our own, but the same radical defect is common to both. Any medical man, with or without a special knowledge of mental diseases, is empowered to sign a certificate of lunacy, which is, in fact, a *lettre de cachet*, or warrant for the arrest and imprisonment of the person named therein. Nor is the committal made to a prison—or asylum—provided by the State, and under official management. The place of confinement is, in fact, a private establishment, on a footing, in that respect, with the old sponging-houses to which debtors were once hurried. The proprietors of private asylums for the insane very strongly object to the licensed houses under their control being described as “prisons,” or in any way compared thereto. We do not employ the term, or suggest the comparison, in a spirit of carping or hostile criticism, but it should once for all be understood, and continually borne in mind by our readers of all classes, that we are wholly opposed to the private asylum system as at present existing, and that we earnestly desire to see it reformed, not, indeed, by the abolishment of private asylums for the insane, but by placing those institutions on a satisfactory footing as regards the interests which proprietors or lessees have in the reception and retention of patients. We contend that the State should take over the private asylums as it has taken over the telegraphs, or at least empower municipalities and country boards to acquire and manage such property. The moral of the Monasterio case does not, however, so much relate to the private-asylum system as to that of “certifying.” Here lies the great fault of the mode of procedure both in France and in England. No non-official person, whether medical or clerical or legal, ought to have the power of making what is practically a secret order for the removal of an alleged lunatic to an asylum. Certificates should in no case be given by private individuals engaged in practice for fee. It is a mistake to suppose that the endorsement of certificates thus given by a magistrate would afford the smallest security. In a case of lunacy, which is so self-evident that a magistrate can himself recognize the existence of mind disease, his endorsement of the certificate must be unnecessary. If, on the other hand, the insanity is not, so to say, *overt*, no layman—we will go further and say no one but a man who has specially studied mental disease—can possibly form a judgment of any real value. In short, the magistrate is no more use in the matter of lunacy than he would be in a doubtful case of fever or obscure disease of any description, simply because he cannot make a special medical diagnosis. As to the supposed safeguard afforded by the mere countersigning of a certificate that may be dismissed as worthless. Unless the person countersigning can form a judgment of the actual needs of the case, he must be guided by his opinion of the practitioner, and

neither the public nor the profession would consent to the exercise of magisterial functions on such a basis. Until certificates are given by official medical men not engaged in private practice, and properly qualified for the task of examining the insane, cases like that which has just attracted attention in France must occasionally occur. We have said that we cannot form any opinion as to the *bona fides* of the medical men concerned in the case of Mlle. Monasterio. There is simply nothing to guide us. We have too often, unhappily, in England, to condemn hasty examinations. All we can say is that precisely what has happened in this *cause célèbre* may happen again under similar circumstances, and without the smallest intentional wrong-doing on the part of the medical men concerned. It is the system that is bad—rotten to the core, but not yet rotten enough, it would seem, to secure a legislative remedy.

Reviews and Notices of Books.

The International Encyclopædia of Surgery. Edited by JOHN ASHHURST, Jun., M.D. In Six Volumes. Vol. II. pp. 754. London: Macmillan & Co.

THE second volume of this work has succeeded the first within a comparatively short interval, and Dr. Ashhurst has by his selection of contributors again given to the profession, both in America and in this country, a series of very valuable contributions to medical literature. The present volume contains the following articles: Contusions, by Dr. Hunter McGuire; Wounds, by Thomas Bryant; the Antiseptic Method of Treating Wounds, by W. Watson Cheyne; Poisoned Wounds, by John Packard; Sabre, Bayonet, and Arrow Wounds, by Dr. J. H. Bill; Gunshot Wounds, by Dr. P. S. Connor; Effects of Heat, by Dr. Thomas Morton; Effects of Cold, by Dr. J. A. Grant; Abscesses, by Mr. Howard Marsh; Ulcers, by Dr. J. T. Hodgen; Gangrene and Gangrenous Diseases, by Dr. E. M. Moore. Venereal Diseases: Gonorrhœa, by Dr. J. W. White; Chancroid, by Dr. F. R. Sturgis; Syphilis, by Dr. Arthur Van Harlingen; Bubon d'Emblée, etc., by Dr. H. R. Wharton. Surgical Diseases of the Skin and its Appendages, by Dr. J. C. White; Diseases of the Cellular Tissue, by Dr. Joseph W. Howe; and lastly, Injuries and Diseases of the Bursæ, by Charles B. Nancrede. It will thus be seen that, with the exception of the articles of three Englishmen, Mr. Bryant, Mr. Cheyne, and Mr. Howard Marsh, the whole of this volume is written by American physicians. A good reflex is consequently obtained of the views and modes of treatment employed by our brethren across the Atlantic in some subjects, especially in that of gunshot wounds, in which their experience has been exceptionally extensive. Dr. Ashhurst states in the preface that the late Dr. Otis, the justly distinguished author of the “Surgical History of the War,” responded with enthusiasm to his request that he should undertake the article on Gunshot Wounds, but failing health interfering with his ability to work, he put off the task from time to time, and died before he had written it. The editor, however, has, in our opinion, every reason to be satisfied with Professor Connor, of Cincinnati, who has supplied Dr. Otis's place, and, who has evidently had very large experience, has

written a really excellent article on gunshot wounds.

Dr. J. H. Bill's article on Sabre and Bayonet Wounds, and on Arrow Wounds, is extremely interesting, the latter part of the article being to English readers original. Sabre wounds, he says, are very rare in modern warfare owing to reduction in the cavalry arm and to the changes in the duties now performed by it. As usually employed, the sabre has a dull edge, and the wounds it makes are more or less contused, but they heal as readily as incised wounds, though they are more apt to be followed by scars. The number of wounds inflicted by the bayonet appears from the statistics collected by Dr. Bill to be very small. Of 11,900 British wounded in the Crimea, there were only seventy-six cases of bayonet wound, with seven deaths, and eighty-seven of sword wound, with one death. In the American war of the Rebellion, out of a total of 400,000 wounds there were 22,700 incised and 5,900 punctured wounds, but few of these were inflicted with sabre or bayonet. The fact is that the bayonet can only be used at close quarters, and one party or the other gives way and retires—not to say runs—before the weapons are actually crossed. It is also true, however, that as Dr. Bill states, the soldier dislikes to use his bayonet. He was told by an officer engaged in the Mexican War, in 1846, that at the capture of the City of Mexico he saw soldiers firing their muskets into the bodies of certain of the enemy to whom quarter had been refused, with the bayonets actually resting against the persons of the slain. In regard to arrow wounds, which are still seen in the fights the Americans have with Indians, the bow-and-arrow is so formidable an instrument, that Dr. Bill thinks it not impossible that it may again become a military weapon, especially in the hands of cavalry. The arrow, by reason of its velocity, has great penetrating power, and when it has once entered it is grasped by the tissues with amazing firmness, so that it is extremely difficult to extract, even when the shaft is still present. When the head alone remains imbedded, it is almost impossible to accomplish its removal, which, however, is absolutely necessary without enlarging the wound. He depicts some ingenious instruments that have at various times been employed for the purpose of extracting the head. The arrow can be aimed at fifty yards as correctly as the revolver, and can be shot nearly as fast. Indeed Dr. Bill thinks that at close quarters and in a *mêlée*, it is a weapon more to be trusted than the pistol. Is it possible that in the revolution of time we shall have butts in Hyde-park and a body-guard of archers, who would of course be Scottish, for Her Majesty? The cause of death from arrows are usually hæmorrhage and peritonitis.

The subject of Gonorrhœa, by Dr. J. W. White, is treated very fully in the following order: History, nature, varieties; which in the male include the typical or acute form, the subacute form, and irritative or abortive gonorrhœa, with their complications—gleet, strictures of large calibre, seminal plethora, urethral anesthesia, and neuralgia from urethral irritation; in the female the subject is discussed under the heads of treatment, varieties, and complications; and lastly, Dr. White discusses gonorrhœa in anomalous situations. The drug named Kavakava, from Fiji, is mentioned, and is reported to have a marked action upon the genito-urinary tracts. Chronic gleet is said by Mr. Kesteven to yield readily to its effects, and in chronic cystitis it possesses an influence superior to any other remedy with which he is acquainted. Dupuy considers it to be a sialagogue, a bitter tonic, a gentle excitant of the nervous system, a powerful diuretic, and a blennostatic. Balsam of

gurjun, or wood oil, is stated to have been used with advantage as an anti-blennorrhagic. In the treatment of chordee Dr. White recommends the employment of bromide of potassium, which he thinks has fallen into undeserved neglect. He also mentions an excellent plan originally suggested by Dr. Scarenzio—of the hypodermic injection into the perineum of from one-fourth to one-fifth of a grain of morphia in solution when the chordee is persistent and very painful. Dr. White recommends the employment of opium suppositories and of a sufficient number of leeches to take away from eight to ten ounces of blood. He has little faith in soluble bougies, such as those containing iodoform, tannin, acetate of lead, carbolic acid, and oil of eucalyptus. In treating of vulvitis and vulvo-vaginal abscess as a complication of urethra, a good table is given, setting forth the points of diagnosis between this disease and pudendal hernia, cyst of the labium, and hydrocele of the round ligament. Some colored lithographs, presenting tolerable but not extraordinarily good illustrations of acute gonorrhœa with partial phimosis, balanoposthitis with herpetiform ulceration, paraphimosis with consequent ulceration, gonorrhœa in women, epididymitis, gonorrhœal conjunctivitis, and vulvo-vaginal abscess, accompany this article.

Mr. Howard Marsh's article on Abscesses is deserving of praise. As inflammation with, we presume, its sequelæ is to be treated of in another part of the *Cyclopædia*, it was not altogether an easy one to write, but Mr. March's arrangement of the subdivisions of his subject, and the mode in which he has treated them, leave nothing to be desired, and furnish a succinct and very instructive essay on the varieties, complications, terminations, and treatment of abscesses, enriched with many illustrations drawn from his own experience.

Venereal Diseases occupy, as they deserve to do, by far the largest section of the volume, and are considered under three heads, of which the first, embracing the simple Venereal Ulcer, or Chancroid, has been written by Dr. F. R. Sturgis, of New York; the second, including Syphilis, by Dr. Arthur van Harlingen; and the third, Venereal Diseases, including bubon d'émblée, warts, yaws, sarangi, sabbens, radesyge, and some other affections, by Dr. H. R. Wharton. Dr. Sturgis, whose experience has been very large, gives an interesting account of the gradual recognition by the professor of the two forms of venereal ulcer, now termed chancre and chancroid. He is himself an uncompromising dualist, and believes thoroughly, as we are inclined to do, in the specific distinction between soft and hard chancres, or rather between chancre and the initial lesion of syphilis. He gives the following characters as distinctive of the chancre and chancroid. An absence of any period of incubation, the sore usually appearing within the first eight days after the infecting coitus; the property of auto-inoculation; the absence of induration at the base; the copious purulent secretion; the punched-out and undermined edges of the sore; the eroded and irregular appearance of the floor; and, lastly, the greyish-yellow layer covering the floor. These symptoms must be taken collectively, for hardness of the base may be absent in the initial lesion of true syphilis, and other forms of pus when inoculated may produce sores. On the whole, he thinks it unnecessary to admit the existence of a specific virus in this form of ulcer, but considers that chancre is derived from the secretion of another chancre, or from a virulent (chancreoidal) bubo, and from nothing else.

The section on Syphilis, by Dr. Arthur van Harlingen, is not at all points in perfect accord with that on Chancroid. Dr. Sturgis seems in-

olined to give up the idea of the existence of a specific virus in chancre; whilst Dr. Harlingen holds fast to the doctrine of two kinds of venereal virus, the syphilitic and the chancreoid, and considers further that the two poisons can be inoculated simultaneously. He discusses the question of vaccino-syphilis, and, after giving the details of various outbreaks, observes that vaccino-syphilis may be derived from two sources, the vaccinifer and the vaccinated. The contagion is carried by means of the blood, and possibly by the epithelial scales and the white globules, and may infect either the vaccinifer or the vaccinated. He is satisfied that the initial lesion of syphilis is always a chancre, the average duration of incubation being forty-five days.

Transactions of the Clinical Society of London. Vol. XV. London: Longmans, Green & Co. 1882.

THIS is the most bulky volume of *Transactions* yet issued by this Society. It contains no less than forty-six papers and the reports of two committees. A glance through the titles of the papers published shows that they embrace a very wide field of clinical observation, and refer to most of the subjects in Clinical Medicine and Surgery that have recently excited special interest. There is a group of papers on Myxœdema, in which all our present knowledge on this obscure disease is to be found, and illustrated by the cases recorded. The recent advances in the surgical treatment of affections of the kidney are illustrated and discussed in no less than six communications, including accounts of the partial and complete removal of the organ for calculous or strumous disease and pyelitis, and of the removal of renal calculus in four cases. Dr. Greenhow continues the record of his results of the treatment of rheumatic fever in a paper on Cases Treated with Iodide of Potassium and Sulphate of Quinine. The volume contains an interesting report of a Committee on Chromidrosis, the most important part of which is the clear demonstration that while this affection is often simulated, it nevertheless does occur spontaneously and is a pathological verity. Following this is a long and careful report of a committee appointed to inquire into the Causes, Consequences, and Treatment of Hyperpyrexia in Rheumatic Fever and other Acute Febrile Diseases. The report contains some accurate observations and valuable facts, and although it does not throw light upon the causes or the pathological conditions in hyperpyrexia, it is a very valuable contribution to our clinical knowledge of this important complication of febrile disorders. The volume is sufficiently illustrated by woodcuts and chromolithograph plates, and is in all respects worthy of the Society.

An Atlas of Illustrations of Pathology. Compiled (chiefly from original sources) for the New Sydenham Society. Fasciculus IV. Diseases of the Liver. Plates XVII. to XXII., with Pathological Summary by Dr. GOODHART. London. 1882.

WHEN the Council of the New Sydenham Society decided upon the publication of a pathological atlas they not only took a step which decidedly increased the popularity of the Society, but gave an opportunity to English pathologists to declare the position they have attained. The present instalment is one of the best of the series yet issued. It comprises three colored plates—illustrations of brown atrophy, cirrhosis, tuberculosis and cystic disease of the liver, as well as lymphadenoma of

the spleen, and three other plates containing some fifty well-executed drawings of the pathological histology of the liver. The author's name is a sufficient guarantee of the good quality of the accompanying text, for Dr. Goodhart writes forcibly and clearly, and advances many well-considered arguments in support of his views, when these run counter to generally accepted statements. After introductory chapters upon the normal anatomy of the liver and its pathological changes in general, he discusses in turn each separate diseased condition. Perhaps the most interesting of these articles are those upon acute yellow atrophy and cirrhosis, as they are also the most elaborately discussed. Upon the question whether the former disease is primarily inflammatory or degenerative, Dr. Goodhart decides, after a thorough analysis, in favor of the latter view. Upon cirrhosis he speaks with much force in behalf of the identity of the process mainly as an interstitial inflammation in all the various forms of the disease, and will not admit the occurrence of a "biliary cirrhosis," with which the writings of Hanot, Charcot, and others have of late years familiarized us. The appearances of excessive bile-duct formation, which by some are attributed to proliferation of the hepatic cells, are explained by him as being merely concomitants of the main process, which is a spreading inflammation of Glisson's capsule; and his comparison of the so-called "hypertrophic cirrhosis" with malignant disease or tumour formation is worth reflection. This is not the place to attempt an adequate discussion of a subject that strikes at the very foundations of pathological processes, and of the part played by the secreting cells of a gland in its chronic tissue changes.

A Treatise on Human Physiology. By JOHN C. DALTON M.D. Seventh Edition, with 252 illustrations. London: J. Churchill. 1882.—This work presents a feature that is quite exceptional in our experience. It is a new edition of a well-known treatise on Physiology. It is well worked up to the present date; and yet it is not enlarged, but, on the contrary, is actually smaller than the last edition by 100 pages. This is in every respect highly creditable to Dr. Dalton's industry; for few are aware how difficult it is to intercalate new knowledge with old, or how a few words introduced at the commencement of a section involves the reconstruction, or at least rewording, of many subsequent paragraphs. In the volume before us, which has now reached its seventh edition, the last edition being published in 1876, the section devoted to physiological chemistry has been in great part rewritten, the characters of the albuminous compounds and of the ferments revealed by late researches being specially introduced. The arrangement of the proteid bodies into albumins, peptones, globulins, derived albumins, fibrin, coagulated proteids, and lardacein given by Gamgee, which is so convenient for teaching purposes, might, however, with advantage have been introduced. We notice, too, that nearly every page has received some touches, showing that it has been carefully revised, the reduction in size in the entire volume as compared with its predecessor being obtained not by leaving out points of essential importance, but by reducing statements previously given in a more diffused form. The account of the nervous system has been much enlarged and improved, and the book as it now stands may be regarded as a very good introduction to the study of physiology, and as supplying the student with all the information on this subject he need possess before entering upon the study of medicine.

A Compendium of Modern Pharmacy and Druggists' Formulary. By WALTER B. KILMER, Pharmaceutist. Fourth Edition. London: Henry Kemp-ton. 1882.—This work is intended primarily for chemists and druggists, but contains much useful and practical information which cannot fail to prove of interest to medical men. The tables alone would make it valuable as a work of reference. The formulæ have been carefully selected, many of them, although commonly used in America, being but little known in this country. For the preparation and compounding of elixirs alone there are over three hundred prescriptions. Some, it must be confessed, are most complex, and it would puzzle us to give an opinion as to the physiological action of the compounds they are intended to produce. For example, elixir of damiana contains, in addition to the fluid extract of that drug, hydrastis, nux vomica, orange-peel, cardamoms, glycerine, and hypophosphite of potash and soda. The compound elixir of tar seems to be a kind of universal cough medicine, and contains nearly twenty ingredients, including pure pine tar, pine sawdust, lobelia, Jamaica dog-wood, yerba santa, Hoffman's anodyne, oil of anise, sassafras, oil of peppermint, tartar emetic, and muriate of ammonia. The extract of jaborandi has a composition almost equally complex. The simple and compound extracts of cascara sagrada are by no means bad preparations, and will probably be found useful in cases of obstinate constipation. The compound elixir of chloroform may be regarded as a pleasant substitute for chlorodyne. Much of the information respecting flavoring and coloring, although curious and interesting, is of value only to those actually engaged in dispensing. The chapter on Specific Medicine is practical, but the author, in the absence of a medical education, blunders frequently in the use of technical terms. Such a word as "peritonitis" is not familiar to English readers. There are chapters replete with information on Emulsions, Medicated Wines, Pills, Perfumes, Pomades, Syrups, Toilet Waters, and other subjects of more or less interest to chemists. On the whole the work has been well done, and the information it contains is fairly accurate.

Mittheilungen aus der Ophthalmiatischen Klinik in Tübingen. Herausgegeben von Dr. ALBRECHT NAGEL. 3 Heft. 1882.—This part contains three articles: one by Schleich on Myopia, a second by Weiss on the Anatomy of the Myopic Eye, and the last by Professor Nagel himself on the Clinic of the Tübingen Eye Hospital. The article by Schleich is an important one, and gives the results of a large number of observations extended over many years in regard to the relation of myopia with sex, age, occupation, heredity, and other determining causes of the disease. The number of patients examined carefully, with a view to all these circumstances, has been 578, of whom 410 were males and 168 females, or 70.9 and 29.1 per cent. respectively, though the general proportion of all cases attending the hospital was 58.3 males and 41.7 females. The proportion of cases in regard to age was, up to ten years, 7 males, 3 females; from ten to twenty years, 137 males, 46 females; from twenty-one to thirty, 134 males, 35 females; from thirty-one to forty, 39 males, 25 females; from forty-one to fifty, 40 males, 21 females; from fifty-one to sixty, 26 males, 25 females; from sixty-one to seventy, 24 males, 10 females; over seventy, 3 males, 3 females. The average age was 30.9. The youngest was a boy of six. Though many infants were examined, not one case of myopia was observed in them. The numbers in relation to occupation were: teachers and those engaged in intel-

lectual pursuits, 43; official, 46; merchants, 33; students, 164; artisans and peasants, 124; women of position, 61; countrywomen, 76; maidservants, 20; schoolgirls, 11. Of the whole number of myops forty-seven were myopic on one side only. The lower grades of myopia, requiring three, four, five, and six dioptries for correcting glasses, were much the most common. The ophthalmoscopic appearances are given in some detail. Dr. Weiss gives at considerable length the anatomy of slight and of severe degrees of myopia.

Archiv für Anatomie und Physiologie (HIS, BRAUNE, und DUBOIS-REYMOND) Anatomische Abtheilung, Heft i. und ii. Leipsig. 1883.—This number of the journal contains papers chiefly devoted to development. The following is a list:—1. H. Strahl, Beiträge zur Entwicklung der Reptilien, with one plate. 2. Graf. Ferdinand Spee, Beiträge zur Entwicklungsgeschichte der früheren Stadien des Meerschweinchens bis zur vollendung der Keimblau. 3. V. Hensen, Ein frühes Stadium des im Uterus des Meerschweinchens festgewachsene Eies, with a plate. 4. A paper by the same author, entitled Bemerkungen betreffend die Mittheilungen von Selenka und Kupffer über die Entwicklung der Mause. 5. Wilhelm Roux, Beiträge zur Morphologie der functionellen Anpassung, with a plate. This article deals with the structure of a highly differentiated connective-tissue organ of the tail fin of the dolphin. 6. Wilhelm His, Ueber das Auftreten der weissen Substanz und der Wurzelfasern am Rückenmark menschlichen Embryonen, with a plate. And lastly, Jacob Heiberg, Ueber die Lehre vom Drucke der Bandscheiben des Kniegelenkes auf das untere Femurende, with a plate.

Archives de Physiologie. (MM. BROWN-SÉQUARD, CHARCOT, et VULPIAN.) No. 2, Fig. 15. 1883.—This part contains the following papers: 1. De la Neurologie, par M. L. Ranvier, with a plate. 2. Sur le Cylindrome (Epitheliome Alvéolaire avec Envahissement Myxomateux), par M. L. Malassez, with a plate. 3. Contribution à l'étude des Alterations Morphologiques des Globules Rouges, par M. G. Hayem. 4. De l'Ostéo-périostite Tuberculeuse Chronique ou Carie des Os, par MM. P. L. Kiéner et A. Poulet, with a plate. 5. Etude sur les Abscess Aréolaires du Foie, par M. A. Chauffard, with a plate.

Medical Annotations.

"Ne quid nimis."

CHLOROSIS AND PYREXIA.

ALTHOUGH much irregular fever has been detected in cases of so-called progressive or pernicious anæmia, the temperature of the ordinary cases of chlorosis met with in young women is usually believed to be normal. This belief has been contested by M. Mollière, in a paper contributed to a recent number of the *Lyon Médical*. His observations were made on eight young women, who presented no other signs of disease beyond the anæmia for which they were under treatment. The temperature was taken every morning and evening in the rectum, over a period varying from two to fifty days, and was found to oscillate between 101.8° F. and 102.8°. The amount of urea eliminated per diem was estimated, and found to be normal. Mollière suggests that the increased heat may be explained by the hypothesis of a com-

bustion the products of which are not so easily recognized as urea. Sulphate of quinine was given as an antipyretic, with the effect of reducing the temperature temporarily. This effect, if constant, would, according to Mollière, definitely establish the existence of abnormal body heat in chlorosis.

CURIOUS PARASITE.

At the last meeting of the Linnean Society Dr. Cobbold described a worm which he called *Simondsia paradoxa*. It is a nematode, the male living free in the stomach of the hog, whilst the female is lodged in cysts within the walls of the stomach. Although discovered thirty years ago by Professor Simonds, the worm has never been properly examined. The strange thing is that the female carries outside its body a large rosette-shaped organ. This the author of the paper considers to be the uterus, and compares it to the generative apparatus of *Spharularia bombi*. If Schneider's view be correct the prolapsed uterus of the nematode of the humble bee is nearly thirty thousand times larger than the maternal worm. The latter is a mere appendage, and was regarded by Sir John Lubbock as the male. Dr. Cobbold thinks that the branched rosette of *Simondsia* is homologous with the overgrown prolapsed uterus of *Spharularia bombi*.

THE RESPIRATORY CENTRE.

In a communication to the Société de Biologie, M. Laborde stated that he had repeated the experiment of puncture of the apex of the calamus by means of a very delicate method. Superficial irritation of this point with a needle leads in two or three minutes to arrest of respiration, the heart continuing to beat. He does not agree with the majority of writers that this effect is due to reflex action, but holds that it is direct irritation. Promising further proofs, he contented himself on that occasion with stating that division of the *crura cerebri* and of the *pneumogastric* nerves in no wise hindered the superficial puncture of the apex of the calamus from producing arrest of respiration, showing that the assumed intervention of the *vagi* or of the *cerebrum* was not necessary to the effect. Prof. Brown-Séquard, in speaking of this paper, said that in 1858 he showed that the "*noeud vital*" had not the importance attributed to it by *Fleurens*. His own experiments, extending over twenty-five years, pointed to the localization of the respiratory centre in the grey matter at the apex of the calamus. At the same time the most potent region governing respiration was to be found at the root of the spinal accessory nerve, although the respiratory centre extends over a considerable part of the cervical cord.

LAPAROTOMY FOR LARGE OMENTAL TUMOUR.

ABDOMINAL section was performed a short time ago at the Children's Hospital, Dublin, by Mr. Lambert H. Ormsby, Surgeon to the Meath Hospital. The patient an unmarried female, aged twenty-six, was admitted suffering from a large abdominal tumour of six years' standing. She had never been tapped. Mr. Ormsby operated under the antiseptic spray by the usual median incision as for ovariectomy. When the abdominal cavity was opened, an enormous quantity of ascitic fluid escaped, and the tumour came into view. It was multilocular, and contained some thick fluid, but made up for the most part of brain-like semi-solid matter. The growth was not attached to the ovary or uterus, but appeared to spring from the great omentum. The pedicle was

tied with two stout catgut ligatures, and cut off short. No cautery was used to the pedicle. The abdominal incision was brought together with catgut and silk worm gut sutures, and dressed with the antiseptic gauze. The tumour together with the fluid removed weighed 75 lb. The patient has progressed most favorably since the operation.

REPORT OF THE CITY ANALYST.

DR. SEDGWICK SAUNDERS reports that during last year 197 analyses were made, comprising milk, 95; butter, 2; disinfecting powders, 20; tea, 4; sugar, 10; whisky, 1; rum, 6; pepper, 5; and water, 54. Of milk, 54 samples were adulterated, the average amount of added water being 8.7 per cent. Both samples of butter were genuine. In the disinfecting powders the active principle in all was from 25 to 50 per cent. less than represented by the seller. The four samples of tea were pure microscopically, but of inferior quality chemically. The sugars were free from mineral adulteration, but all contained filaments of fungi, and two samples animal parasites. The samples of pepper were all dirty and sandy from careless packing and grinding. The water-supply had maintained its excellent character. No prosecutions had been instituted during the year, on account, he says, of the difficulty of obtaining convictions, and also on account of the great leniency shown by the magistrates in awarding punishment to proved offenders. Dr. Saunders expresses his regret that the officially appointed referees and censors in the Government department of chemistry at Somerset House had not seen fit to publish standards of purity both for the guidance of the analyst and to assist the magistrates in arriving at a just conclusion as to the extent any admixture of foreign substances in either food or drugs should be attributed to accidental and unavoidable circumstances rather than to fraudulent intention.

A GREEN CANCER OF THE CHOROID.

To most minds mere color is a very powerful means of arresting the attention; at all events, momentarily. The medical mind is peculiarly affected by the sight of pathological objects having an unusual color. Though there is hardly any color which has not been seen in the products of the human economy, yet the presence of a green tint in an extraordinary situation is sufficient to set the pathologist on the search after its nature, which, despite his efforts, frequently remains obscure. Dr. Emil Bock recounts in *Virchow's Archiv* the case of a tumour of the choroid which contained biliverdin. The growth was found in a man, aged forty years, who was the subject of cancer of the liver; presumably secondary foci were detected in many parts of the body: arachnoid, lungs, and subcutaneous tissues. A plate is given illustrating the characters of the ocular growth, which was composed of polygonal cells with large round nuclei, the streaks and dots of biliverdin pigment being richly scattered in an intercellular situation.

CRUELTY TO PIGEONS.

SHOOTING of tame pigeons is bad enough under the least atrocious of conditions, but when to make the birds lively men stick pins into their tails, and blind them with some torturing agent so that they may fly wildly when scared from the trap, "cruelty" is a very mild word to employ in the designation of what "Society" perversely calls sport. There is, happily, a hope that, owing to the intervention of the Princess of Wales, tame-pigeon-shooting may soon be regarded as no

longer a fashionable amusement. When this stage in the process of reform is reached, there will still remain the vulgar pastime in which unfashionable persons will doubtless continue to join. If the Legislature were not preoccupied, a short Act of Parliament might well be passed to make the shooting of tame pigeons, or any other birds let loose from traps, illegal. We have put down cock-fighting, although the cock undoubtedly gratified its natural instinct in the sport. Even the pugnacious rat is protected; but the poor defenceless pigeon and equally defenceless deer may be mangled and worried for the pleasure of benevolent men with entire impunity. When will the canting spirit of this sentimental age begin to give proof of a little consistency and common sense? The scientist must not inflict pain, even to elicit ways of cure from nature; but the bitterest agony may be ruthlessly inflicted on dumb animals so that it be done under the guise of "sport."

ACUTE YELLOW ATROPHY OF THE LIVER.

ACUTE yellow atrophy is still a mysterious disease whether we regard its etiology or the nature of the morbid process. Microscopical investigations have revealed changes which may be arranged under three headings. First, swelling and destruction of the polyhedral cells; secondly, an infiltration, chiefly of small cells, in the interlobular regions, which was first described by Winiwarter; and, finally, an apparently new formation of the smallest bileducts in direct continuity with the pre-existing biliary passages. The latest observations of Haren Noman (in Virchow's *Archiv*) corroborate to a large extent the researches of Winiwarter, but the small-celled infiltration was not found to extend into the lobules. He describes patches of yellow and red color which may be seen with the naked eye, and sometimes adjoin one another. The yellow areas, microscopically, exhibit swollen and granular hepatic cells, some containing small fat globules; the intervening connective tissue is much thickened and sparsely strewn with refracting nuclei and fine dots, which stain well with dyes. The red areas have a structure something like that of a cavernous angioma, a network with irregular meshes filled with red discs and a few leucocytes. It seems that a special examination for bacteria was not made, although gentian violet and other powerful staining fluids were employed. Having regard to the mysterious nature of this usually rapid disease, it is desirable that the possibility of the presence of specific organisms should be borne in mind by any future investigator.

PROFESSOR BLACKIE ON LUXURIOUS DINNERS.

At the close of a recent lecture on "Luxury," Professor Blackie, who is always amusing and generally sensible in his satire, indulged in his peculiar vein of acrid humor anent luxurious dinners. The professor, who is not an austere ascetic, informed his audience that it was his wont to say "no" to every second dish. This seems exemplary, and fits in admirably with the orator's dictum "that modern dinners are an admirable call to self-denial." We quite agree in the opinion that dinners are apt to be too luxurious, but we also agree that "a dinner carried on for two hours is much better for the digestive faculties than a badly cooked steak to be eaten all at once." Even though it be true that a dinner *à la mode* in this last quarter of the nineteenth century is a "magnificent spread of animalism," it is not necessary to partake of all that is offered. Nor, indeed, is it expected that we should do so. A well-assorted

dinner is an opportunity for dining. Each guest can and should choose the viands most to his taste and least likely to disagree with him. There ought always to be several, if not many, alternative courses, so that the different tastes of the invited may be satisfied. There is too much talk nowadays of "little dinners." A "little" dinner is all very well when two or three intimate friends are dining together, and the caterer happens to know that the party are so far agreed as to be all easily satisfied. When the number of guests exceeds two, or at most three, a "little dinner"—that is, a dinner comprising only a very limited number of courses—is almost sure to leave one or more of the party without enough to his liking. We ought to be more eclectic than we are in the matter of feeding. A varied and tasty diet is necessary for our modern life. Eating does not consist in packing a sufficient quantity of food into the organs of digestion. Man is more a creature of food than a creature of circumstances, and he who would live well in a mental, moral, and physical sense, should feed well—that is, in the way that best suits his organic requirements, and, not less, his taste and mood.

DIPHTHERIA AND NEPHRITIS.

WE are still in want of observations which shall throw light on the nature of the renal changes associated with diphtheria. Our readers have been kept *au courant* with the latest writings on the subject, and are therefore fully acquainted with the doctrine of the infective nature of the nephritic alteration. It is philosophical to bear in mind that albuminuria, so often attendant on cases of diphtheria, may not necessarily be due to actual disease of the kidneys; the manifold antecedents or causes of albuminuria may still come into play, even although the body be the subject of diphtheria. The presence of one cause, however probable its action may be, does not preclude the possibility of a less striking factor being the real agent in any particular instance. We are led to make the foregoing remarks, because Dr. Fürbringer, in Virchow's *Archiv* for March, has been unable to detect the micrococci which other observers have demonstrated in the urine and kidneys of cases of diphtheria. We are far from asserting a full belief in the view that diphtheritic nephritis is even generally a bacterial disease; on the contrary, the notion that the primary diphtheritic disease is due to micrococci requires more convincing evidence than has at present been adduced. Dr. Fürbringer has investigated the clinical history and morbid anatomy of diphtheritic nephritis with much industry. He comes to the conclusion that the renal changes may conveniently be arranged under three divisions, according to the degree of anatomical change. The earlier stages are characterized by comparatively slight changes in the epithelium of the cortical region, not unlike "cloudy swelling," next the cellular degeneration becomes more decided and more widely spread; and there are some alterations in the interstitial tissues, but no vascular lesions. The final degree is comparable with that of the intensely congested kidneys sometimes seen in connection with nephritis after scarlet fever.

TUBERCLE BACILLI IN URINE.

WE lately referred to the observations of Rosenstein on the occurrence of tubercle bacilli in the urine in a case of supposed tubercular disease of the urinary organs. His communication has evoked from Dr. Babesiu, of Pesth, a reference to a previous observation of still greater significance.

On Jan 26th this physician demonstrated to the Anatomical Society of Paris bacilli from the urine of three patients, in two of whom the disease was subsequently ascertained by post-mortem examination, and was found to be tubercular kidney disease with ulceration of the pelvis of the kidney; and in one there was also tubercular ulceration of the bladder. In searching for the bacilli he followed in part the methods of Ehrlich and Koch, in part anilin fuchsin, or anilin methyl violet, and stained the bacilli for from twelve to thirty-six hours. Instead of nitric acid, he several times employed with advantage strong acetic acid. In one case the bacilli were found within pus cells and in large round cells, but not within the epithelial cells of the bladder or pelvis of the kidney. In the case in which tubercular ulcers of the bladder coexisted with tubercular disease of the kidney, the microscopical examination showed that the bacilli were located chiefly in cells which probably belonged to the endothelium of the most superficial lymphatic spaces. A further stage of the morbid process consisted in the production of a follicular reticular tissue, in the swollen round cells of which the bacilli were collected, so that these spots were visible to the naked eye as reddish points in specimens treated by the modification of Ehrlich's method. In the centre of these spots were giant cells containing bacilli. In the larger ulcers the bacilli were less distinct in the caseous material than at the edge in the miliary tubercles, and they were frequently seen in the granulation tissue immediately beneath the caseous layer. In the tuberculous masses in the kidney the bacilli were found chiefly at the margin of the destroyed tissue, in the vicinity of the granulation tissue, and especially in giant cells, although there was no aggregation in foci, such as was seen in the mucous membrane. In the necrotic cheesy masses none could be discovered, or in those giant cells which had manifestly arisen from epithelial structures. These observations certainly go far to establish the diagnostic value of the bacillus in tubercular affections of the urinary organs.

ERGOT OF RYE IN LOCOMOTOR ATAXY.

M. GRASSET, of Montpellier, has lately drawn attention to the fact that ergot of rye administered in tabes dorsalis may do more harm than good. He gives brief notes (*Progrès Médical*, 1883, No. 11) of the case of a man who was the subject of this disease, and who had become much better when he was prescribed ergot of rye in increasing doses from twenty-five centigrammes up to one gramme per day. On the second day of taking the maximum dose he became generally paralyzed; the arms, which had never been attacked before, now being involved. Sensation was also much diminished. The ergot was at once left off, and he gradually lost the paralysis; but the ataxic symptoms in the lower limbs persisted. M. Grasset points out that the involvement of the posterior columns is not generally regarded as a symptom of ergotism; but Nothnagel and Rossbach mention anaesthesia and motor incoördination among the symptoms induced by moderately toxic doses of ergot of rye or sclerotic acid in animals, large doses producing a state of general paralysis; and he refers particularly to the account given by Tuczek lately on the changes in the spinal cord, particularly in the posterior columns in ergotism. Tuczek's observations were made on eighteen out of twenty-four patients admitted into the Marburg Asylum with mental disease among 500 who were attacked with ergotism. Four patients died, and examination of their spinal cords threw light upon the spinal symptoms exhibited by all the cases. These

symptoms consisted in abolition of the knee-jerk (which returned in those who recovered), paræsthesia, lightning pains, anaesthesia, analgesia, ataxy, etc. The lesions found consisted in sclerosis of the posterior columns throughout the cord, in two cases extending to the medulla. The change was symmetrical, and limited to the columns of Burdach. Tuczek endeavored to reproduce these effects in animals by the injection of ergot of rye, but failed. He found, however, that in the rabbit hypodermic injection of sclerotic acid in doses of three to four grammes produced actual ataxy. From this, and from the case he relates, Grasset thinks that ergot of rye should be most carefully administered in locomotor ataxy. In a foot note appended to the paper M. de Bourneville states that Professor Charcot very often prescribes ergot of rye in tabes, and has never observed any ill-result from it. He gives it in daily doses of twenty-five to thirty centigrammes, but not continuously, the drug being taken for four days and discontinued for two, and so on.

MILK IN VILLAGES.

It has been said for centuries that the nearer the church the worse the people, and in this day it may be remarked with truth the nearer the dairy the less the milk. At the present time many complaints are being made and much wonder expressed that the rural population is everywhere diminishing in this country. This is no doubt true, and the reasons are not far to seek. One is undoubtedly the want of consideration shown to the poor by employers of labor in villages, both squires and farmers. In the agricultural districts it is, as a rule, impossible for the poor to obtain milk for love or money, and in consequence the children sicken and die. The reason is that the sale of milk to the villages in small quantities gives trouble, and is not so profitable as giving it to the swine. Hence, none of the milk finds its way into the cottage, but all is given to the calves and pigs. An example of how cruelly this action of the landlords and farmers tortures the poor has recently come to light. In a small village, in three weeks, out of a population of 100 souls, three children are reported to have died from want of that nourishment which good milk can alone supply. In one of these cases the parents resided under the same roof that covered the squire's dairy, wherein was stored the milk of a large herd of cows. Not one drop was, however, allowed to be given to the suffering little one, nor in this village are the poor afforded facilities to obtain milk. In consequence the diet of these babies was found to consist of corn-flour, bread and water, and death soon terminated their sufferings. No wonder the population in villages is decreasing. It would be a great gain if the clergy in each parish were to arrange to supply milk from the school or some other centre. The present state of things is a disgrace to our common humanity, and a remedy must speedily be found for it.

THE LAW OF CONTRACTION IN MUSCLE.

In a paper published in the *Archiv für Physiologie* of Dubois-Reymond for 1882, by Ernest v. Fleischel, this observer endeavors to show that in the case of the nerve supplying the gastrocnemius, of the frog, the whole nerve is divisible into three sections, the first of which extends from the muscle to the origin of the branches for the thigh, and consequently to the exit of the sciatic from the pelvis; the second segment extends from this point to the division into a motor and sensory root, and consequently to the intervertebral ganglion; and the third segment extends from this ganglion to

the central extremity of the nerve. Each of these three segments consists of two parts, an upper and a lower "pole," with an intervening equator, the latter being situated below the middle point of the segment in most cases. In the upper pole of each segment the nerve is most sensitive to descending currents, in each lower pole to ascending currents, whilst at the equator the excitability is the same for both. If the continuity of a nerve be interrupted by ligature or section, the equator of this segment gradually descends towards the muscle. The points where the segments are in apposition, which he terms "consequent" or "consecutive points" (Folgepunkte), as well as the point situated just above the entrance of the nerve into the muscle, are points of small absolute sensibility. Fleischel decides against the "Zuckungsgesetz," or law of contraction, of Stricker.

PRIMARY ACUTE MILIARY CARCINOSIS.

A SUFFICIENTLY searching scepticism is always necessary in medical science, and it is at no time more needed than when an attempt is made to add a new name to medical nomenclature. There are no *a priori* reasons why carcinomatous nodules should not crop up in various parts of the body under the influence of mere general conditions. It is conceivable that certain of the tissues in certain individuals may as naturally become carcinomatous as those of others fibroid, external agencies apparently having but little influence in the matter. Modern pathology, however, gives an important place to the doctrine of infection, and in the presence of the actual the mind instinctively turns from the merely conceivable. There can be no doubt that the majority of physicians would be extremely careful to exhaust every source of infection before coming to the conclusion, in any particular case of cancerous affection of the serous cavities, and they had to deal with a primary carcinosis of those structures. MM. Raymond and Brodeur diligently but unsuccessfully searched for the primary disease in the case which they have reported in *La France Médicale*. The observation was made on a man, aged seventy-six, who showed during life symptoms similar to those induced by pulmonary tuberculosis; palpation of the swollen abdomen, moreover, is said to have revealed the existence of disseminated hard nodules, varying in size from a pea to a bean, apparently separated from the observer's hands only by the thickness of the abdominal wall; there were, in addition, periodic febrile attacks simulating ague. To inspection with the naked eye, tubercles and nodules of carcinoma are sometimes wonderfully similar. The microscopical characters described in the above case were those of genuine carcinoma, growths from the pericardium, pleura, and peritoneum having essentially the same structure. There was a tumour in the liver which the authors assured themselves was nothing more than a cavernous angioma. Charcot has recorded two similar cases also occurring in old age, and, like the present one, having no hereditary taint. If the observations be true, we must recognize the existence of the disease which is called "primary acute miliary carcinosis."

THE "NEW CODE" OF ETHICS IN AMERICA.

OUR readers will remember that at its annual meeting last summer, the American Medical Association expressed in no ambiguous fashion its dissent from the course taken by the New York State Medical Society in so altering its code of ethics as to allow its members to meet on equal professional terms any legally qualified practitioner, be he

homœopath or any other of the large army of "irregulars." The conflict has been waging ever since. Other State Societies have stood to their colors, and asserted that their members should be men of honor, worthy of the traditions of their profession, and not mere money-makers. The State Society of New York recently met at Albany, and after a warm discussion, in which we are glad to see Dr. Austin Flint made a powerful speech in favor of what is by most men considered the more honorable course, a vote was taken, and the new code was affirmed by six votes. We can but lament this result. The question is evidently exciting strong feeling on the other side of the Atlantic. The victorious majority threaten to proceed even further, and to abolish all restrictions in professional intercourse, while the minority, numbering among it the most trusted leaders of the profession, feeling that their cause are just, are quite unable to bow to the decision of the majority. Unfortunately it is boldly stated that the leaders of the advocates of the new code are entirely "specialists," and it is obvious that such a change will be likely to benefit such men pecuniarily. We cannot believe that this vote at Albany fairly expresses the opinion of the profession in the State of New York, and we trust that very soon wiser counsels will prevail and this false step will be retraced.

Correspondence.

"Audi alteram partem."

THE LOCAL TREATMENT OF ERYSIPELAS WITH WHITE-LEAD PAINT.

To the Editor of THE LANCET.

SIR—I send you the particulars of two cases of erysipelas which have occurred in the wards of our infirmary during the last few days, and in which the treatment by white-lead paint, recommended by Mr. Barwell has been adopted with satisfactory results.

CASE 1.—Thomas C—, aged sixty-three, with large chronic ulcers encircling his right leg, complained to me on my morning round, on March 16th, of pain in the leg and of not feeling so well. On examination I found the ulcers had stopped discharging, and the whole foot and leg, to about three inches below the patella, were covered with an erysipelatous blush; his tongue was furred, bowels constipated, pulse 100, temperature 100·8°. He had had no vomiting, but a certain amount of shivering. The limb was painted all over, ulcers excepted, with white-lead paint. Within twenty minutes he said he had lost all pain and feeling of heat in the limb; and his temperature, taken carefully that night, was 98·4°. On March 18th the paint was chipping off, and the skin beneath was the normal color.

CASE 2 gives a still more striking result. This was a boy, aged seventeen, who has been in the hospital three months, with a sinus in his leg, leading down to diseased bone, and whose ordinary temperature during the last few weeks had been 99°. On the morning of March 18th the leg and foot presented a well-marked erysipelatous redness. He had had rigors and vomiting. His temperature was 103·8°; pulse 110; bowels constipated. His leg was painted on the afternoon of the same day; in the evening he was perfectly easy. Temperature 102°, and on the following morning 99°. He said he felt quite as well as

usual. He has had no relapse up to the time of writing.

The only internal treatment in both cases was at the time of painting ten grains of calomel and colocyath pill.

I remain, Sir, yours truly,

E. COLBY SHARPIN,
Acting House-Surgeon.

Bedford General Infirmary, March 26th, 1883.

APHASIA.

To the Editor of THE LANCET.

SIR—Cases of aphasia uncomplicated with hemiplegia or loss of power or sensation in any part of the body are so rare that I think a few particulars regarding a patient thus affected may interest some of your readers. At a meeting of the Clinical Society of London, November 24th, 1871 (THE LANCET), Dr. Moxon is reported to have said "that aphasia meant that state in which words are forgotten and cannot be used when repeated to them." Very concisely this expresses the condition of my patients. The latter part of the definition holds good if a little time elapses between the moment at which a noun substantive is given and the time at which it is again asked to be repeated. If my patient is told the name of a neighboring farmer well known to him he readily forgets it. Nevertheless, this man knows the names of many things; watch, knife, purse, etc.; moreover, he can read with ease, and can write anything if the matter to be written is placed before him.

The history of the case is briefly as follows: On the 3rd of January, about 6 A.M., my patient, a strong and healthy farmer, before leaving his bed conversed about his plans for the day as freely and intelligently as formerly, and apparently, so far as his wife could judge, enjoyed perfect health. His wife informed me that she noticed nothing unusual about him until he allowed the utensil to fall on the floor on first getting out of bed. He again lay down and seemed to be a little "wrong with his words." I saw him at 8 A.M. and found him aphasic. A few questions elicited the facts that on the night previous he had two glasses of whisky and water, that he felt quite well, but that his bowels had not moved for two days. The heart sounds were normal, and the urine contained no albumen. I have no suspicion whatever of syphilis, and he never suffered from rheumatism. He is withal a temperate man in the prime of life. Twelve days after seizure I find little or no change in his condition beyond a more intelligent and lively expression of countenance. He enjoys the company of his children and their conversation, and heartily laughs at his own condition. On attempting to join in the conversation he breaks down and fails to command the words necessary to convey his ideas. Clearly enough the thoughts or ideas which lead to verbal expression are present with him, but he cannot give utterance to them. I think I am justified in calling this case an uncomplicated one. True, he committed a mistake which under ordinary circumstances would not have occurred, but he could always walk steadily and firmly grasp with his right hand.

The treatment, I may add, consisted in free purgation, the liberal application of leeches to the left forehead, and the internal use of iodide of potassium. Dr. Glover described in THE LANCET, in 1872, a similar case in a man aged sixty-three, and as in his case, so in this, there is no symptom which indicates any affection of the left hemisphere more than the right.

I am, Sir, yours truly,

R. McK.

Jan. 15th, 1884.

"AN INTERESTING QUESTION."

To the Editor of THE LANCET.

SIR—With reference to Dr. Cory's query, I should say the first child of the second marriage would be more of a mulatto than white; the subsequent children would approach nearer to the white type with each successive pregnancy. In the case mentioned of the mare and quagga, the first foal got by the pony stallion would be more of the quagga than the last. This is, I believe, in accordance with a rule of nature observed amongst animals that the impression of the male influences the offspring of the female by another male. As an illustration, I will mention a case in point that came under my own observation. A white fantail pigeon mated with a female blue rock; the result was half fantails of mixed color. The male bird getting killed, the rock paired with a common white pigeon. The first progeny of this union were half fans, or very nearly so; while the subsequent young were still "fanned," but to a smaller degree, the last brood being considerably less so than the first.

I am, Sir, yours truly,

J. D. MILLER, M.D.

Notting-hill, March 12th, 1883.

To the Editor of THE LANCET.

SIR—In reply to the latter part of Dr. F. C. Cory's letter on the above subject, I beg to inform him that the experiment was not tried in the "Zoo," but in the park of Lord Moreton, who, having a pure bred Arabian mare, introduced to her notice a handsome male quagga, by whom she was covered, after which the quagga was removed from her sight. In due time she brought forth a foal, very like herself; but being subsequently covered by a handsome black stallion, the offspring was more like the quagga, and each subsequent foal by the black horse being more and more like her first love, as Dr. Cory and your other readers may see by a visit to the College of Surgeons, where some well-executed paintings demonstrate this fact. I think his lordship published an account of this interesting matter in the Philosophical Transactions.

I am, Sir, yours, etc., T. M. STONE.

King's-road, Wimbledon, March 12th, 1883.

FOOT-AND-MOUTH DISEASE AND THE LYING-IN WOMAN.

To the Editor of THE LANCET.

SIR—I have recently seen in consultation a case of fatal metria. On inquiry, I found that the patient had been supplied with milk from a farm where foot and mouth disease was widely prevalent. All other causes of zymotic or septic poisoning were apparently capable of being eliminated; and though there was fetid lochial discharge, a careful investigation of the uterine cavity discovered nothing, and repeated washings of its interior produced no favorable results on the temperature, so that one may set aside what Duncan terms sapræmia. The sanitary surroundings of the house were also excellent.

I should like very much to know whether any of your readers have met with or suspected foot-and-mouth disease as a cause of material blood-poisoning. There is little doubt that everyone of the human infectious diseases may give rise to the symptoms of the so-called puerperal fever in the lying-in woman; and, reasoning by analogy, one would expect the same from the bovine affection. Yet surely in that case there should always be numerous recorded instances. The lady's friends

naturally expect a positive answer to the question, May the milk of cows thus affected produce these results? I can only answer provisionally, that I think it entirely probable. In that district, several miles from Manchester, where the case occurred, there is a wide prevalence of foot-and-mouth disease, and with the greatest care on the part of the farmers there would still be a source of extreme danger to the lying-in woman there.

As the matter now stands I would certainly advise that no milk should be used by the lying-in woman in such a district, certainly none that had not been subjected to boiling.

If any corroborative cases have been published I have missed or overlooked them.

I am, Sir, yours, etc.,

J. THORBURN, M.D.,

Professor of Obst. Med., Victoria University.

Manchester, March 12th, 1883.

TRANSCIENCE OF NERVE-FORCE.

To the Editor of THE LANCET.

SIR—I am very anxious to know if it is altogether a popular error that in the case of two people—say sisters, servants, or married people—sleeping constantly in the same bed, one can, and does, derive nerve-force, or its congenor, electricity, from the other? I am, Sir, faithfully yours,

DELTA.

April 2nd, 1883.

. We do not know of any evidence tending to demonstrate such an action as that to which our correspondent refers, nor do we think it at all likely that any influence of the kind exists; but "there are more things in heaven and earth than are dreamt of in our philosophy."—ED. L.

GONORRHOEA TREATED BY BELLADONNA.

To the Editor of THE LANCET.

SIR—Having successfully treated a few cases of gonorrhoea by smearing the penis with ointment of belladonna and enveloping it in a cloth smeared with the same, I beg to suggest the treatment to those who have opportunities of testing its efficacy. The cases in which it was tried were mild; no injections were used nor internal medicines employed, and the cure was complete in a week.

I am, Sir, your obedient servant,

J. NUMA RAT, M.R.C.S.E.

Venezuela, Tucacas, March 5th, 1883.

"CASTOR OIL AND GLYCERINE."

To the Editor of THE LANCET.

SIR—In a recent issue of THE LANCET I see a communication from Mr. William Soper, concerning his method of administering castor oil in small doses along with glycerine. This method is not altogether new, for I have frequently dispensed castor oil in combination with glycerine as a mild laxative for ladies in pregnancy and delicate children, for which purposes it is well suited, as also for mild cases of habitual constipation. A mixture, which is of an agreeable flavor, and in which the nauseous smell of the oil is efficiently disguised, can be made thus:—R Ol. ricini, 3i; glycerini, 3i; tr. aurantii, 20 minims; tr. senegae, 5 minims; aquae cinnam. ad 5jss. This forms a beautiful emulsion, is easily taken, even by children, and if administered at bedtime will produce

a gentle motion the following morning. In cases of habitual constipation, when this mixture is repeated for three or four nights it brings about a regular morning motion. The tincture of senega is used to emulsify the oil, and as the quantity employed is small, its use cannot be objectionable from a therapeutic point of view.

I am, Sir, yours respectfully,

GEORGE R. YOUNG, M.P.S.I.

Belfast Royal Hospital, Feb. 10th, 1883.

News Items, Medical Facts, &c.

DR. RICHARD MCSHERRY, Prof. of Principles and Practice of Medicine, University of Maryland, Baltimore, Md., says: "I have used the preparation known as 'Iodia,' prepared by Messrs. Battle & Co., of St. Louis, in my practice, and have found it a very satisfactory agent in cases for which it is deemed most appropriate."

MURDOCK'S LIQUID FOOD.—This American preparation is described as "an extract of beef, mutton, and fruits, containing corpuscles, and 12½ per cent. of soluble albumen." The solution gives the blood spectrum very strongly, and contains so much albumen as to become almost solid with dilute nitric acid. Of course it is an exceedingly powerful and easily digestible form of food. It is calculated to be of the utmost use in medical practice, and although the flavor is not very pleasant, it is not absolutely disagreeable, and may no doubt be modified by salt and spices. Among other applications, the use of the liquid food as an enema will strike everyone.

REFERRING to a case recently decided in France, in which the accused, who had applied compounds made by a quack, and of the composition of which he was ignorant, was, although a regular physician, fined and imprisoned for the illegal practice of medicine, an American medical contemporary says that the existence of this French law is both a standing reproach and a good example to American medical legislators, and advocates the passing of a Bill couched in the following terms:—"Any practitioner of medicine, claiming to be a regular physician, who shall prescribe secret remedies, the composition of which is unknown to him, shall be deemed guilty of a misdemeanor, punishable by fine or imprisonment, or both.

THE INFLUENCE OF ELECTRIC LIGHT ON THE EYE-SIGHT.—The above subject has been occupying attention in one of the district medical societies at Vienna. Dr. Kraus, at a recent meeting, brought forward the question whether the introduction of electric light into schools, dwelling houses and public buildings was liable to any objections from a sanitary point of view. During the discussion which ensued, Professor Mauthner gave an interesting summary of the subject, from which it would seem that there exists but little practical evidence on the question at issue. The press has expressed a hope that the suggestion made in Vienna will be taken up in other European capitals, with a view of the matter being inquired into by medical societies. The statements made on the occasion referred to tended to prove that theoretically there is no objection to be urged by the profession against the electric light, except when in such an intermittent form as to cause discomfort to those in the vicinity of the lamps.

THE LANCET.

A Journal of British and Foreign Medicine, Physiology, Surgery,
Chemistry, Criticism, Literature, and News.

JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

PUBLISHED MONTHLY.

No. 1.

NEW YORK, JULY, 1883.

Croonian Lectures

ON

MODERN THEORIES AND TREATMENT OF PHTHISIS.

Delivered at the Royal College of Physicians, London,

By JAMES EDWARD POLLOCK, M.D.,

Consulting Physician to the Hospital for Consumption and Diseases of the Chest, Brompton.

LECTURE II.—PART I.

MR. PRESIDENT AND GENTLEMEN—In my former lecture I had to ask your indulgence while we considered in review the several theories regarding the nature of phthisis which prevailed up to a quite recent period. The necessity for this retrospect will, I hope, be apparent as we proceed to an analysis of the present pathology. Nor, as I trust, will it prove impossible to reconcile the various views of many observers, who saw only by the light of existing pathology, and could scarcely be expected to prophecy of the future. In so far as they were skilled observers and faithful recorders of what they saw, their records are invaluable and necessary portions of our knowledge; no additions which can be made, and no theories which could be started, can do away with the foundation of facts thus established. The reasoning from such may vary, and prove to be true or unstable; but the record is imperishable, and has become the property of all succeeding generations of pathologists. The great danger has been at all times a too exclusive method of arguing from a few facts, and more injury than can be estimated has resulted to the study of phthisis from regarding it as a special affection, and so separating it from the great mass of general pathology. It is possible that many, if not all, diseases are specific in one sense—that is, they may have a peculiar and individual cause, and an undeviating course in dependence on it, and to this view the modern pathology undoubtedly tends; yet that any affection stands outside the general laws of diseased action and may be studied apart from others would be an error misleading in the study of that individual disease, and which must inevitably result in mistakes.

We have now arrived at the germ theory of phthisis, having examined those of the French and

German schools which preceded it, and, so far as we are able, the English mind on the subject; and as I hold it impossible to subject phthisis to an isolated examination, and to regard it as separated from general pathology, I shall take the liberty of examining briefly the whole theory of the induction of diseases from germs introduced from without, as well as the disorders resulting from their introduction into the economy of the living body, and the method of their multiplication in the system, with the symptoms thereby induced. We shall then examine the phenomena of phthisis from this point of view, comparing its symptoms with those of other affections which are recognized as due to a similar infecting cause.

In the outset, let us observe that the argument regarding the introduction of germs, parasites, or septicæmia into the living body implies a recognition of the localization of disease. None of the theorists argue that the whole system is at once infected. There is a given starting-point, be it the wound or inoculated spot, and even when the breathed air has introduced septic or specific germs into the blood by the lung, it must, and does, soon find a local centre in which it forms a nidus, and whence it spreads by some of the methods we shall consider. That each specific germ has a point of selection, or a locality, in which it can especially grow and multiply, is an observed and necessary part of the infection. Thus the typhoid germ selects the mucous glands of the intestines, and the poison of rabies the brain and nerve centres, probably the pons. From this consideration it is evident that there are structural or other peculiarities of certain localities in the body in which they differ from other parts. To carry this view higher, it may be almost considered that the proposition of Bichat is true, and that the various tissues are possessed of a particular life. The modern theory would seem to show that you can poison the individual life of certain tissues, as the nervous, or at least that certain infectants address themselves peculiarly to particular structures of the body, and there find a centre in which they flourish, and in which alone they can germinate and fructify. Bichat taught that the life of superior organisms, as man, is not due to the action of a unique central force, but to the ultimate result of the particular lives of the various tissues which enter into their composition. The organism of an animal he likened to a federal State, and the elementary cells to the citizens. Virchow, in his Cellular Pathology, especially studies to discover

the causes which interfere with the life of the ultimate tissues of the body, and he thought that a great number of the disease-producing causes are living beings, vegetable and animal, which live as parasites at the cost of the human organism. There is no doubt therefore that long before there was any discovery of infecting germs the pathological mind was being prepared for the new theory. It was no longer sufficient to recognize a blood-poison acting by indescribable means on the whole system, devitalizing and destroying it in totality, but it was seen that the death of particular parts of the system was possible, and that certain poisons addressed themselves to certain structures. This was proved to be true of chemicals introduced from without, as lead, which affected the muscles, or antimony, which is found in the solid viscera. It is but a step from this to recognize that certain germs manifest a selection for certain parts of the human body, and this was seen in the days before microscopes, in the known habitats of hydatids in the liver, lungs, and brain, in the lumbricus in the small intestine and the ascaris in the rectum. In 1835, Owen found the trichina, and Virchow somewhat later described the fever dependent on these parasites and their peculiar site in the muscles. There are, doubtless, other examples, but the foregoing will illustrate the fact that the localization both of certain poisons and of certain parasites was known. In 1836 Latour gave the name of *torula cerevisia* to the ferment which converts sugar into alcohol and carbonic acid. The vegetable nature of certain germs, and their power of indefinite multiplication, by assimilating to themselves all the materials of an organism to which they are exposed, till "the whole lump be leavened," must have struck many thoughtful observers. The experiments of Schwann at Berlin in 1837 proved that meat can be preserved from putrefaction by keeping it from the air or by subjecting the air to a high temperature, and upset the theory previously held that septic processes are due to oxygen. Thus we arrived at the fact that putrefaction is caused by organisms springing from germs in the air, and that heat can deprive these germs of their vitality. As the *torula* converts sugar, so germs convert albumen. In both instances the minuteness of the agent is remarkable. It was found that putrefying pus contains myriads of vibriones or jointed bodies which arose by a process of self-multiplication out of similar bodies by segmentation, or fissiparous generation. Pasteur's well-known experiments confirmed these results and largely extended them, and it was thus established that the atmosphere is filled with myriads of such germs, found indeed less abundantly on the tops of the Alps, or in equatorial parts, but literally everywhere. From hence has arisen the well-known methods of Professor Lister, who has applied the knowledge of these facts with such splendid results to operative surgery.

In 1866, Rindfleisch first noticed bacteria in the organs of those who died of traumatic infective disease, as pyæmia and puerperal fever in the form of pinhead deposits in the heart and muscles. Later on these become filled with a thin fluid pulp. These cavities contained vibriones, which afterwards penetrated between the fasciculi of the muscles, and then into the muscular fibre. They were found in the heart and kidney, and finally in the blood. The unhealthiness of a wound was found to be in direct proportion to the number of spheroid bacteria in its pus, and general infection was held to be due to bacteria in the blood. Further observations demonstrated the existence of micrococci in the bullæ of erysipelas, and in the lymphatics on the edge of the erysipelas. Bacteria were also found in the pus of phleg-

monous abscess, in its walls, and in diphtheria. In the latter diseases they penetrate deep layers of tissues and lymphatics. When traumatic infective diseases set in the discharges become putrid. Anthrax is remarkable for the uniform presence of bacteria. These were also found in scarlet fever, small-pox and typhus, as also in cholera. The two tests of microscopical examination and chemical reaction were applied by Koch to these parasites in septicæmia, and the diseases we have named, and a third and most important one, inoculation. In form the bacilli are found either as bacilli or micrococci, as chains of granules, or rods, or long oscillating threads. Koch thinks that a distinct bacteric form corresponds to pyæmia, septicæmia, erysipelas, gangrene, and spreading abscess; but Nægele says, "I have for ten years examined thousands of different forms of bacteria, and I have not yet seen any absolute necessity for dividing them even into two distinct species." It is certain, therefore, that a peculiar morphological form is common to several diseases, as pyæmia, diphtheria, small-pox, and cholera; yet even Koch is struck by the difficulty, and says that it is impossible that all these diseases can be produced by one parasite, and asks, although the bacteria appear the same, may there not be a difference, just as the sweet and bitter almond look alike, but have important chemical differences? Chemically it has been found that bacteria resist acids, alkalis, and ethers, but are demonstrable by their absorption of certain aniline dyes; and it is to this fact, as is well known, that we owe their recognition with certainty. It is possible to remove the albuminoid structures in which they are imbedded and leave the colored vegetable parasite.

The experiments by Davaine on inoculation of animals with putrid matters are well known, and the remarkable fact discovered that by transmitting the infection through a series of animals the germs are not exhausted, but multiplied, so that at last he succeeded in producing the characteristic effects by using the trillionth part of a drop of blood. He thus infected successively twenty-five animals. He used diverse fluids, from scarlet fever, puerperal fever, small-pox, typhus, and always found bacteria in the blood. He also produced diphtheria and erysipelas artificially in animals. He found (as did Koch) that bacilli grew into the vessels and entered the circulation through spaces in their walls. They penetrate the white corpuscles of the blood, the capillaries and large veins, and appear to have entered the system by the subcutaneous cellular tissue in the neighborhood of the spot inoculated. It is found that when the bacilli disappear the disease can no longer be produced by inoculation. The animals made use of in these experiments were rabbits and mice; but Koch distinctly states that the septicæmic bacillus cannot be inoculated on every animal, and often failed in mice. On the other hand death occurred in twenty-four hours after inoculation with the smallest drop of blood from anthrax, and the lungs, liver, spleen, and capillaries were found filled with bacilli. The well-known experiments of Pasteur and Klebs, which have been called the culture of germs, offer much evidence on the difficult and disputed question as to each disease in which bacilli are found having a separate parasite which is capable of identification. Taking a material presumed to contain an infective virus and others, they have by exposing it to certain conditions of temperature and free access of oxygen found one germ specially grow, and its infecting power increase more than the others. A preponderating development thus obtained in one germ is found to have stronger infecting powers than the others in the mass ex-

aminated. By successive experiments the one infecting germ is isolated. To this have been applied both the inoculation test described, and also the chemical. Thus it has been observed that the bacillus of anthrax does not color with fuchsin, while that of leprosy does. Crudele is of opinion (and no one has more thoroughly adopted the germ theory) that in the greater part of cases there is no proof of different kinds of bacilli except from pathological effect, and that we must obtain the morbid ferment isolated from every other substance with the greatest clinical care. He acknowledges that the entrance of septic ferments into the blood is not always followed by disease, and contends that for such production of morbid effects they should necessarily find a home in the body, and there grow and form a colony.

I have hitherto considered septicæmia and the opinions of experimenters on the so-called ferment and on the parasitic bacteria presumed to be the essential cause. But we are aware that many other diseases besides those named are referred to the same cause—namely, germs entering the system from without, and amongst these are found malarious fevers, and notably tubercle. Before proceeding to discuss the latter I would state in a condensed form the physiological and pathological reasons assigned by the eminent originators of the doctrine of germs both for and against the theory. Pasteur argues that all contagious endemic and epidemic diseases result from ferments. All infectious diseases are due to living beings capable of multiplying in the organism. He argues from the disproportion between the determining cause and the effect—the quantity of the poison introduced in relation to the gravity of the resulting disorder; and, secondly, from the reproduction of infecting material in the organism in enormous quantity.

Chemical ferments do not augment in quantity, although they produce changes in the composition of other substances. In living ferments they always go on increasing in proportion as the fermentative process advances; precisely what occurs in the specific agent of each infection during the course of the specific disease. The incubation period is remarkable. In chemical ferments we should see the specific action always show itself till it had met with all the material in the organism which it was capable of decomposing; but in animal ferment there is always an incubation found, more or less long, till the germs are evolved of all the living organisms which constitute the disease. It may be supposed that these remarks apply only to diseases of infection or contagion, like scarlet fever or erysipelas; but it will be seen that they are made with regard to the most chronic affections attributed to parasitic origin, as tubercular diseases and also to malaria and rabies. The duration of the incubation period varies according to the species of the infecting agent. It is short in the acute exanthemata, longer in others of milder course. Tuberculosis has a latency of twenty days, and rabies often a period of years. As is well known, Pasteur reduces the period of incubation of rabies by inoculating direct into the brain. The poison is thus at once fixed in its bed of choice instead of having to make its way to it through various tissues (during which time it is latent), and the well-known symptoms can be produced in a few days. He has no doubt that a living organism causes rabies, which finds in the brain the conditions for its development and multiplication.

The cyclical course of diseases so originated is also dwelt on in proof of their parasitic origin. In all acute miasmatic affections the stages of disease can only be explained by the progressive multipli-

cation of a living ferment in the body. This is followed by the death of the organism, when there is recovery. In such cases there is always a stage of invasion, increase, acme, decrease, and resolution; or there are remissions, either daily or of some days, accounted for by the death of one crop of parasites, followed by a renewed access of disease when a new generation of germs is matured, and set free in the organism. In this way the remission and return of tertian or quotidian fevers and the daily hectic access of phthisis are accounted for. Chemical ferments would not act so, but would work through the whole system at once, and either kill the patient, or exhaust themselves by finding no more material to work on.

To prove this doctrine it is necessary that the presence of the parasite be constant in all materials which show themselves able to produce infection, that it can and does develop and reproduce itself in the organism of man, and that this parasitic being can alone, and isolated from every other matter contained in the infecting material, determine any given infection. To this we might add that each parasite should have distinct morphological characters; but it is well known that there is often a perfect likeness between germs, some of which are infective and some not.

The questions whether the microscopic organisms, of which we have been speaking, constitute a distinct species, or are capable of modification, and are even mutually convertible, and whether they are not found naturally in the tissues and fluids of healthy animals, have occupied some of the most acute observers of our time. Lister asserts that they are not found in healthy tissues. Bastian is of opinion that they may take their origin in unhealthy or dying processes by a method which he calls heterogenesis. Lewis has experimentally shown that by impairing the nutrition of any given organ bacteria may be made to appear, and Burdon Sanderson that they may be also made to appear in tissues of previously germless animals by exciting an intense inflammation within the peritoneum or beneath the skin by means of germless chemical agents.

Virchow, at the Medical Congress of 1881, taking the parasitic nature of certain diseases as proved, inquired whether there were not different forms of the same parasite giving rise to different affections or to modifications of the same disease, and spoke of the great interest attaching to the process of culture of germs, now well known. Büchner had by this method modified, and almost transformed, the germs of bacillus anthracis, and by a series of culture generations had developed a perfectly innocent plant, the hay bacillus. Again, taking the hay bacillus, he thought he could give it virulent properties by a sort of "undomestication," making it wild again. Thus by giving the organism a special kind of soil and a more vegetable diet it might be made innocent; by a more nitrogenous diet, and under other circumstances it might be made wild or malignant again. Virchow, again, while he believes in the difference of the kind of germs entering the body, recognizes strongly the resisting powers of the system, and the facilities given to the entrance of disease by weakness, which diminishes such resistance. Béchamp believes that germs of bacteria exist in all living and healthy animals, an opinion endorsed by Billroth. Some are of opinion (or were at the Congress) that there are no specific bacilli, as Forker, who considers that these organisms produce infection only in a secondary manner, their morphological form being indifferent. Hütter thought that there were specific modes of activity in micro-organisms, but a certain unity in all.

I must apologize for reciting these various opin-

ions, but those I have quoted are all from personal experimenters on a large scale, and their recorded judgment is representative of the varied and fluctuating views of the thoughtful on the subject in all countries. By scrutinizing their variety we shall at least learn that knowledge, while rapidly progressive, demands an impartiality of mind and a caution in decision, for the facts may not be borne out by the later experiments of to-morrow. As regards the germ theory in traumatic diseases, many hold that normal blood and tissues contain micro-organisms, and that these are not causes of disease, but become so from an abnormal increase in their number, because the fluids have become so altered as to present conditions favorable to their development. To this it is replied that Burdon Sanderson and Koch himself did not find such in healthy blood, nor did bacteria spontaneously develop in man or animals. The latter author concludes that the frequent discovery of micro-organisms in traumatic infectious disease renders their parasitic origin probable, but thinks that we should have established for every such disease a parasite with marked morphological characters, while he is so persuaded of the ultimate truth of the proposition that he says: "May there not be the possible presence of a lifeless disease ferment never yet demonstrated, or other unknown quantities?" With these unknown quantities we have, however, but little to do at present.

Before examining the latest discoveries regarding tubercle let us shortly notice some of the other parasite diseases. The bacillus of typhoid finds its principal centre in the small intestines, but it can multiply itself outside the body and penetrate living organisms by means of air, water, milk, etc. However it may have been introduced, it is found in the lymphatics of the intestine and the mesenteric glands, passing thence by the bloodvessels into the whole organism. Transfusion of blood has carried the disease from one to another, as also has taken place in malarious fever according to Crudeli. These two diseases are not considered contagious, though secondary colonies of bacilli are found in the spleen, lymphatic glands, and spinal cord. Most curious and interesting is the discovery of the specific ferment of malaria attributed to Obermeier in 1873. According to Crudeli, who in Rome has had abundant opportunities of studying the subject, the parasite is a spirillum and appears as filaments. The bacillus is sporogenous, multiplies by spores inside its filaments, which break up and gain their exit either from their centre or from one extremity or both. They require a free exposure to the air and a temperature of 20° C. for their development. They are found in all marshes and in malarious districts not marshy, and in the superincumbent air of such districts. Not only spores, but developed bacilli, are found in the air. Cuboni found them in the sweat of his hands and face when in the Pontine marshes. These spirilli move briskly in the blood, are always found during an access of fever, diminish after the access, and entirely disappear in the period of apyrexia. This has been observed in man and in apes, and Carter inoculated apes with the blood of man in malarious fever, and with the result of producing the fever. Guttman has seen the spirilli in the blood thirty hours after death, and Koch in the interior of organs. In 1879 Crudeli and Klebs appear to have satisfied themselves of these facts. In pernicious fever (the worst form of malarial fever, in which I have seen patients who fell down comatose while at work in the fields), these bacilli are most numerous in the blood and in the spleen, which is of a dark color, almost black. They are also found in the brain. Experiments in 1880-81 in Rome prove their existence in the blood in the

invasion or cold stage of the fever. A subcutaneous injection of these bacilli in rabbits and dogs produced tertian and quotidian fevers. They grew rapidly in favorable conditions, which seems to be moderate moisture, free exposure to oxygen, and a tolerably high temperature. The presence of putrid matters is hostile to their growth, so that soils which have never been manured are most favorable. It is a notable circumstance that quinine placed in the soil even in small proportions kills them. During the access of fever these bacilli get liberated into the blood and lymphatics, and the periodicity of these marsh fevers is said to be due to successive generations of parasites being sent into the blood. I would only further notice that in influenza and hay fever bacilli have been found in the nasal fossæ and frontal sinuses, a fact which led Helmholtz to treat coryza by injection of quinine. In acute rheumatic fever micrococci have been observed by Crudeli and others in the articulations and in the mitral valve. In acute pneumonia the presence of parasitic germs has been demonstrated. In syphilis germs of micrococci are held to be the essence of the disease, being found in the blood of infected persons, and in the lymphatics. Gummata are new colonies—slow of formation; and it is noticed that maladies beginning with mild symptoms find the system prepared to resist them. Inflammatory reactions in chronic infections retard their course by retaining the infective matter in their various centres, but these are in their turn preventers of the action of remedies which cannot reach the part.

Clinical Remarks

ON

PROGRESSIVE MUSCULAR ATROPHY.

By M. CHARTERIS, M.D.,

Professor of Therapeutics in Glasgow University, and Physician to the Glasgow Royal Infirmary.

In bringing this case before his clinical class at the Royal Infirmary, Dr. Charteris stated that he would simply take the patient's illness as he had written it himself, in plain and clear characters. It was an interesting autobiography of an obscure disease, and had been portrayed by an intelligent sufferer, who knew exactly his position and the prognosis of his malady. He would subsequently allude to the leading features of the disease after the patient had been removed from their presence.

"My age is twenty-four years and six months, and I am a clerk by occupation. I have been suffering for the last five years under a very distressing disease. On August 20th, 1877, I was going across the Firth of Forth in a passenger steamer when I felt a sleeping and pricking sensation in the fingers of my right hand. I thought nothing of it at the time, but next morning the same peculiar feeling was still there. I took no notice of it, however, and resumed my work on the following day. I may state that I was a shipping-clerk, exposed to all sorts of weather, and served in that capacity for four years previous to my taking this disease. I continued at my work for another six months, when I felt my fingers get tired and cramped when I wrote for a few hours at a stretch. I consequently went to a doctor, who told me it was 'writer's cramp,' and advised me to take rest. I did take rest for a few weeks, but resumed work again, and continued doing so for another three or four months, when I really felt I could not

write more than an hour without taking a rest. It was at this time twelve months (August, 1878) since first I took this disease that my left hand commenced in quite the same manner as my right. I again left off work; and at the request of a brother I had in London, went and stayed with him for a few months. During my visit I went to St. Thomas's Hospital, where I was recommended the same treatment which I had previously got—viz., rest. After a stay of a few months in London I again returned to Edinburgh, and once more resumed work. It was of no use, however, as my hands by this time were getting quite weak; and at this period, exactly eighteen months from the commencement (Dec. 1878), I first noticed a wasting of the muscles of the ball of the thumb. That is where the wasting first commenced. At this stage I determined to get the best advice I possibly could, and with that desire I called upon the late Professor Sanders, of Edinburgh, and the result of my examination was that the disease under which I was suffering was pronounced to be 'progressive muscular atrophy.' I really forget the diagnosis he made at the time, but, if I remember rightly, it was in connection with the grey matter of the anterior horns. The treatment I received was galvanism; the interrupted current applied to both hands and arms twice daily, fifteen minutes each time; medicine, strychnine and iron. He (Professor Sanders) further told me that the disease commenced either in the hands (as it did with me) or the shoulder. If the latter, it took a downward course; if the former, it took an upward course; and unless the disease was stopped it gradually progressed until ultimately it reached the heart and all was over; but the progress of the disease being slow, it would take years before it ended thus. The last experience has shown me that that theory is quite correct, as I have felt my hands slowly but surely getting worse since the commencement. Acting on Professor Sander's advice in May, 1879, I went into the Royal Infirmary, Edinburgh, and was treated there in a similar manner as prescribed by him. After a few weeks' treatment there I went home, and bathed my hands daily in sea water, also rubbing them with a coarse towel; but I regret to say that after continuing this for months I felt no marked improvement. Feeling no better, and thinking my disease was getting worse, I again, in 1880, went to the Royal Infirmary, Edinburgh, and was treated there in the same manner as before. Again returning home I stayed with my parents until the latter end of last year, when, owing to family bereavement, I was compelled to leave home and come to Glasgow. I applied for admission into the Royal Infirmary, and when admitted, was treated much in the same manner as already described. I again returned to Edinburgh, and stayed with a brother, till in April, 1882, I again went to Glasgow, and was admitted into the Western Infirmary. After a few weeks' treatment I again returned to Edinburgh, and, as before, stayed with my brother until September, 1882; when, acting on my brother's advice, I once more went to Glasgow, and was admitted into the Royal Infirmary under Professor Charteris, by whose treatment I hope to find my hands much improved before leaving. I may here state that during the time I was staying with my brother, and while I was in the hospital, I used every endeavor to get employment, but regret very much indeed to say I was unsuccessful, as my hands were much against me. I may also state that, being so much knocked about lately, and not being in a position to give myself the same care and attention as I had formerly done, I have no doubt that that has aggravated my disease very much and caused it to progress more

rapidly than it would otherwise have done had I been in a position to take proper nourishment, etc. The only hope I now have is that of getting my disease checked, and I do earnestly hope that the means used will have the desired effect."

Remarks by Dr. CHARTERIS.—The cardinal symptom in this peculiar disease, known only for twenty-four years, is atrophy, developing and progressing from certain groups of muscles and accompanied by a corresponding impairment of function. The disease, as a rule, commences in the muscles of the right arm, affecting first the interossei, so that the falling in of the interosseous spaces is perhaps one of the earliest diagnostic symptoms, along with a shrinking of the muscles of the ball of the thumb. Occasionally the disease begins in the deltoid and still more rarely in certain muscles of the trunk (pectoralis major, serratus magnus). The disease, generally commencing in the muscles of the hand, may remain stationary for some time and not proceed beyond the wrist. Gradually, however, it extends over the body, attacking symmetrical groups of muscles, with the exception of the extrinsic muscles of the eyeball and internal muscles of the ear. Occasional arrests, it would appear, in the progress of the disease by no means justify a hope of permanent improvement. The first serious danger to life occurs when the respiratory muscles are attacked and bronchitis ensues. The impediment to the breathing cannot be overcome and may lead quickly to asphyxia and death. In other cases the helplessness occasions the rapid and unavoidable progress of bedsores. Progressive bulbar paralysis is clinically nearly allied to progressive muscular atrophy, and it often complicates the disease to such an extent as to be the immediate cause of death by palsy of the muscles of swallowing and of the larynx or by thrombosis or embolism of the vertebral artery, with immediate palsy of the respiratory centres. It is a disease of middle life, and the male sex show a greater tendency to it than the female. In some cases it appears to be hereditary, and then its approach is observed usually before the twentieth year. Much controversy has existed as to whether the disease is muscular or nervous in its origin, but the weight of authority inclines to the belief that the anterior tract of grey matter of the spinal cord is affected with slow inflammation, embracing cells which are supposed to govern the nutrition of muscles—viz., trophic cells.

Clinical Remarks

ON A

CASE OF HYSTERECTOMY.

*Delivered at the Samaritan Free Hospital,
Jan. 31st, 1883.*

By G. GRANVILLE BANTOCK, M.D. Ed.

GENTLEMEN—Those of you who were not in the secret were probably curious about the median linear cicatrix which was to be seen on the patient's abdomen in the position of the usual ovarian incision. The secret is this—viz., that I had performed oöphorectomy on this patient on April 6th, 1881. At that time she was in a state of profound anæmia due to the presence of an intramural fibroid tumour of the uterus, and the operation was performed for the purpose of stopping the menstrual function, and of arresting the growth and causing the disappearance of the tumour. The uterus then

reached to the umbilicus, its cavity measured eight inches, and the tumour encroached on the cervix. The operation was by no means an easy one. The left ovary with its tube was readily secured; but the right, which lay on the surface of the tumour, and was drawn out to the length of about three inches, was with great difficulty ligatured, together with its tube. The ligatures were passed as deeply as possible, and well behind all ovarian structure; but a portion of the ovary had to be left on the stump to prevent slipping. You see there is no trace of the stump or of ovarian tissue on this side. On the left side there is a small hygroma at the site of the stump (further examination revealed a small chronic abscess as large as a hazel nut kernel containing curdy pus). You see then that the tubes and ovaries were well removed. The immediate results of the operation were of the most remarkable kind. The operation was performed under a spray of plain water, and the case ran a most favorable course as regarded temperature and pulse, and the wound healed throughout by first intention. Within forty-eight hours metrostaxis set in and continued for several weeks, at times was very free. Between the second and third weeks there was great tenderness of the spleen and enlargement to twice its normal size. In the course of a week the tenderness and enlargement had disappeared. At the end of five weeks the tumour had decreased so much in size that it extended very little beyond the pubic symphysis, and the cavity of the uterus measured only four inches. This was a result as gratifying as it was remarkable. Before she left the hospital in the seventh week the metrostaxis had ceased. She remained in London for another month, and I had an opportunity of watching the case. In about a fortnight she again began to lose blood, much to our mutual disappointment, and on examining her I had the further disappointment of finding that the uterus had again enlarged and was as big as ever. The only satisfactory part of the case was the general improvement that had taken place in the patient's appearance and the great diminution in the intensity of the hæmic murmur. For twelve months she continued to menstruate with tolerable regularity, and at times in only moderate quantity, and the improvement in her general condition was fully maintained, so that I then advised her to wait. Since then, however, the flow has been more irregular and abundant, and her general health has deteriorated in spite of the very free use of iron, ergot, gallic acid, etc., and it will give you some idea of the extent of the loss of blood when I tell you that from the beginning of November till the middle of the month of January the discharge never ceased, and was even at times very excessive. Under these circumstances, and bearing in mind the very gratifying results I have recently obtained with my present method of operating, I feel justified in recommending the operation you have just witnessed. It will give you an idea also of the progress I have made in the management of these cases to mention that in the account of the former operation I made a note that "the removal of the tumour was impossible." With regard to the operation you have just seen, apart from the adhesion of the omentum to the cicatrix, it was not facilitated by the previous oöphorectomy, as the broad ligaments had been thereby shortened and tightened.

Now this case opens up an important question which has been before us for the last two or three years—viz., the question of oöphorectomy versus hysterectomy—a question which this case goes far to settle. Some of you have probably seen or heard it recommended, even very recently, that we ought not to perform hysterectomy until oöphorectomy had been already tried and had failed. I must

say that that is a proposition which, to my mind, appears both unscientific and irrational on the face of it, and which will be "more honored in the breach than in the observance," for I believe we are already in a position to determine which are the cases suitable for oöphorectomy and which for hysterectomy. Two years ago I thought the tumour could not be removed in this case. Again, in the great majority of the cases of large tumour the ovaries cannot be reached at all, or one may be within reach but the other not. Nor should we ever dream of resorting to oöphorectomy in a case of pediculated fibroid or large multiple fibroids. Experience has already shown it to be useless in these two classes. A very remarkable case occurred to me just a year ago. On Feb. 2nd of last year I operated on a patient whose case was in all respects the counterpart of the one under review. From the relations of the growth to the uterine cavity I dared not even contemplate hysterectomy in the first instance, and I proceeded to remove the ovaries and tubes. I first attacked the left side: there the ovary was closely applied to the tumour, but by dint of great pulling I managed to secure it and the tube by a double transfixing and circular ligature. On taking away the ovary, and in my anxiety not to leave any ovarian tissue in the stump—a needless precaution—I cut the stump rather short. In the handling of the tumour, to reach the other ovary, one-half of the pedicle slipped through, and no efforts of mine were of avail to secure the bleeding vessels. I was, therefore, compelled to turn out the tumour and perform supra-vaginal hysterectomy in the way you have just seen. Had I been so unfortunate, I may say, as to secure the ovaries to my satisfaction, the patient could not have been benefited by the operation, for the tumour had already undergone that peculiar kind of cystiform degeneration which you see so well illustrated in this specimen. In addition to that, there had been hemorrhage within the uterine capsule to the extent of about two ounces, which, no doubt, accounted for the very high temperature the patient had soon after her admission. You can all imagine the probable result of leaving such a tumour as that.

It has been stated that the occurrence of metrostaxis after the operation is beneficial. Such it certainly seemed to me in this case when I witnessed the rapid diminution of the tumour, though it had the effect of prolonging the patient's stay in the hospital to a very inordinate length; but time has shown the fallacy of this idea. Nor has it received any support in other cases in my hands.

The operation of removing the ovaries, and as much of the tubes as you can—call it by what name you please—is based on the argument that you check the menstrual function and at the same time interfere with the nutrition of the growth. Mr. Lawson Tait contends that the menstrual function depends on the tubes, and not on the ovaries. That is a proposition I am not prepared to accept, and I shall await with some curiosity the evidence and arguments with which he supports his position. For the present I would content myself with pointing out that menstruation goes on when the tubes are completely occluded by acute and chronic disease, and with no more disturbance than can be much more rationally explained by the coincident state of the uterine body itself. We have yet to have explained the part played by the ovaries, and whence comes that peculiar influence—nervous or electrical as you please—which determines the marvellous regularity of appearances, recurrence, and cessation, at tolerably well-defined periods. And for the present I believe the ovaries play the most important part.

Great stress has been laid on the importance of

cutting off the blood-supply through the ovarian arteries as a means of starving the tumour, and it has been urged that as this can be effected by oöphorectomy, we ought to prefer it to the more radical hysterectomy. Various well-grounded objections to this argument present themselves. We have to bear in mind that there are two sources of blood-supply to the uterus—viz., the uterine and ovarian arteries, of which the former are the larger. Then, according to a well-known law frequently taken advantage of by surgeons, when of two sources of blood-supply one is cut off, nature steps in and restores the balance, so that the nutrition of the parts concerned is maintained. In this specimen we have positive evidence that the nutrition of the uterus and tumour was not diminished, although both ovarian arteries had been cut off. Other cases in my hands also bear me out. Again, in the great majority of cases of large tumours, it is impossible, as I have already said, to get at the ovaries. But that there are certain cases in which oöphorectomy should take the place of hysterectomy I am free to admit. Such a case is that of a small or very moderately sized intramural fibroid. In such a case oöphorectomy will, I believe, render as good service, and should be preferred because of its small risk. But when the tumour is large, I believe oöphorectomy to be as dangerous as, and in some cases even more dangerous than, hysterectomy has now become under improved methods of performing the operation.

Gulstonian Lectures

ON

STERILITY IN WOMAN.

Delivered in the Royal College of Physicians, London,

By J. MATTHEWS DUNCAN, M.D., F.R.C.P.L.,

Physician-Accoucheur and Lecturer on Midwifery at St. Bartholomew's Hospital, etc.

LECTURE II.

ITS THEORY OR CAUSATION.

MR. PRESIDENT, VICE-PRESIDENT, AND GENTLEMEN—In studying the theory, or inquiring into the causes of sterility in woman, it is advantageous to keep in mind the corresponding condition in plants and in the lower animals, for in all living beings there is more or less similarity of the sexual organs and offices, and disturbance of function in one division will throw light on disturbance in another. On this subject I have made many, but only casual, observations, and have had the privilege of conversation with gardeners and breeders, classes of men in whom are found many of remarkable intelligence and acuteness of observation. But the great storehouse of facts and references on which I rely is Darwin's "Variation of Animals and Plants under Domestication." Plants and some animals propagate otherwise than by sexual generation, but it is only the sterility arising from disturbance of the regular course and consequences of sexual union that has a direct or nearly direct bearing on the present inquiry. The sterility of hybrids, which, considering the theory he is supporting, forms naturally the main study of Darwin, is of comparatively little interest to us, and will not be hereafter referred to, but many of the principles of sterility find strong support in the special sterility of hybrids.

Viewing the subject generally, we may anticipate a great result by pointing out the paramount prevalence and potency of constitutional conditions

as causes of sterility. Such are cold and heat, overfeeding and underfeeding, youth and old age, degradation of general health, confinement, and interbreeding.

Local conditions occur in plants that are quite sufficient to account for or cause sterility. Such are contabescence of anthers, monstrous flowers, double flowers, seedless fruit. These local conditions are the result of the general or constitutional conditions of the individuals in which they occur; and they have their place rather in the results of sterility, or of the conditions producing sterility, than in the causes of sterility. They have their analogues in such abortions, dead fetuses, unhealthy offspring, or monstrous products of animals as are believed to be results of what may be called the sterile diathesis. The causes of sterility are causes of these imperfections, and for that reason they are referred to the sterile tendency. They do, indeed, constitute the sterility to be accounted for. Thus, to wander into hybridism for an example, it is an observation of Gärtner that hybridism in plants, a great cause of sterility, produces also a strong tendency in flowers to become double.

In the vegetable kingdom everyone has observed that source of sterility which may be, no doubt nearly truly, designated a degradation of general health. A plant covered with flowers is brought from a house where its fertility has been stimulated to the highest degree, and placed as an ornament in a sitting-room, where it remains till its charms are lost, and the result is such an injury to its constitutional vigor that it is sterile, or nearly sterile, for one or for several subsequent seasons. Its fertility may never be restored, or only after several years of the medical care of a skilful gardener. The scarlet geraniums which are brought from their healthy homes in full bloom to adorn the houses of inhabitants of densely populated cities soon show the injurious influence of their new surroundings, however well they may be cared for; their flowers become less numerous, or are altogether wanting; then their leafage diminishes greatly in quantity, and their existence becomes a mere lingering. A rose garden, lately in a suburban position near London, gets surrounded by the growing city, and gradually as the buildings increase the fertility of the roses diminishes; the garden becomes useless. Some of our finest forest trees, and among them some plants, grow beautifully in our squares, producing wood in even exaggerated quantity, and a clothing of leaves sufficient for ornament; but there is no wealth of leaves, and there is no seed. In some cases an exception makes the rule more striking, as when a cherry tree in the heart of the city of London lately produced flowers and matured its fruit, so far as maturity is indicated by beauty, size, and taste.

Practical gardeners attribute sexual injury to overstimulation by manure, or what they call overfeeding. This ordinarily produces great growth of the tissues, and when this is restrained by judicious pruning, it forces out a large or excessive crop of flowers and subsequent fruit. In the language of Spencer, there is produced by overfeeding an excess of individuation, the restraint of which results in excess of genesis. The natural tendency of the overfeeding of plants is to produce a degree of relative sterility; and this may show itself in paucity of flowers, or it may show itself in the production of those double, or monstrous, or abortive flowers which are so much admired. The opposite result is produced by moderate or full feeding. Then, in mature plants there is not great growth of tissues, but rather a production of fruit. Sometimes the plant, without assignable cause, but

especially if underfed, has an exaggerated production, and is said to run to seed; and, from whatever it may arise, it in a reflex manner injures the plant, which consequently becomes blighted and often dies. Excessive production here seems to take the place of sterility.

The following is an interesting illustration of the effect of overfeeding and of moderately feeding or underfeeding a vine, and it is important because it specifies a particular local condition or disease which is apparently the cause of the infecundity of the overfed plants, and so indicates a line of investigation which may with advantage be pursued in other examples of sterility. In a recent letter from Mr. Thomson, the well-known vine cultivator, he writes:—"A circumstance has arisen in my own experience that I have never seen noticed in print. A vine called the Alnwick seedling, if grown vigorously in rich soil, fails to set its fruit even when aided. This failure is caused by the exudation from the female organ of a dewdrop of sap, which moistens the pollen, and it does not descend through the pistil and impregnate the ova. When the vine is grown in poor soil the dewdrop does not appear, and impregnation takes place; seeds are formed in perfection, but the pulp for which the grape is grown is almost absent. I know (he adds) no other grape affected in the same way or subject to the same influences."

I know no good account of the sterility of plants as regulated by age, but the influence of age is well recognized. A young fruit tree bears no fruit, or very little, and that little imperfect, and the careful gardener does not permit it to bear much or even a little, believing that fruit bearing injures growth and diminishes future fertility. The influence of old age and decay in fruit-bearing trees is also well known: the fruit is ill developed, and there is little of it.

"All know," says Spencer, "that a pear tree continues to increase in size for years before it begins to bear, and that, producing but few pears at first, it is long before it fruits abundantly. A young mulberry, branching out luxuriantly, season after season, but covered with nothing but leaves, at length blossoms sparingly, and sets some small and imperfect berries, which it drops while they are green; and it makes these futile attempts time after time before it succeeds in ripening any seeds. But these multiaxial plants, or aggregates of individuals, some of which continue to grow while others become arrested and transformed into seed-bearers, show us the relation less definitely than certain plants that are substantially, if not literally uniaxial. Of these the cocoa-nut may be instanced. For some years it goes on shooting up without making any sign of becoming fertile. About the sixth year it flowers, but the flowers wither without result. In the seventh year it flowers and produces a few nuts, but these prove abortive, and drop. In the eighth year it ripens a moderate number of nuts, and afterwards increases the number, until, in the tenth year, it comes into full bearing. Meanwhile, from the time of its first flowering, its growth begins to diminish, and goes on diminishing till the tenth year, when it ceases."

The evil influences of interbreeding is a subject too extensive to enter upon at any length. In plants it is corroborated by the well-known advantage of crossing of varieties. But it needs no confirmation, for there are self-impotent plants, plants more thoroughly fertilized by a nearly allied species than by pollen of their own species, and there are the wonders of dimorphism with sterility arising from union of individuals not only of the same species but of the same form. In the works of horticulturists is to be found ample evidence that

interbreeding of plants tends to weakness, malformation and sterility.

The influence of heat and of cold is, in plants, well illustrated by the failure of most Alpine species to produce flowers and fruit in lowland gardens, and the same failure of lowland plants as they ascend the sides of mountains. A walk in the highlands will show the pines thriving on the hillsides and well covered with cones, but as greater altitudes are reached the trees are observed to become stunted and the fruit entirely to fail.

The abortion-like sterility of plants is illustrated by the bearing of double flowers, of flowers whose seeds do not ripen, or whose seeds, though apparently perfect, are incapable of germination and growth. In some of the cases of seedless fruit and of fruit with few seeds or with one seed, or with imperfect seed, we have also abortion and at the same time a fine illustration of the working, locally, of the opposition between individuation and genesis. The whole plant, as the vine or the pear-tree, may have the appearance of health, and its fruit alone is unnatural. The tissues of the fruit-capsule are enormously developed, while the seeds have disappeared or are reduced to one or a small number. The luscious pear or the juicy grape are masses of hypertrophy or myxomatous-like degeneration while the seeds are the subject of extreme hypoplasia. Gardeners generally ascribe these results to overfeeding and overstimulation by manures and heat, but Darwin is more cautious, and in most cases does not analyze the causes further than is implied in "unnatural conditions of life." No one, according to Lindley and Darwin, has produced double flowers by promoting the perfect health of the plant.

Before leaving vegetable physiology I would point out the frequent occurrence in plants of seeds which, though apparently perfect, will not germinate; they cannot be distinguished from their neighbors otherwise than by their incapacity for growing. The same failure to grow is often observed under closely similar circumstances in the eggs of the fowl and of other birds; they cannot be hatched, although no imperfection is discoverable in them. That there are such ova in other animals and in woman is highly probable, but in them the completeness of the demonstration is unattainable.

Very little is known of the sterility of animals, and it is easily understood that reliable observations can only, with great difficulty, be made on them, especially in a state of nature. Many authors, and latterly Darwin and his collaborators, have paid much attention to the great subject of the sterility of hybrid animals. Observations and experiments in this department are made chiefly on domestic animals, or wild animals in confinement, and each experiment has a high value. But the sterility of ordinary domestic animals has been little studied. In herds of fine heifers and cows, and in mares, it is occasionally exhibited, but I have no data as to its frequency; and in cattle, at least, observations are imperfect, the animal that, by sterility of one season, disappoints its owner, being generally at once fattened for the butcher.

It is a well-known belief among breeders, which may be historically traced to ancient times, that when the female of any kind is made to breed when very young, she does so at the expense of permanently preventing her own growth to perfection, and she will likely produce offspring that is not of the best quality. This failure is well illustrated in the case of the common fowl and of the turkey, the progeny of chickens and of turkeys one year old being not the best of their kind, and specially

difficult to rear. Fanciers breed these animals from a female two years and a male three years old. The occurrence of sterility in early and in elderly life is clearly seen, and its degree easily made out in pluriparous mammals, as the dog and pig, and in birds whose broods can be counted and whose yearly production of eggs can be also numbered. This subject will be discussed fully when we come to consider pluriparity in woman.

Overfeeding, or the production of fatness or of obesity in the female, is well known to be hostile to fertility, to be an illustration of the opposition of individuation to genesis. By special feeding and fattening turkeys and common fowls the hen-wife arrests almost completely the production of eggs. They may also be made fewer by starving the birds, and not fewer only but also smaller. These birds when highly fed sometimes exhibit excessive productiveness, two eggs being laid daily, an instance of great intensity of fertility; but this is not regarded with favor, having, I am told by a turkey fancier, an injurious influence, in their case, by delay of the commencement of laying in the season following that of the excessive production. The breeder of cattle prevents by careful management the fattening of the females.

In respect of feeding, comparisons are made between the relative sterility of wild animals and the comparative fertility of domesticated or confined animals of the same species, but the comparisons are not quite satisfactory from the intermixture of the influences of food and of domestication or confinement; and again, in the comparisons of animals fed on rich and on poor pasture, sufficient care is not taken to ensure that the compared animals are of the same breed. With this previous reflection I subjoin an interesting passage from Spencer's chapter on nutrition and genesis: "Clear proof," says he, "that abundant nutriment raises the rate of multiplication (and *vice versa*) occurs among mammals. Compare the litters of the dog with the litters of the wolf and the fox. Whereas those of the one range in number from six to fourteen, the others contain respectively five or six or occasionally seven, and four or five, or rarely six. Again, the wild cat has four or five kittens, but the tame cat has five or six kittens two or three times a year. So, too, is it with the weasel tribe. The stoat has five young ones once a year. The ferret has two litters yearly, each containing from six to nine; and this notwithstanding that it is the larger of the two. Perhaps the most striking contrast is that between the wild and tame varieties of the pig. While the one produces, according to its age, from four to eight or ten young ones, once a year, the other produces as many as seventeen at a litter; or, in other cases, will bring up five litters of ten each in two years—a rate of reproduction that is unparalleled in animals of as large a size. And let us not omit to note that this excessive fertility occurs where there is the greatest inactivity—where there is plenty to eat and nothing to do. There is no less distinct evidence that among domesticated mammals themselves, the well-fed individuals are more prolific than the ill-fed individuals. On the high and comparatively infertile Cotswolds it is unusual for ewes to have twins, but they very commonly have twins in the adjacent rich valley of the Severn. Similarly, among the barren hills of the west of Scotland, two lambs will be born by about one ewe in twenty; whereas in England, something like one ewe in three will bear two lambs. Nay, in rich pastures, twins are more frequent than single births; and it occasionally happens that, after a genial autumn and consequent good grazing, a flock of ewes will next spring yield double their number of lambs—the triplets balancing the uni-

para. So direct is the relation, that I have heard a farmer assert his ability to foretell, from the high, medium, or low condition of an ewe in the autumn, whether she will next spring bear two, or one, or none."

An interesting department of the sterility of animals is that which results from confinement. This seems specially to affect what are vaguely designated the noble animals. Those which are sterile show great variations; some disdain to cohabit or have lost sexual desire; others have increase of sexual appetite, and cohabit freely or excessively, but without impregnation resulting, or with the result very rarely following. Some if impregnated bring forth only abortions, or young which are dead-born, or, if alive, feeble and ill-formed. There is, for instance, as Shorthouse has pointed out, a common occurrence of cleft palate in the lion's cubs born in the Zoological Gardens.

Among birds in confinement there are many good examples of change of sexual habits and of sterility. In some cases they have no eggs, or, if they produce, they have only comparatively few, or they may neglect the eggs when produced, or the eggs duly cared for may be incapable of being hatched. This abortional sterility arising from imperfection of eggs as a result of confinement is well proved by experiments made in France on the common fowl. When these birds were allowed considerable freedom, 20 per cent. of the eggs failed to be hatched; when less freedom was allowed, 40 per cent. failed; when closely confined, 60 per cent. were not hatched.

The power of temperatures that are not according to an animal's nature to induce sterility is no doubt very great. Darwin mentions that Mr. Miller, a former superintendent of the Zoological Gardens, believed that the sterility of the carnivora there was increased by increase of exposure to air and cold. In winter, inadequately sheltered cows either cease to give milk or give it in diminished quantity. "And," says Spencer, "though giving milk is not the same thing as bearing a young one, yet, as milk is part of the material from which a young one is built up, it is part of the outlay for reproductive purposes, and diminution of it is a loss of reproductive power." Failure to maintain the cow's heat may entail such reduction in the supply of milk as to cause the death of the calf. Hard living, says Darwin, retards the period at which animals conceive, for it has been found disadvantageous in the northern highlands of Scotland to allow cows to bear calves before they are four years old. Roulin found that in the hot valleys of the equatorial Cordilleras sheep were not fully fecund.

The common fowl will not breed in Greenland or Northern Siberia. "In this country it is fed," says Spencer, "through the cold months, but nevertheless, in midwinter it either wholly leaves off laying, or lays very sparingly. And then we have the further evidence that if it lays sparingly, it does so only on condition that the heat, as well as the food, is artificially maintained. Hens lay in cold weather only when they are kept warm. To which fact may be added the kindred one that when pigeons receive artificial heat they not only continue to hatch longer in autumn, but will recommence in spring sooner than they would otherwise do."

On the subject of the interbreeding of animals there is a vast body of opinion as well as of facts showing its power in producing monstrosity and its ally sterility. "If we were," says Darwin, "to pair brothers and sisters in the case of any pure animal, which from any cause had the least tendency to sterility, the breed would assuredly be lost in a few generations." Elsewhere he shows

that "long-continued close interbreeding between the nearest relations diminishes the constitutional vigor, size, and fertility of the offspring; and occasionally leads to malformations, but not necessarily to general deterioration of form or structure. This failure of fertility shows that the evil results of interbreeding are independent of the augmentation of morbid tendencies common to both parents, though this augmentation no doubt is often highly injurious. Our belief that evil follows from close interbreeding rests to a large extent on the experience of practical breeders, especially of those who have seen many animals of the kind which can be propagated quickly; but it likewise rests on several carefully recorded experiments. With some animals close interbreeding may be carried on for a long period with impunity by the selection of the most vigorous and healthy individuals; but sooner or later evil follows. The evil, however, comes on so slowly and gradually that it easily escapes observation, but can be recognized by the almost instantaneous manner in which size, constitutional vigor, and fertility are regained when animals that have long been interbred are crossed with a distinct family."

Regarding the very remarkable subject of sterility of sexual connection with special individuals only, Darwin says:—"It is by no means rare to find certain males and females which will not breed together, though both are known to be perfectly fertile with other males and females. We have no reason to suppose that this is caused by these animals having been subjected to any change in their habits of life. . . . The cause apparently lies in an innate sexual incompatibility of the pair which are matched. Several instances have been communicated to me by Mr. W. C. Spooner (well known for his essay on Cross-breeding), by Mr. Eyton, of Eyton, by Mr. Wicksted, and other breeders, and especially by Mr. Waring, of Chilsfield, in relation to horses, cattle, pigs, foxhounds, other dogs, and pigeons. In these cases, females which either previously or subsequently were proved to be fertile, failed to breed with certain males, with whom it was particularly desired to match them. A change in the constitution of the female may sometimes have occurred before she was put to the second male; but in other cases the explanation is hardly tenable, for a female known not to be barren has been unsuccessfully paired seven or eight times with the same male, likewise known to be perfectly fertile. With cart-mares, which sometimes will not breed with stallions of pure blood, but subsequently have bred with cart stallions, Mr. Spooner is inclined to attribute the failure to the lesser sexual power of the racehorse. But I have heard from the greatest breeder of racehorses at the present day, through Mr. Waring, that it frequently occurs with the mare to be put several times during one or two seasons to a particular stallion of acknowledged power, and yet prove barren, the mare afterwards breeding at once with some other horse. These facts are worth recording, as they show, like so many previous facts, on what slight constitutional differences the fertility of an animal often depends."

Before leaving the subject of the causes of sterility of animals, I quote a passage from Darwin regarding the results of confinement. "Sufficient evidence," says he, "has now been advanced to prove that animals, when first confined, are eminently liable to suffer in their reproductive systems. We feel at first naturally inclined to attribute the result to loss of health, or at least to loss of vigor, but this view can hardly be admitted when we reflect how healthy, long-lived, and vigorous many animals are under captivity, such as parrots, and hawks when used for hawk-

ing, chetahs when used for hunting, and elephants. The reproductive organs themselves are not diseased, and the diseases from which animals in menageries usually perish are not those which in any way affect their fertility. No domestic animal is more subject to disease than the sheep, yet it is remarkably prolific. The failure of animals to breed under confinement has been sometimes attributed exclusively to a failure in their sexual instincts; this may occasionally come into play, but there is no obvious reason why this instinct should be specially liable to be affected with perfectly tamed animals, except, indeed, indirectly, through the reproductive system itself being disturbed. Moreover, numerous cases have been given of various animals which couple freely under confinement, but never conceive, or, if they conceive and produce young, these are fewer in number than is natural to the species. In the vegetable kingdom instinct of course can play no part, and we shall presently see (he says) that plants, when removed from their natural conditions, are affected in nearly the same manner as animals. Change of climate cannot be the cause of the loss of fertility, for, whilst many animals imported into Europe from extremely different climates breed freely, many others, when confined in their native land, are completely sterile. Change of food cannot be the chief cause, for ostriches, ducks, and many other animals, which must have undergone a great change in this respect, breed freely. Carnivorous birds, when confined, are extremely sterile, whilst most carnivorous mammals, except plantigrades, are moderately fertile. Nor can the amount of food be the cause, for a sufficient supply will certainly be given to valuable animals, and there is no reason to suppose that much more food would be given to them than to our choice domestic productions which retain their full fertility. Lastly, we may infer, from the case of the elephant, chetah, various hawks, and of many animals which are allowed to lead an almost free life in their native land, that want of exercise is not the sole cause. It would appear that any change in the habits of life, whatever these habits may be, if great enough, tends to affect in an inexplicable manner the powers of reproduction. The result depends more on the constitution of the species than on the nature of the change; for certain whole groups are affected more than others; but exceptions always occur, for some species in the most fertile groups refuse to breed, and some in the most sterile groups breed freely. Those animals which usually breed freely under confinement rarely breed, as I was assured, in the Zoological Gardens, within a year or two after their first importation. When an animal which is generally sterile under confinement happens to breed, the young apparently do not inherit this power; for had this been the case, various quadrupeds and birds which are valuable for exhibition would have become common. Dr. Broca even affirms that many animals in the Jardin des Plantes, after having produced young for three or four successive generations, become sterile; but this may be the result of too close interbreeding. It is a remarkable circumstance that many mammals and birds have produced hybrids under confinement quite as readily as, or even more readily than, they have procreated their own kind. Of this fact many instances have been given, and we are thus reminded of those plants which when cultivated refuse to be fertilized by their own pollen, but can easily be fertilized by that of a distinct species. Finally, we must conclude, limited as the conclusion is, that changed conditions of life have an especial power of acting injuriously on the reproductive system. The whole case is quite peculiar,

for those organs, though not diseased, are thus rendered incapable of performing their proper functions, or perform them imperfectly.

Finally, Shorthouse has pointed out in mares the close alliance between sterility, abortion, and that kind of excessive fertility which is demonstrated by twinning. I quote the examples

In woman sterility varies in amount according to the age at marriage. This is shown by the table which I compiled from the data of Edinburgh and Glasgow in 1855. (See Table IX.) It is evident that this table gives only an approach to the truth, for in its second column there is an excess of children over marriages that cannot have been. In-

TABLE IX.

Showing the Variations of Sterility according to the Age at Marriage.

Ages of wives at marriage....	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50, etc.	Total.
Number of wives.....	700	1835	1120	402	205	110	46	29	4447
First children.....	649	1905	809	251	96	10	2	...	3722
Sterile wives.....	51	...	311	151	109	100	44	29	725
Percentage sterile.....	7.3	...	27.7	37.5	53.2	90.9	95.6	100.0	16.3
Proportion sterile: 1 in.....	13.72	...	3.60	2.66	1.88	1.10	1.05	1.00	6.13

TABLE X.

Showing the Initial Fecundity of Women of Different Ages within the First Two Years of Marriage.

Ages of wives newly married...	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total.
Number of wives newly married	700	1835	1120	402	205	110	46	20	6	2	1	4447
Number of wives mothers bearing in 1855, and within two years of marriage.....	306	1661	849	253	84	17	2	...	...	...	...	3172
Proportion of latter to former is 1 in.....	2.3	1.1	1.3	1.5	2.4	6.4	23.0	...	...	...	...	1.4
Or percentage.....	43.71	90.51	75.80	62.93	40.97	15.45	4.35	...	...	...	...	71.33

which he gives in the *Sporting Times* for Dec. 12th, 1874; and, as adding to the force of the evidence, it is to be remembered that in the mare twinning is a far rarer event than in woman and the cow: in these it occurs about once in 80 pregnancies; in the mare it is said to be only once in 400:

Miserrima, barren in 1855, 1858, 1867, 1870, and 1871; slipped foal in 1856, 1859, and 1863; had dead twins in 1860 and 1862.

Caricature, barren in 1852, 1854, 1855, 1861, 1867 and 1871; had twins in 1856 and 1863; slipped foal in 1866.

Legerdmain, barren in 1852, 1859, 1864, and 1866; slipped foal in 1849; slipped twins in 1856, 1860, and 1862.

Crystal, barren in 1858, 1860, and 1865; in 1866 slipped twins.

Slander, barren in 1851, 1854, 1864, 1865, and 1866; slipped twins in 1857.

Thimblebrig, barren to two horses in 1867; slipped twins in 1869.

Zoe, barren in 1865, 1866, 1867, 1868, 1869, 1870, and 1871; slipped foal in 1860.

No. 1, barren in 1865 and 1868; slipped foal in 1867.

No. 5, barren in 1856, 1858, 1860, 1864, and 1866; slipped foals in 1862 and 1868.

No. 7, barren in 1857 and 1860; had twins in 1858.

No. 8, barren in 1867; had twins in 1861.

No. 9, barren in 1858, 1860, 1864, and 1867; had twins in 1868.

No. 10, barren in 1858, 1860, and 1864; had twins in 1861.

No. 11, barren in 1856, 1863, and 1864; slipped foals in 1859 and 1865.

I know no observations worth quoting as to the special sterility of male lower animals, and the subject requires much further investigation. It is not quite a new subject, for it is popularly believed that certain stallions are often inefficacious; and accordingly breeders, in their advertisements, take care to add to the other qualifications of a named horse that he is a "sure getter."

congruity of this kind is not only accounted for, but to be expected, from the manner in which the table is made up. The number of marriages in Edinburgh and Glasgow in 1855 at different ages of the wives are compared with the numbers of first living children born in the same year to wives married at the same ages in that year or previously, and the number of sterile wives is got by subtracting the latter figures from the former. The comparison is of the first births of one year with the marriages of the same year, while they were mostly the result of the marriages of the former year, and the table is consequently imperfect. It must be remembered that this table, like the others from the same source, gives the title of first children to the first born living, excluding the dead from the reckoning, another manifest source of error. But there can be no doubt, I think, of the conclusion as to age which is derivable from it—that women married under twenty years of age have much more sterility than women married from twenty to twenty-four inclusive, and that the sterility of marriages before twenty is less than the sterility of marriages after twenty-four, and that of marriages after twenty-four the sterility increases with the age at marriage. A nearly similar conclusion is derivable from the Statistics of Providence published by Snow.

The relative sterility of women at different ages is in part shown by their slowness to become mothers, or the length of interval between marriage and childbearing; and this is found to tally with the sterility according to age which I have just stated. I give another Edinburgh and Glasgow table embodying the facts bearing on this. (See Table X.) Those married below twenty years of age were longer in married life before becoming mothers than those married between twenty and twenty-four inclusive. These latter showed the highest fecundity and quickness to commence bearing children. Those again married after twenty-four were slower than their predecessors, and the slowness increased with every additional quinquennium after that of twenty to twenty-four.

In the quinquennaid preceding twenty I can give for each single year the increasing delay of childbearing as age decreased. Table XI., from the Edinburgh and Glasgow data, shows this relative sterility of early ages.

TABLE XI.

Showing the Initial Fecundity of Women under Twenty Years of Age within the First Two Years of Marriage.

Ages of wives newly married.....	16	17	18	19
No. of wives newly married.....	43	108	225	314
No. of wives mothers within two years of marriage.....	4	27	98	177
Proportion of latter to former is 1 in...	10·7	4·0	2·3	1·8
Proportion after correction for immaturity is 1 in.....	7·7	3·3	2·1	1·7
Or percentage.....	12·90	30·00	46·44	57·84

At this point of the inquiry as to the influence of age I interpolate an argument as to the influence of marriage or cohabitation in causing sterility. Although it seems at first sight absurd to rank marriage among the causes of sterility, yet the conclusion that it is so, at least in the very young, appears to be inevitable. For if the women married under twenty are more sterile than those married at twenty to twenty-four, and are also more relatively sterile so far as delay of childbearing shows this quality, then, if the marriages of the very young—that is, of those under twenty—had been delayed till the next quinquennaid, they would in greater numbers have shown fertility and shown it also more quickly. Now, as the only difference known between those of twenty to twenty-four and those younger is age at marriage, we may reasonably conclude that premature marriage was the cause of the sterility. There may be some analogous injurious influence of too long delayed marriage upon the elderly, and the delay of commencing childbearing may point to it; but we cannot say of them, as we do of the youngest married, that if they had still further delayed marriage they would have had more chance of being mothers! Some further reference to this evil influence of marriage, and attempt at explanation, will be found in the discussion on sexual pleasure.

I might here adduce evidence of the influence of age which is found in the weight and length of the children produced, the length and weight rising with the age of the mother to its climax in the children born to mothers between the ages of twenty and twenty-nine inclusive, and then again falling as the age of the mother increases above twenty-nine. This is a matter tested by too delicate variations of length and weight to be, as yet, quite relied on, and great authorities have indeed contested its truth, Hecker, for instance, alleging that the measurements increase with the age of the mother in a direct sort of proportion. But I have Aristotle on my side. "Premature conjunctions," says he, "produce imperfect offspring, females rather than males, and these feeble in make and short in stature. That this happens in the human race," he adds, "as well as other animals, is visible in the puny inhabitants of countries where early marriages prevail." The general tenor of the evidence is, indeed, very strong, in showing a concurrence of sterility, monstrosity, feebleness, and smallness, and on that account I still hold that diminished length and weight of children accom-

pany the diminished fertility of the premature and post-mature women.

It is matter of regret that we can present no demonstration of the influence of age on fecundity founded on the frequency of abortions and of ill-formed children. But we approach near to such evidence, and may guess what it would yield when we present the facts, scanty though they be, as to

TABLE XII.

Showing the Mortality of Children Born in Marriages formed at Different Ages.

Years elapsed since birth of first child.	Mortality per cent. of the children born to marriages formed at ages—			
	16-20	21-25	26-30	31-35
10	36·87	37·09	37·89	35·48
20	47·44	43·10	44·36	16·67
30	53·03	43·89	48·53	64·29
40	63·12	57·14	68·00	50·00

rearing of children and as to idiocy. Table XII., derived from the data obtained by the Statistical Society in St. George's-in-the-East, is the only body of facts as to the rearing of children born of mothers at different ages that I know of. It shows a diminished amount of rearing of children of the sterile ages. The sterility or weakness of reproduction by mothers of sixteen to twenty years of age is shown by the failures in rearing, and increased failures in rearing appear again as the sterile ages above twenty-five are entered on, the failures to rear increasing with the age of the mothers just as sterility increases at the same ages.

We suppose that, from the time of their birth, the children of these observations were tended with the same care or desire of the mothers to act fairly by them; and that we must look to some cause of the failure to rear in the reproductive arrangements. Now, here we include the nourishment of the child among the reproductive processes, while in our other studies of sterility we stop at its birth, or, if we proceed further, we consider only conditions presumably already established or commenced at the time of birth, such as idiocy. The child is naturally fed upon its mother's milk and the feeding is an extra-uterine continuation of the previously otherwise conducted nutrition of the foetus. Nursing is part of the reproductive process. The failure to rear may be a result of imperfection of the foetus, now a child, or it may be the result of the imperfection of the mother as a nurse. I know no method of disentangling the results of these two causes, but the potency of imperfect nursing is undoubted. It is a universally recognized rule in the selection of wet nurses that very young or elderly mothers are to be avoided.

Imbeciles and idiots may be so from original or innate causes, sometimes called developmental, or from injury or other accidental causes. The undoubted frequency of accidents at birth or other injuries as causing imbecility and idiocy introduces an element which should be subtracted with a view to the ascertainment of the influence of the mother's age in the production of the mental weakness; but, although in individual cases the two kinds, the developmental and accidental, may with much assurance be distinguished, I know no way of doing so in the statistics to be adduced. Authors on this subject, especially Little, attach great importance to the resuscitation of the still-born as an accidental cause of idiocy, and it may

be so; but I am disposed to attribute the necessity for resuscitation partly to the feebleness of the imbecile child produced. Among Langdon Down's 2,000 cases, 400, or 20 per cent., were born in a state of suspended animation, and 40 per cent. of these 400 were first children. At all events, it will not be disputed that the great majority of idiots and imbeciles are so from innate or developmental, not accidental, causes acting during or after birth.

Among Mitchell's 443 idiots and imbeciles 138 were first-born; among Wilbar's 675 there were 191 first born; among 100 of Beach's, 20; among 2,000 of Down's, 480. Or among 3,218, 829, or about 26 per cent., were first born, and presumptively born of young mothers.

"Among 443 idiots and imbeciles consecutively examined," says Mitchell, "I found 138 first born, or 31·1 per cent.; and 89 last born, or 20·1 per cent. When it was known, however, that almost every sixth idiot in Scotland was illegitimate (663 idiots and imbeciles, giving 108 illegitimate, or 17·1 per cent.), it was thought that an element of disturbance was probably thus introduced into the foregoing figures which might affect their value. The great majority of illegitimate children are known to be first-born and only children; while not a few of them are last born, though the last of a small number of pregnancies—say of two or three. It was therefore thought desirable that a fresh series of observations should be made, excluding the illegitimate, and dealing only with those born in marriage. It was also thought well to confine these observations to those cases in which not more than one idiot occurred in a family, and in which the idiocy was noticed very soon after birth—that is, in which it was probably congenital. Further, no cases were accepted but those in which the mothers at the time of the inquiry had passed the age of childbearing, though some of them, I think, were widows before that age was reached. All these restrictions made it difficult to obtain a large series of observations, and account for their number not exceeding 85—44 males and 41 females. I sent my results in detail to Dr. Matthews Duncan, who kindly drew up for me the two tables embodying the facts in a way

TABLE XIII. (from Arthur Mitchell.)

Showing the Comparative Frequency of Births of Idiots, and of all Births, in First and Subsequent Pregnancies.

Number of pregnancy.	Percentage of all births.	Percentage of idiot births.
First.....	22·8	33·0
Second.....	17·7	18·8
Third.....	15·5	17·6
Fourth.....	12·1	2·4
Fifth.....	9·4	2·4
Sixth.....	7·4	2·4
Seventh.....	5·2	7·0
Eighth.....	3·9	3·5
Ninth.....	2·6	2·4
Tenth.....	1·3	7·0
Eleventh.....	·9	3·5

which makes their teaching apparent." (See Table XIII.) "This table is read in this way: Of all the children born in Edinburgh and Glasgow in 1855, 22·8 per cent. were first pregnancies; while of the 85 idiots, 33 per cent. were first pregnancies, and so on. What the table appears to teach is briefly this—that idiocy is more likely to occur among first and latest (seventh to eleventh) pregnancies than among others. This is substantially the same thing as was taught by the first inquiry, which included 443 cases, and in which all that

was asked was whether the patient was first born or last born."

Similar evidence is derivable from the data given by Langdon Down, but in regard to them we have not the same assurance of the circumstances of the collections as is given by Mitchell in regard to his. Down's data are given in Table XIV.

TABLE XIV. (from Langdon Down.)

Showing the Comparative Frequency of Births of Idiots, and of all Births, in First and Subsequent Pregnancies.

Number of pregnancy.	Percentage of all births.	Percentage of idiot births.
First.....	22·8	24
Second.....	17·7	14
Fourth.....	12·1	9
Fifth.....	9·4	5
Sixth.....	7·4	7
Seventh.....	5·2	10
Eighth.....	3·9	2
Ninth.....	2·6	9
Tenth.....	1·3	2
Eleventh.....	·9	2
Twelfth.....	·4	1
Thirteenth.....	·2	3
Fourteenth.....	·06	1

Fortunately Mitchell gives the age of the mother at the time of the birth of the idiot, and the result is very striking. Down does not give the age of the mother in his collection, but considering the excess of primiparity and the very large proportional number of pregnancies of high figure among them, we can have no doubt they would yield a like result.

"The same eighty-five cases," continues Mitchell, "are used in Table XV, which were used in Table XIII. This table is read thus:—Of all the children born in Edinburgh and Glasgow in 1855, 22·6 per cent. were born of mothers whose ages were from twenty to twenty-four years, while of the eighty-five idiots 25·8 per cent. were born of mothers of corresponding ages, and so on. What we learn from the table is this: that mothers under twenty-four years of age and above thirty-five are those more specially liable to have idiocy in their children."

Several times I have been told by men of experience that an old bitch often ends her career of breeding by a dead and premature pup. Whitehead regards those pregnancies which occur near the termination of the fruitful period in women as being the most commonly unsuccessful, and Arthur Mitchell has connected the occurrence of idiocy in a child to the circumstance of its being the last born of its mother. "That in the mother," he remarks, "which leads to the miscarriage may lead also to the idiocy, and the only connection may be one through a common cause. It frequently happens," he adds, "that between the birth of the idiot and that of the child which precedes or follows, an interval occurs which is much longer than usual, or that after the birth of the idiot permanent sterility appears. Again, when the idiot is born eighteen or twenty-four months after the preceding child, but when for six or seven years thereafter no impregnation occurs, he thought there was reason to suspect that the imperfection in reproductive power, which showed itself in the idiot, had merely another and fuller expression in the subsequent barrenness. And so also when permanent sterility follows. In many cases indications of barrenness preceded the birth of the idiot, and became permanent thereafter."

We have alluded to prevalent opinions that the last born of a woman is specially liable to be a miscarriage, or a weak child, or an idiot, and

female rather than male, and have shown that these opinions have considerable support from facts. We have also spoken of the only-child sterility, the mothers being in Ansell's collection at the high mean age of thirty-one. Now, in addition, there is some, though imperfect, evidence that such children, especially if female, are not merely illustrations of one-child fertility or only-child sterility, but are also the last of their race. They represent a family's last effort at continuation of its line. Girls in such a position are often heiresses, though not certainly single children, and this circumstance has enabled Galton to

"I find that among the wives of peers, 100 who are heiresses have 208 sons and 206 daughters, 100 who are not heiresses have 336 sons and 284 daughters. The latter shows how exceedingly precarious must be the line of a descent from an heiress. One-fifth of the heiresses have no male children at all; a full third have not more than one child; three-fifths have not more than two."

In Galton's statement of the actual infertility of heiresses there is observable a remarkable comparative paucity of male issue—a fact which goes, like many others, to confirm the ancient and still

TABLE XV. (from Arthur Mitchell.)

Showing a Comparative Percentage of the Children Born at Different Ages of Mothers to all Children Born, and of the Idiots Born at Different Ages of Mothers to all Idiots Born.

Age.....	20-24	25-29	30-34	35-39	40-44	45-49
Percentage of all children...	22·62	39·99	23·61	14·76	5·15	0·58
Percentage of idiots.....	25·88	25·88	10·68	10·58	23·53	3·53

follow up their history and to show their infertility. I know several remarkable cases of single children of this kind, feeble, rich, childless, the last of their race; but a collection of cases forms stronger evidence than any scattered good examples. Speaking of marriages of heiresses as peculiarly unprolific, Galton remarks: "We might, indeed, have expected that an heiress, who is the sole issue of a marriage, would not be so fertile as a woman who has many brothers and sisters. Comparative infertility," he adds, "must be hereditary in the same way as other physical attributes, and I am assured it is so in the case of the domestic animals." In addition to other strong evidence of the same kind, Galton found in a partial search through the peerage, a total of fourteen heiress-marriages among seventy peers, resulting, he says, in eight instances of absolute sterility, and in two instances of only one son. "I tried the question from another side," he continues, "by taking the marriages of the last peers and comparing the numbers of the children when the mother was an heiress with those when she was not. I took precautions to exclude from the latter all cases where the mother was a co-heiress, or the father an only son. Also, since heiresses are not so very common, I sometimes went back two or three generations for an instance of an heiress marriage. In this way I took fifty cases of each. I give them below, having first doubled the actual results, in order to turn them into percentages:—

TABLE XVI. (from Galton.)

Showing the Infertility of Heiresses.

Number of sons to each marriage.	One hundred marriages of each description.	
	Number of cases in which the mother was an heiress.	Number of cases in which the mother was not an heiress.
0	22	2
1	16	10
2	22	14
3	22	34
4	10	20
5	6	8
6	2	8
7	0	4
Above	0	0
—	100	100

prevalent opinion that relative sterility or weakness of reproductive energy tends to the production of females rather than males. This department of the study of sterility I shall not enter on, the causes of the excess of females over males in all births being the subject of an extensive literature, and its relations being too numerous and complicated for advantageous discussion in this place. But I may state that I have long been impressed with a belief, in accordance with the chief pertinent facts, that the excess of female births is due to the prevalence of a degree of weakness of reproductive energy. Excess of female births is coincident with other evidences of sterility.

We have already given reason for believing that when a woman bears above ten of a family she shows an unnatural or excessive amount of fertility; and this belief is corroborated by the demonstration we now propose to give that excessive families occur chiefly in women who are married in the sterile age, or ages of weak reproductive energy characterized by absolute sterility and by morbid production, whether abortive, premature, or mature. At present we only consider the production of mature children, and we find the unnatural intensity of fertility in the young shown by absolutely large number, that is, above ten; while in the elderly it is shown by rapidity of births or intensity of fertility, so long as it lasts; and we may here remark that it has been elsewhere proved that for such women as begin childbearing late in life, there is a prolongation of the period of fertility beyond the average age of ceasing to bear, not a prolongation, as estimated from beginning to end, of actual childbearing.

That the fertile younger are more fertile than the fertile older is shown by the following table of data derived from St. George's-in-the-East. That the younger fertile have a longer perseverance in

TABLE XVII.

Showing the Fertility of Mothers Married at Different Ages.

Years elapsed since birth of first child.	Average number of children to each marriage formed at ages—			
	16-20	21-25	26-30	31-35
10	5·05	4·51	4·42	3·44
20	7·68	7·01	6·43	3·00
30	8·41	7·89	6·80	7·00
40	10·85	8·24	5·00	4·00

fertility than the fertile older is shown by Table XVIII., derived from my work on Fecundity. That the unnatural intensity of fertility in women bearing large families begins with the commencement of childbearing is shown by Table XIX. from Ansell, which demonstrates the rapidity, only up to the birth of the third child, in families of various numbers. Up to the third birth the rapidity is twice as great in families of sixteen or more as in families not above three, and it is easily counted that while the small families came slowly, and the excessive families quickly, the families from seven

greater intensity than that of women married and beginning to childbear at the best ages. (See Table XX.) The table reads thus: To take the second row of figures—Fertile women five years married and under ten have, if they are now from fifteen to nineteen years of age, 2.5 children; if now from twenty to twenty-four years of age, 3.19 children; if now from twenty-five to twenty-nine years of age, 3.75 children and so on.

Multiparity is a term already well recognized as implying that the subjects of it have had two or more pregnancies and births; but a woman may

TABLE XVIII.

Showing the Amount of Continuance in Fertility of Wives Married at Various Ages, as shown within Twelve Months.

Age of mother at marriage.....	15-19	20-24	25-29	30-34	35-39	Total.
The number childbearing in the fifth year of married life is 1 in.....	2.6	2.7	4.1	4.9	10.5	3.2
The number childbearing in the tenth year of married life is 1 in.....	3.2	4.0	5.9	8.7	—	4.4
The number childbearing in the fifteenth year of married life is 1 in.....	4.6	6.8	18.2	37.4	—	8.0
The number childbearing in the twentieth year of married life is 1 in.....	8.5	14.6	129.8	—	—	16.3
The number childbearing in the twenty-fifth year of married life is 1 in.....	68.0	480.5	—	—	—	171.0

TABLE XIX. (from Ansell.)

Showing Intensity of Fertility in Mothers of Families of Different Numbers.

In families consisting of the undermentioned numbers of children.	Interval between the marriage of the parents and the birth of the—		
	First child.	Second child.	Third child.
	Years.	Years.	Years.
1, 2, or 3	1.78	4.84	7.38
4, 5, or 6	1.37	3.32	5.49
7, 8, or 9	1.18	2.82	4.68
10, 11, or 12	1.05	2.54	4.15
13, 14, or 15	1.06	2.40	3.81
16 or more	0.96	2.15	3.47

TABLE XX.

Showing the Intensity of Fertility in Wives Mothers of Different Ages.

Duration of marriage.	Mother's age.						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Under five years.....	1.128	1.519	1.825	1.844	1.827	1.698	1.200
Five years and under ten.....	2.500	3.190	3.750	4.048	4.085	3.792	4.000
Ten years and under fifteen.....	—	5.333	5.453	5.903	6.197	5.964	6.500
Fifteen years and under twenty.....	—	—	6.000	—	7.914	7.993	8.435
Twenty years and under twenty-five....	—	—	—	7.000	9.396	9.718	10.528
Twenty-five years and under thirty.....	—	—	—	—	—	12.368	13.600
Thirty years.....	—	—	—	—	—	—	13.000

to twelve came nearly at the average rate of one every eighteen months. That the unnatural rapidity of childbearing in excessive families continues throughout childbearing life is shown clearly by Tables IV. and V. In my table the quickest childbearing is every ten months, the family being nineteen in number. In Ansell's table the quickest is every fifteen months, the family being eighteen.

Lastly we show, by a table framed from the Edinburgh and Glasgow data, that the wives beginning fertility at advanced periods of life have an unnatural intensity of fertility while it lasts, a

bring forth two or more children at once, and to this condition we apply the term pluriparity. The most common degree of pluriparity is the production of twins, these occurring about once in every eighty pregnancies. Triplets and higher numbers are very much rarer, and the rarity increases with the number.

Chiari, Braun, and Spaeth have given good evidence that abortions are comparatively more frequent in plural than in ordinary pregnancies. McOlintock, founding on large experience, shows that hydramnios is also common. Acephalous monsters are found only in plural pregnancies. Monstros-

ities of all kinds are commoner in plural than in ordinary pregnancies. There are more dead-born children in plural pregnancies. The children born alive in plural pregnancies are more difficult to rear. "The proportion," says Ansell, "of infants that are stillborn or die soon after birth is, in the case of males nearly five times, and in the case of females nearly four times, greater in multiple than in single births."

Subsequently we shall adduce evidence that pluriparity is specially associated with idiocy and imbecility of the children, and that it specially affects the sterile ages, or ages of weakness of reproduction. Excessive family, that is, above ten in number, specially affects the same ages and is dangerous to the lives and injurious to the health of both mothers and children. Both have therefore an alliance with sterility.

In a case of quintuplets the mother's age was forty and the pregnancy the tenth. In 7 cases of quadruplets the age of the mother was given in 6, and the mean is twenty-seven; the number of pregnancy was given in 6, and the mean is nearly three. The ages were nineteen and twenty with first pregnancies; twenty-five with third pregnancy; thirty with number of pregnancy not stated; thirty-two with a fifth pregnancy, and thirty-five with a fourth pregnancy. In one case of second pregnancy the age of the mother was not given. From a great variety of sources I have collected 43 cases

leads us to regard twinning in the human species as a departure from the physiological rule, and therefore injurious to all concerned. 5. When we pass from twins to triplets and quadruplets, everything we know regarding these latter gives support to the general conclusions in question."

Besides these accumulated dangers and disasters to the children produced in pleural pregnancies we know that pleural pregnancy is dangerous and disastrous to the mothers. The trivial and the graver disorders of pregnancy are more common in pluriparous than in uniparous women, and the disasters and deaths in childbirth and in childbed are also more numerous in the pluriparous than in the uniparous. Nothing can be better demonstrated than that woman is naturally or normally uniparous, and that pluriparity is an unnatural or abnormal condition connected with sterility by being observed in the sterile ages, or ages of weakness, or imperfection of reproductive power. It does not imply the desirable productiveness of health and vigor, but the reverse.

Pluriparity in a population, then, is not an indication that its social condition is as it should be. It shows, according to its amount, that marriages take place too early or too late in life; and it may be predicated of such a population that it has a correspondingly large maternal and infantile mortality, and that the reared children are not of the finest. While woman is normally or physiologi-

TABLE XXI.

Showing the Ages of Mothers in Forty Cases of Triplets.

	Age of mother.																		
	19.	20.	23.	24.	25.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	38.	44.	
Number of cases..	1	3	1	2	4	2	2	1	6	1	1	1	1	6	2	2	3	4	

TABLE XXII.

Showing the Number of Pregnancy in Forty-one Cases of Triplets.

Number of pregnancy.....	1	2	3	4	5	6	7	8	10	11	12
Number of triplets.....	8	8	12	2	2	2	3	1	1	1	1

of triplets (and of these I give in the subjoined tables some account). (See Table XXI.) In 40 cases the age of the mother is given, and the mean is thirty. In 41 cases the number of the pregnancy is given, and the mean is four. (See Table XXII.) It is naturally expected that our best evidence should be derived from twins, but while this is really so we have, even in these cases, to deplore the inadequacy of the data in point of number. I have not at present sufficient time at my disposal to enter into the details of the production of twins, and for these I refer you to my work on Fecundity. It is there shown that the frequency of twins increases with the age of the mother and with the number of the pregnancy, the very early ages of the mothers and the first pregnancy forming exceptions to the rule.

In a paper by Arthur Mitchell, published in the *Medical Times and Gazette* (Nov. 15th, 1862), he shows that twins are peculiarly liable to be imbeciles or idiots. The conclusions of Mitchell's paper are so pertinent to the present subject that I quote them here at length. "1. Among imbeciles and idiots a much larger proportion is actually found to be twin-born than among the general community. 2. Among the relatives of imbeciles and idiots twinning is also found to be very frequent. 3. In families, when twinning is frequent, bodily deformities [of defect and of excess] likewise occur with frequency. 4. The whole history of twin births is exceptional, indicates imperfect development and feeble organization in the product, and

cally uniparous, like the mare and cow, many of the other domestic animals are normally or physiologically pluriparous, as the dog, the rabbit, and the sow; and the fertility of most birds is a sort of pluriparity.

In the uniparous animals pluriparity is rare in various degrees in the different kinds; but the extreme rarity in some, as in the mare, may to some extent depend on the circumstance that, in general, only the finest specimens at the most suitable ages are allowed to exhibit their fertility. Little, indeed, is known about them with the exactness desiderated with a view to comparison with woman. Yet we may safely assert that, among breeders of horses and cattle, the production of twins is, with a view to their interest in both mother and offspring, not looked upon with favor. In the sheep there is such a frequency of twins, and even of triplets, that there may be some hesitation in classing it with uniparous mammals.

In the pluriparous animals, on the other hand, uniparity is uncommon, and pauciparity is an indication of reproductive weakness or imperfection, while a just degree of pluriparity is natural or physiological. It is remarked, says Spencer, by Buffon that when a sow of less than a year old has young, the number of the litter is small, and its members are feeble and even imperfect.

The domestic hen, in its fertile career, admirably illustrates the rise and decline of pluriparity, and the variations are in accord with the great law of age which holds good in women and in all

living beings. Its first and its last productions are small in size, and are believed to be peculiarly liable to be addled or without yolk, or to be otherwise incapable of being hatched. In its first year, according to Geyelin, it produces only 15 or 20 eggs; in its second, 100 or more, up to 120; in its third year, from 120 to 135, and here the climax of fertility is reached; in its fourth year it produces from 100 to 115; in its fifth, from 60 to 80; in its sixth, from 50 to 60; in its seventh, from 35 to 40; in its eighth, from 15 to 20; in its ninth, from 1 to 10. The fertility rises quickly to its summum in the third year of life, and more slowly fades to its disappearance in the tenth year of life.

In like manner the bitch and pig begin their fertile course with a small number, which year by year rapidly increases; and after a few years, whose number I cannot give, again decreases, till fecundity disappears, the last production being often a premature or a dead foetus. The pluriparous animal has its best young when its progeny is most numerous. The best young may be so described, as in pups, on account of their intelligence, docility, or special talents; or they may, as in a litter of pigs, be best because they are large and easily made to grow to great bulk or weight. In the case of the bitch, it is impossible to reduce to an exact statement the value of pluriparity, but it is no doubt, very great; and while it is the case that when most in number are produced, there is also most in weight; the statement of weight of the pups gives no idea of their value. In a litter of pigs, the value of pluriparity is a simple matter, being estimated almost entirely by weight and capability of rapid growth; and both may be very well stated in figures.

The uniparous mare has a foal which may be valued partly for bulk, especially if it is to do rough, heavy work; but the bulk of a foal bred in the racing stud is a matter of comparatively little moment; and I daresay all will agree that the nobler the breed of horses, or the higher the qualities expected in them, so is bulk in the foal of less and less importance, and so also is pluriparity less and less desirable.

We have already used estimates of weight and length of single children as indications of fertility in woman; and if weight and length of twins were a test of paramount import, then twinning would, correspondingly, connote fertility, as 12 lb. exceeds 6½ lb. or 7 lb. But there are higher qualities than the combined weights and lengths, and it is these higher qualities that are deficient in twins. Weight and length are valued merely as indications of general health and full development of individuals, not of twins.

Pluriparity in uniparous animals is rare, and for its study great accumulation of instances is required; and knowledge regarding it in these animals is tardily gained. Pluriparity in some common domestic animals is an every-day matter; and without any deliberate study its variations strike even the obtuse, a class often specially sensible of the pecuniary advantages of the higher degrees of pluriparity. It is the striking characters and advantages of high degrees of pluriparity in pluriparous animals that have led to the general adoption of the erroneous opinion that pluriparity even in the uniparous animals, as in woman, is an unqualified sign of fertility. In pluriparous animals, especially in the common hen, the quick rise and more gradual decline of fecundity is plainly observed, the climax in the hen, as in other pluriparous animals, being marked by the highest number of annual production or in a single brood or litter. In woman there is the same kind of variation, but in her it is a decline from occasional

pluriparity to the production with due intervals of the best kind of single births; and the rise is back again to occasional pluriparity and hurry of births one after another.

In the common hen the rise to the climax occupies three years of life, and the more gradual decline occupies six years, according to Geyelin's data, already given. In woman the decline to the lowest, if we count roughly, from fifteen to twenty-five years of age, occupies ten years and the more gradual rise, from twenty-five to forty-five, occupies twenty years. In the hen the rise is from 15 to 135, and the decline from 135 to 1. In woman the decline is from about 1.02 to 1, and the rise again to about 1.02. There can be little doubt that a similar rise and fall, or fall and rise, are to be found in the history of the fertility of other living things. The curve of this climax and anti-climax is not a part of a circle. Dr. Houth, in a valuable paper on "Procreative Power," published in the *London Journal of Medicine* for 1850, describes this curve, representing what he calls the inclination of procreative power, and thinks the circle is perhaps the nearest that could be selected; but the circle cannot be made to represent the figures on which he relies. He makes the age of greatest fecundity in woman twenty-six; and the climax and anti-climax may be partially indicated by the following figures, which he gives:—At fifteen years of age the figure is 22; at twenty it is 82; at twenty-six it is 100; at thirty it is 92; at thirty-five it is 74; at forty it is 54; at forty-five it is 39.

In leaving the subject of twins, it is natural to refer to malformations and monstrosities as showing weakness or disorder of the reproductive powers, but on this point I have no good detailed evidence to adduce meantime. Yet it is well known that a great body of opinion is in favor of the view, and there are many facts pointing in the same direction. In the course of these Lectures I have frequently mentioned such opinions and facts, but the subject is well worthy of special study. Here I would only refer to the frequent combinations of idiocy and malformation, of idiocy and twins, of idiocy and premature or post-mature maternity, of malformation and twins, of interbreeding and malformation, of interbreeding and sterility, as combining to form an argument that may, if worked out, be found to be conclusive on this question.

Experiments in producing malformations and monstrosities in the common fowl have been very fruitful in results, and demand caution in judgment as to the potency of such influences as age of the mother. Especially interesting in this view is the recent discovery of Dareste that mere delay of incubation, in the case of the eggs of the common fowl, is a cause of malformation in the chick.

Excluding some remarks as to the influence of marriage in causing sterility in woman, we have shown chiefly the influence of age in its production. Marking out by statistical evidence certain ages as peculiarly affected with sterility, we find at these same ages, in a proportion above the average, excessive families, pluriparity, weakly or idiotic children, etc., and not only in exaggerated proportion, but combined one with another. It is therefore reasonable to describe the sterile ages as ages of imperfect reproduction, and to associate or identify with sterility the conditions of excessive production, pluriparity, etc., which are demonstrated to have alliance with it. In other words, sterility, excessive families, and pluriparity are alternatives one of another, and almost certainly own the same general causes.

I know no cause of sterility or of its allies, excessive production, pluriparity, abortion, etc., that can be compared with age in extent and power.

In discussing the cure of sterility, I shall allude to various minor causes which may operate in individual cases, but have no extensive influence. But there are causes which probably have a great place in the production of this condition whose action is only believed, not demonstrated. Such are bad general health, cold, and heat. The influence of bad general health is well observed in plants, but I know no good evidence of it in woman other than the testimony of medical practitioners. The influence of cold and of heat on sterility has been much studied, and attempts have been made to get additional light on the matter by collecting observations of their influence on the age of commencement and cessation of menstruation. The subject divides itself into two portions: first, the influence of cold and heat on women breeding in their native lands; second, the same influence as exerted on women born in cold climates and transported to hot, or born in hot climates and transported to cold. But the data obtained are, in my opinion, quite insufficient for any reasoning being securely based. The hearsay evidence also requires scrutiny. We often hear, for example, of a girl, say of eleven, bearing a child in India, and this is held as proof of early fecundity there. We rarely hear of the same occurrence in this country; and the reason of this alleged greater frequency in India may be not early fecundity there, but earlier exposure of a large number of girls to the risk of becoming pregnant.

There are several important subjects, more or less closely bearing on our inquiry, which I pass by with mention only. Among these is the influence of cold and heat on the commencement and stoppage of menstruation, an influence regarding which it is scarcely, by the statistical evidence, made probable that cold retards the appearance and hastens the stoppage, though many considerations support this view. Another is the generally accredited influence of nursing in delaying the return of menstruation and the recurrence of pregnancy. Regarding these matters Robertson has made valuable remarks, and collected many, though insufficient, observations. The great subject of interbreeding in its production of sterility I also pass over. The evidence regarding it is very bulky, and requires most careful sifting. In plants and animals the demonstration of this injurious influence of interbreeding in producing imperfection of offspring and sterility is copiously illustrated, and may be said to be well made out; but it is not so in the case of man. Yet, in the case of man, there is a most extensive, though not universal, consensus of intelligent opinion that interbreeding has the same general influence as in plants and animals, and to the entertainment of this view the strong analogy of plants and animals lends powerful encouragement. The injurious influence in man, indeed, probably acts after birth, for there is accumulating evidence that peculiar diseases, specially of the eyes, affect, by preference, the offspring of near relations.

"The evil consequences," says Darwin, "of long-continued close interbreeding are not so easily recognized as the good effects from crossing, for the deterioration is gradual. Nevertheless, it is the general opinion of those who have had most experience, especially with animals which propagate quickly that evil does inevitably follow sooner or later, but at different rates with different animals. No doubt a false belief may unduly prevail, like a superstition; yet it is difficult to suppose that so many acute and original observers have all been deceived at the expense of much cost and trouble. The loss of fertility, when it occurs, seems never to be absolute, but only

relative, to animals of the same blood; so that this sterility is, to a certain extent, analogous with that of self-impotent plants which cannot be fertilized by their own pollen, but are perfectly fertile with pollen of any other plant of the same species. The fact of infertility of this peculiar nature being one of the results of long-continued interbreeding, shows that interbreeding does not act merely by combining and augmenting various morbid tendencies common to both parents; for animals with such tendencies, if not at the time actually ill, can generally propagate their kind. Although offspring descended from the nearest blood relations are not necessarily deteriorated in structure, yet some authors believe that they are eminently liable to malformations; and this is not improbable, as everything which lessens the vital powers acts in this manner. Instances of this kind have been recorded in the case of pigs, bloodhounds, and some other animals." "In the case of man," he elsewhere remarks, "the question whether evil follows from close interbreeding will probably never be answered by direct evidence, as he propagates his kind so slowly, and cannot be subjected to experiment; but the almost universal practice of all races at all times of avoiding closely related marriages is an argument of considerable weight, and whatever conclusion we arrive at in regard to the higher animals may be safely extended to man."

Leaving several minor or little known causes of sterility to be mentioned in the next Lecture, I now turn to other matters in its history which throw light on its theory, and there are two worthy of great consideration. These are the well-known association of dysmenorrhœa with sterility, and the state of sexual appetite and sexual pleasure in sterile women.

Menstruation, when natural or healthy, is attended with no pain, and with little or no disturbance of general health. When there is pain or considerable disturbance of health, the condition is called dysmenorrhœa, and it is plain that the term covers a wide and ill-defined field of disorder and disease. It is with dysmenorrhœa, as thus vaguely defined, that sterility is prevalently believed to be very frequently associated; and there can, in my opinion, be no doubt of the truth of the general belief.

There is a kind of dysmenorrhœa, regarding which I would enter into more details. It is called spasmodic, being regarded as a neurosis characterized by painful uterine spasms, which may be described as having no known object in view. It is often called mechanical or obstructive, terms implying a theory of its cause and implying also that the spasms are, so to speak, intended for the expulsion of the menstrual fluid accumulating in the uterine cavity and distending it. There is no good evidence of the mechanical obstruction, nor of the accumulation of menstrual fluid, nor of the dilatation of the uterine cavity, nor of the use of the painful uterine contractions; and as all admit the presence of these contractions or painful spasms, I shall call this kind of dysmenorrhœa spasmodic. It is a kind of dysmenorrhœa that is gradually, and I think justly, restricting to itself alone this term—the only real, positive, recognizable uterine dysmenorrhœa, or the dysmenorrhœa proper.

It is of this dysmenorrhœa proper that I am now to speak, and it is known by the following characters. It may occur at any time during the flow of menses, sometimes even before it begins; and, in cases of amenorrhœa, it may occur at the time of the menstrual molimen. In the very great majority of cases it occurs on the first or second day of the flow, and it is generally severer when

the flow is scanty than when it is copious. The pain is constant or in pangs; and the pangs may be more or less distinct—in other words, the intermissions of the pain may be more or less complete. The frequency of the pangs varies, five to ten in an hour being common. The pain is rarely accompanied by bearing down, strangury, or tenesmus. It varies in severity, rising occasionally to the intensest agony, with cold sweats, vomiting, and other symptoms of prostration or collapse. Suffering from it the patient rolls about and groans, and the restlessness is not that of fever, but of griping pain. It may last only a few minutes, but generally it goes on for hours, the number of hours rarely exceeding four or five. It rarely returns during the current menstrual period. It is generally aggravated by marriage. In women who suffer from this disease there is a super-sensitive condition of the interior of the body of the uterus, and, I think, especially of the internal os uteri, this condition being tested by the contact of a uterine probe or sound.

In making inquiries as to the connection of this dysmenorrhœa proper with sterility, I have frequently, but not always, satisfied myself of the presence of all of these characters. Particularly, I have not classed with this dysmenorrhœa any case in which the severe pain lasted more than a day. In all inquiries as to pain, there is, owing to the indefiniteness of language and the tendency of patients to exaggerate or make light of their troubles, extreme insecurity of statistical statements. I have tried to avoid being misled in 332 cases which I have, during the last five years, taken down in my notes. These 332 cases were all absolutely sterile—that is, all women who had had an abortion or a child are excluded. Of these 332 married women 159 suffered from spasmodic dysmenorrhœa, or nearly half. It is a most grave fault in my argument that I unfortunately cannot give the frequency of dysmenorrhœa among the fertile. But I can meantime only declare the importance of the omission and express my belief, in accord with universal professional opinion, that among the fertile dysmenorrhœa is comparatively uncommon. The connection of a neurosis of this kind with sterility cannot be unimportant, and I cannot leave the subject without expressing my belief of the association of it with abortion and miscarriage also.

Other mutually allied neurotic conditions demand full consideration—namely, sexual appetite or desire and sexual pleasure or satisfaction of the appetite by coitus. In investigating the matter great difficulties are met with from the delicate nature of the inquiry, the difficulty of making sure that the patient understands clearly what is the question to be answered, and the impossibility of finding words of well-defined meaning, or of the same meaning in different mouths. But these difficulties are not insuperable, and error is lessened by relying on a large number of concurring observations.

Sexual desire and pleasure have to be considered separately, because, though they are naturally found combined in the same case, they are far from being invariably so. A woman, with healthy sexual organs, may have sexual desire and no pleasure, or even the reverse, and she may have no desire and yet have pleasure. Although pregnancy and childbearing are natural consequences of sexual desire and pleasure, there is little or no connection between the latter and the wish to bear children. The desire for offspring may be intense, while there is neither desire nor pleasure, and the desire to avoid pregnancy may be intense while there is desire and pleasure. Desire and pleasure may be excessive, furious, overpowering, without bringing the female into the class of maniacs.

They may be temporary, healthy, and moderate; they may be absent or null. Instead of sexual desire there may be sexual aversion; and instead of sexual pleasure there may be only feelings of disturbance or pain. Instead of sexual desire there may be intense sexual antipathy, and instead of sexual pleasure there may be severe suffering, even agony in coitus.

The variations of desire are chiefly on the positive side, greater or less. Desire may be absent. From the zero or indifferent condition there is, however, not rarely observed a rise into aversion or antipathy, and this, in married women, without any feeling regarding the husband other than affectionate. It is well known that desire may be fostered at special times by various stimulants of passion; but, apart from such occasions, it may be increased or diminished or annihilated. This is a general belief, and I have frequently had spontaneous testimony of individuals to the same effect. The influence of society and its amusements, of diet, of special kinds of reading, of association with males, is well known and recognized in the increase of sexual desire; and the influence of the opposite conditions, of a truly ascetic life, is equally certain. Desire may, during the child-bearing period of life, undergo great changes without any apparent cause; at one time, and it may be for years, being positive, at another time absent or negative.

Sexual pleasure must not be regarded as in all respects like sexual desire, and requires separate description. Its variations are chiefly on the positive side. It may be absent. Its variations on the negative side are, however, most remarkable. There may be slight or very great suffering, or the intensest agony; and this is often accompanied by more or less active involuntary local sphincteric resistance to penetration, called vaginismus. But the words pain and agony are here used in a quite extraordinary and misleading way. There is no pain, such as that of the infliction of a wound or contusion, or that of toothache or neuralgia. There may indeed be, in cases of diseased sexual organs, common pain of the kinds mentioned, caused by sexual congress, but of such pain we are not here speaking.

All kinds of pain or discomfort in coitus are often, nowadays, classed as dyspareunia, but I think the word may be well restricted to the condition I am describing; or the condition may be called simple dyspareunia, and there is no common pain in simple dyspareunia. It has an analogue in disgust, but dyspareunia rises to far higher degrees than disgust. As sexual pleasure rises in intensity above all other kinds of pleasure, so dyspareunia reaches degrees exceeding those of the intensest disgust. The disgust of a child is often painfully intense, its resistance to tasting and swallowing involuntary and powerful, and often followed by vomiting the matter whether tasted or not, and as all this is not common pain in tasting and swallowing, so dyspareunia is not pain in sexual connection. Sexual pleasure and dyspareunia differ from gustatory pleasure and disgust in this, that while the former are one in kind and in all degrees excited by the same cause, the latter are various in kind, and elicited by different substances in each case. Pleasure, then, may vary from the intensest to mere indifference; and simple dyspareunia may rise from mere indifference to the highest degree, with sphincteric resistance to penetration, opisthotonos, and a state almost of insensibility.

Pleasure is probably not directly increased by the causes of increase of desire, but the increase of desire is probably a cause of increase of pleasure, as hunger enhances the pleasures of taste. Pleasure

is increased by continence and diminished, or annulled, or converted into slight dyspareunia by over-indulgence. Sexual pleasure may vary without apparent cause, disappearing for short periods or for years, and reappearing with the same appearance of caprice. Pleasure is frequently absent at marriage, and gradually developed during the continuance of that state. If it is slight at marriage, then coitus will be painful, the common and not simple dyspareunic pain overpowering the pleasure and preventing it.

Describing the lower animals in this respect, we guess by aid of analogy, but the analogy is so strong as to endow the guess with a high degree of assurance, reaching nearly to certainty. We may be sure that animals, generally, feel sexual desire, and that this sexual desire occurs normally or naturally only in connection with fecundity. In many domestic, or otherwise well-known, animals there is sexual desire only in the rutting season, and at other times not only an absence of sexual desire, but a positive sexual antipathy. A bitch not in heat will angrily resist any attempt at sexual approach by the male, while quite ready for any other kind of play. Of sexual pleasure in female lower animals we know very little, but we may be sure it exists. Of its existence in males we have abundant evidence, and we may thence argue that it exists in females. Nothing is commoner in dogs than what may be called masturbation. This kind of sexual pleasure is generally believed to be increased by confinement, and the evidence afforded by zoological collections is held to be good.

I know nothing regarding the connection of sexual pleasure in animals with fertility or sterility, but we have the testimony of Darwin to the presence, in animals that are confined, of sexual desire, sometimes in excessive degree; sexual indulgence being held as evidence of sexual desire; and the sexual excess is often connected with sterility. "Monkeys" says he, in the Nine-Year Report from the Zoological Gardens, "are stated to unite most freely, but during this period, though many individuals were kept, there were only seven births." Elsewhere he says, that "although many of the felidæ breed readily in the Zoological Gardens, yet conception by no means always follows union. In the Nine-Year Report, various species are specified which were observed to couple seventy-three times, and no doubt this must have passed many times unnoticed; yet from the seventy-three unions only fifteen births ensued." In many animals under confinement there is no coupling, and this may be assumed to indicate absence of desire in female as well as male.

It is an almost universal opinion that in woman desire and pleasure are in every case present, or are in every case called forth by the proper stimulants. The opinion is founded on experience, and it is, no doubt, nearly true; but the exceptions to the rule are numerous and important. It is also a popular opinion that desire and pleasure are essential elements in fecundity, and in cases of rape followed by pregnancy, that consequence has been made ground of defence against the charge. Great authors, among whom is Ambrose Paré, recommend the excitement by dalliance of great desire, as a remedy of sterility.

I think it is very nearly certain that desire and pleasure in due or moderate degree are very important aids to, or predisposing causes of, fecundity, not on account of their own proper attractiveness, but on account of some connection between them and the perfection of other parts of the complicated proceedings which result in fecundation. But this is only a firmly held opinion, for I can give no conclusive evidence or proof of it; and this absence of proof diminishes greatly the value of my

observations on the absence of desire and pleasure in the sterile. The want most acutely felt here is a knowledge of the state, in this respect, of the fertile. In producing evidence as to the sterile, I shall assume that sexual desire and pleasure are very rarely absent in the fertile. Excess of sexual desire is probably unfavorable to fertility. It is recognized chiefly by excessive indulgence in sexual pleasure, and is observed in the weak and ill-conditioned, in imbeciles and idiots, as it is also in animals under confinement. Excessive indulgence in sexual pleasure is also probably unfavorable to fertility, or a cause of sterility; and it probably is specially influential in the young, as it may also be in prostitutes. In these circumstances the births of females are, on good grounds, believed to be far above the ordinary average, in proportion to males.

Masturbation in females is an unnatural and generally excessive indulgence in artificial sexual pleasure. It has always appeared to me to affect especially children and young women of weak mind. I have often been struck by the smallness or imperfect development of the external parts in young women who masturbate, and I have not rarely observed what appeared excessively high development of sexual desire in women who had imperfection or absence of internal genital organs. In one, dissection revealed the presence of ovaries and Fallopian tubes only. Some confirmation of these views may be found in cases such as that of Campbell,¹ in which a woman addicted to masturbation had never menstruated, and had imperfectly developed genital organs; she had, however, also a dermoid cyst of the ovary. Arran² has a case, of what he describes as frightful excess of masturbation, in a young woman dying of phthisis, whose uterus and appendages were found to be very imperfectly developed. Kussmaul³ mentions the concurrence of masturbation and nymphomania with imperfect development of the uterus and the genital organs; and Joulin⁴ refers to a case of Vaddington's where absence of uterus and exaggerated sexual appetite were combined.

Entire absence of desire and pleasure, or of one of them, or the presence of intense sexual antipathy and dyspareunia are not necessarily causes of sterility. It is not at all rare for women to be pregnant and bear healthy children who aver in the distinctest manner not only absence of desire and pleasure, but presence of the opposite conditions. But the following statistics make it highly probable that absence of desire and pleasure and the presence of their opposites are powerful influences favorable to sterility. The statistics do not indicate what was occasionally found—namely, that desire was present while pleasure was absent; or, in other cases, that desire was absent while pleasure was present. The cases observed were all in women absolutely sterile, of whom the great majority consulted me regarding the sterility. Among 191 sterile wives desire was absent in 39, or in about 1 in 4. Among 196 of the same sterile wives pleasure was absent in 62, or in about 1 in 3. The figures show that many sterile wives had desire but no pleasure. They do not show, what nevertheless is true, that some had pleasure who had no desire. (See Table XXIII.)

I have a strong impression, derived from all I know and have observed, which I may express theoretically, that while in healthy normal women there is abundance of sexual or reproductive energy for fertility and all its accompaniments,

¹ Memoir on Extra-uterine Gestation, p. 30.

² Leçons Cliniques sur les Maladies de l'Utérus, p. 89.

³ Von dem Mangel, etc., der Gebärmutter, S. 74.

⁴ Accouchements, p. 138.

in many sterile, or relatively sterile, women, there is deficiency which may be exhibited in one or another, or in all the ordinary evidences of reproductive energy, and that excess or deficiency in one department may be associated with deficiency or excess in another. It would seem that in women of deficient reproductive energy, excess in one department might be compensated by deficiency in another, and *vice versa*, there being only a limited store of the original energy. In illustration, a remarkable class of cases may be cited, which I shall sufficiently describe by stating generally the chief points in one:—A robust healthy woman is married at eighteen; she bears three

clear fluid. Its weight varies much within the limits of health, according to the ratio between the dissolved solids and the water; a specific gravity of 1020 may be taken as the average. Its reaction is decidedly acid, but the amount of its acidity depends on the time of its excretion, especially in relation to food; at times the urine may, for a short period, become neutral, or even alkaline. Healthy human urine consists of water, holding in solution both organic and inorganic principles; the former are, urea, uric, and hippuric acid; the latter, chlorides of different metals, especially sodium, and phosphates of sodium, magnesium, and calcium.

TABLE XXIII.

Case-book Table of Desire and Pleasure in Sterile Women.

Age at marriage.	Number.	Desire.			Pleasure.		
		Present.	Absent.	No note.	Present.	Absent.	No note.
Fifteen to nineteen.....	59	18	4	37	15	8	36
Twenty to twenty-four.....	220	78	18	124	69	27	124
Twenty-five to twenty-nine	134	35	12	87	31	18	85
Thirty to thirty-four.....	59	16	3	40	14	5	40
Thirty-five to thirty-nine...	23	3	1	19	3	3	17
Forty to forty-five.....	9	2	1	6	2	1	6

children and has four miscarriages before she has passed twenty-three years of age. Up to the birth of her last child, and for five years subsequently, she experiences no sexual desire, and has no pleasure. Five years after her last pregnancy she almost suddenly comes to have intense desire and pleasure, but remains sterile for four additional years before she seeks a cure of her sterility. Fertility present, while desire and pleasure are absent: sterility present, while desire and pleasure are present.

Mumleian Lectures

ON

URIC ACID: ITS PHYSIOLOGY AND ITS RELATION TO RENAL CALCULI AND GRAVEL.

Delivered before the Royal College of Physicians,

By A. B. GARROD, M.D., F.R.S., F.R.C.P., etc.,

Consulting Physician to King's College Hospital.

LECTURE II.

MR. PRESIDENT AND GENTLEMEN—Having stated in the former lecture my views as to the production of uric acid in the animal economy, reserving only certain points to be discussed as we proceed, and having shown that the difficulties which beset the theory that the kidneys are nothing more than the strainers-off of this principle are extremely great, if not insuperable, and that therefore there is no little probability that uric acid is a true product of the renal organs themselves, I will direct attention to the subject of human urine, and the alterations which it undergoes under certain conditions, which lead to the production of those morbid formations commonly called gravel and calculi.

Healthy urine, omitting the trace of mucoid matter contained in it, which consists of the débris or washings from the mucous membrane of the urinary tract, it is well known, is a perfectly

It is to uric acid that we must chiefly direct attention; and I must endeavor to show (1) in what state of chemical combination it exists in the urine; (2) why it is held in solution in an acid fluid; (3) what are the causes which lead to its precipitation from the urine; and (4) what are the different shapes which it assumes when it is thus precipitated from its state of solution.

1. At the present day I believe it may be asserted that uric acid, when in solution, is combined chiefly with sodium, but that there are also varying quantities of other bases present, depending on the amounts of different salts contained in the urine. I have already shown that when urate of ammonium is dissolved in blood serum in which the soda salts are present, it is converted into urate of sodium; and, bearing this fact in mind, we can explain the discrepancies which are found in the different analyses of urate deposits, both in health and disease. I may, however, say that the deposit which until recently was commonly called lithate of ammonia is composed almost entirely, in healthy urine, of urate of sodium. If, however, the urine at any time becomes ammoniacal from the decomposition of the contained urea, then the uric acid, meeting with a large excess of the new-formed base, gets deposited as urate of ammonium, a salt which is very insoluble.

2. The next point to be considered is the reason of its existence as urate of sodium in a fluid having such a well-marked acid reaction as healthy urine. This fact was for a long time difficult of explanation; but Liebig showed that if to a warm solution of the common phosphate of sodium, which has an alkaline reaction, uric acid be added till it no longer dissolves, the solution becomes strongly acid, and there is contained in it urate of sodium and the acid phosphate of sodium, which latter salt exhibits a full acid reaction, but does not possess the power of precipitating the uric acid. This phenomenon solely depends on the tribasic character of phosphoric acid, which allows of a solution of phosphates, which reddens litmus powerfully without containing any free acid.

3. When, however, the least trace of a free acid, even acetic, exists in the urine, the whole of the uric acid is rapidly precipitated; a fact of consid-

erable importance in the study of diseased conditions of the urinary excretion. If our attention is directed to the subject, we see, almost daily, that, when urine is kept for a time, perhaps only a few hours, the uric acid, which at first was in complete solution, becomes gradually deposited in the crystalline form—a change due to the generation of a free acid in the urine by the occurrence of what is called the acid fermentation.

4. Our last point is to ascertain what shape the uric acid assumes when it becomes insoluble, and is precipitated from the urine. It may be thrown down either in combination with a base—that is, in the form of a urate, or as free uric acid. When as a urate, it is often from simple concentration, or from the presence of too small a quantity of water in the urine, and it seldom happens that such deposition takes place in the urinary organs themselves unless there is a something present, such as a foreign body or the nucleus of a calculus, which greatly facilitates it. When, however, such urine is removed from the body and cooled down to the temperature of the air, more especially in cold weather, the appearance of turbidity is extremely common, and often becomes, though most unnecessarily, a source of great mental disquiet to patients. When the urine, either concentrated or not, becomes abnormally acid, it at first causes the urate existing in it to be less soluble, but soon afterwards the acid itself is separated and deposited in the crystalline condition, forming what is commonly known by the name of Cayenne pepper gravel. Let us take what may be looked upon as pure uric acid; dissolve it in boiling water, and then allow it to cool and crystallize; it will be found in oblong tabular crystals, which are both homogeneous and transparent. When uric acid crystallizes out from urine, it is more or less colored, from yellow to brown, and in the form of thin rhomboidal prisms, showing that there must exist in the urine something which causes an alteration not merely in the color, but also in the crystalline form.

Dr. Ord, in his work on "The Influence of Colloids upon Crystalline Form and Cohesion," gives the results which he has obtained from the crystallization of uric acid under the influence of urea, coloring matters, mucus, albumen, cane and grape sugar, gum arabic, starch, gelatine, and glycogen. It appears to me that the researches of Dr. Ord and Mr. Rainey are not only valuable, but also seem to throw a ray of light—dim, it is true, at present—upon those phenomena which, as it were, connect true chemical changes with those we are accustomed to look upon as due to the agency of life.

The result of our inquiries, as far as they go, may be summed up in a few words. Perfectly healthy urine should show no appreciable deposit; when, however, it becomes concentrated from deficiency of the watery excretion, then the uric acid is thrown down in the form of a urate. This may occasionally occur within the body, but far more frequently after the urine has been voided; sometimes, however, this change ensues so rapidly that the urine is erroneously supposed to have been passed in that condition. The presence of a solid body in any part of the urinary tract favors deposition very much, and hence urine which would otherwise remain clear may yield a deposit to any substance previously present in the same tract, and may thus add considerably to an already existing calculus. The appearance of the numerous layers so frequently seen around a central nucleus, both in renal and vesical calculi, is thus easily explained. When, however, the urine becomes further altered in composition—if, for example, a free acid is either excreted with the urine or rapidly generated

in it through the setting up of the lactic fermentation, the uric acid becomes liberated from its state of combination, and, in a form more or less altered by the presence of colloid matters, is deposited on a previously existing calculus, or is passed as separate rhomboidal crystals or in aggregated masses, constituting gravel or sand. I should feel disposed to confine the name of "sand" or "gravel" exclusively to such deposits which, I believe, seldom form the nucleus or become the starting-point of any calculus. I may add, that urine possessing these characters is frequently voided for months and years without the occurrence of any appreciable inconvenience to the patient. It is true that a calculus may be augmented by contact with such a urine; but, as I have said, it seldom originates in this way.

According to this view, which I feel inclined to adopt, gravel or sand consists of uric acid previously in a state of solution, which has become precipitated by the occurrence of some change in the urinary excretion.

Some individuals pass a larger daily quantity of uric acid than others; but, at the same time, those who pass the largest quantity may have a urine little disposed to deposit the principle; and it will be found, as a result of experience, that changes in the urinary excretion, leading to the crystallization of its contained uric acid, are much more potent factors in the production of sand or gravel than the mere quantity of this acid which is eliminated. If there is a simultaneous occurrence of the two conditions—that is, of increased quantity of the acid and altered state of the urine—this facilitates still more the production of the morbid appearances.

We have already assumed that the excretion of reptiles and birds consists of uric acid, united with ammonia, and it is usually regarded as being urate of ammonium; under these circumstances it would be expected to behave like such a salt when acted upon by different reagents. We will now see whether it does so.

Let us take two graduated tubes, divided into one hundred parts, and put into one the ordinary salt, the acid urate of ammonium, so as to stand to the height of five divisions. Into the second tube, let us put the dry and powdered white excretion of some large reptile, such as the python or boa, and fill each tube with a one per cent. solution of carbonate of lithium, up to the one hundredth division. Let us place the tubes upright in a stand, and shake them from time to time. On examining the contents of the first tube, after the lapse of hours, days, or even weeks, no change will be perceptible; the artificial urate will still occupy the same space, five divisions, and no more. In the second tube, very different appearances will be exhibited—a change occurring to some extent even after a few minutes, with some slight puffing and some little translucency of the substance; while, in the course of an hour or two, the swelling will become very great, and go on increasing for twenty-four hours or more, till at last a solid magma will be formed, occupying eighty to ninety divisions of the tube; so that the natural urate, which in powder originally occupied a given space, under the influence of a weak alkaline solution will fill up as a solid mass a space seventeen or eighteen times larger than its original room. If absolute alcohol—that is, a spirit devoid of water—is employed, no increase takes place, even after the lapse of a week or more; when, however, after the alcohol has been poured off, a solution of carbonate of lithium is subsequently added, the swelling of the urate goes on in the same way as when no spirit has been previously used. If small masses of the excretion are digested in a strong

solution of ammonia for a few hours, and afterwards dried and lightly powdered, it will be found that the property of puffing-up is entirely gone, and the same result ensues when caustic soda or potash is used instead of ammonia. I may here mention that I have examined the excretion of a large number of different reptiles and birds, and always with the same results whenever the specimens have been in a fairly fresh condition.

Having determined the physical condition of the excretion as it exists in animals whose urine is too deficient in water to hold the urates in solution, it appeared to me to be a matter of great importance to arrive at its chemical composition. The common idea is, as I have already said, that it consists of urate of ammonium; and, in the early analyses, ammonia was always found in it, but in small quantities only. There is no doubt as to the presence of ammonia in the urinary excretion of birds and reptiles, for we have only to add a caustic alkali, and the characteristic odor is at once developed; but it is important to go a step further, and to ascertain whether the uric acid, as it exists in the fresh excretion, is so combined as to form a true urate of ammonium. To effect this, I had many experiments made on the excretion of different birds and reptiles. From these the conclusion may be drawn that the uric acid in the pure substance is not combined with any fixed base, such as soda, potash, or lime, but that it is combined either with ammonia itself, or some organic base which readily yields ammonia.

The amount of ammonia varied very considerably in the different specimens which were examined; and, contrary to what I had anticipated, the specimens which were most perfect and exhibited least of all the appearance of disintegration were not those which yielded the most ammonia. It was also found that the swelling or puffing-up peculiarity was almost or entirely absent from those specimens in which the quantity of ammonia was greatest. This was well shown in the excretion of the royal python and of the Australian monitor (lizard), both of which specimens were much injured by decomposition. It would appear, therefore, that beyond a certain percentage, which seems to be equivalent to the formation of about 25 to 32 per cent. of urate of ammonium, the extra amount of ammonia results from some change which has taken place after the excretion has been passed. A close examination by the unassisted eye enables us to see that there has been some disintegration in the substance.

With the exception of those excreta in which decomposition has occurred, the amount of ammonia is far short of that which is necessary to the formation of the true diurate of ammonium. May it not be possible that the uric acid, when first formed, is in combination with some nitrogenized organic base, such as urea? If so, this would account for the results obtained. Or, again, may not an organic compound be first formed in the renal cells, which readily breaks up, yielding, among its chief products, uric acid and ammonia? This is a subject which I have not had leisure to investigate with sufficient thoroughness to be warranted in giving a decided opinion upon it. We have found therefore that the natural urate differs completely from the artificial in its physical properties, at least in so far as regards its power of becoming distended under the influence of water or carbonated alkaline solutions. It now becomes necessary to examine carefully its microscopic structure.

A paper of mine, published in the *Medico-Chirurgical Society's Transactions*, 1848 (vol. xxxi.), under the title of "Observations on certain Pathological Conditions of the Blood and Urine in Gout,

Rheumatism, and Bright's Disease," was illustrated by a plate, which contained, among other drawings, one which exhibited the microscopic appearance of the urinary excretion of the pigeon. This was the first time, I believe, that the minute characters of such excretions had been shown. The results of a reinvestigation of this subject, which I have recently made, will now occupy us for a few minutes, as it bears closely on the subject of renal calculi. I have examined the excretion of a large number of reptiles, birds, and invertebrate animals; and the drawings upon the screen, which are selected from a great many others, will give an idea of the appearances presented.

There is a great uniformity of appearance in the different specimens; in fact, it would be difficult or impossible to separate by microscopic characters the urine of a reptile from that of a bird; the only variation in the different drawings is that which appears in the size and prevalence of the larger spherules; for it will be noticed that there are many more of these in the large birds and reptiles than in the smaller birds, while the small spherules are of about the same size in all specimens depicted. No spherule in the excretion of the canary-bird approaches in size many which are to be seen in that of the rhea. The measurement of the largest spherules is 0.00072 inch, and the smallest about 0.00008 inch.

It seems to me that we should be ignoring all physiological principles if we did not assume that uric acid is originally excreted in the same way by all animals, be they reptiles, birds or mammals, including man—that if, as we have shown by fair evidence, it is formed in the cells of the kidney in one animal, it is so formed in another, although the different influences to which it may be subsequently subjected may cause an entire change from its original physical condition. In reptiles and birds we see that the uric acid, in combination with some base, is contained in the kidneys in the form of larger and smaller spherules, and we also see that these have a tendency to aggregate and form larger and larger balls or spherules, which are ultimately eliminated from the body. We see, in fact, that these animals are perpetually voiding renal calculi which, although small in size, are yet perfect in form and constitution. Their urinary tract is so constructed that no inconvenience ensues; but were such urine excreted by the mammal, it might at once lead to serious mischief.

May we not, however, get a lesson in pathology from reflecting on these facts? May not these spherules, which, as a rule, are soon dissolved in the watery urine of the mammal, occasionally escape solution, and become the nuclei of renal calculi? This idea is one which, up to the present time, I have never seen suggested, but it is at least worthy of some further thought.

I believe that I am correct when I say that hitherto it has been usual to regard both gravel and calculi as arising always from the precipitation of urinary principles which have been in the urine in a state of solution—a view which, as I have already shown, has some truth in it, though I think that, before I shall have finished the present lecture, I shall be able to lay before you facts which may cause some modification in the opinions which have been commonly held.

In examining several different calculi which had been passed soon after their descent into the bladder, I have found that some are apparently simple—that is, when cut they exhibit a uniform structure throughout; such calculi, however, are generally very small, the largest not exceeding in size a pin's head. Others are evidently compound in their structure, containing a central nucleus sur-

rounded by layers which may be more or less numerous in different calculi; in fact they resemble, when seen through a glass, the larger form of the vesical calculus.

Let us now study more closely these two forms of renal calculus, and let us begin with the more simple kind. I will select one which is very minute indeed—a mere point of matter. This, when placed in a small cell under the microscope, presented an appearance which is exhibited in the enlarged drawing on the screen. It is seen to be irregular on its surface, as if composed of a number of little beads or grains aggregated together. Let us now watch the result of putting into the cell a few drops of a solution of carbonate of lithium. After a few minutes the superficial beads become more or less transparent, and exhibit in many instances the appearance of small cells which have been denuded of their contents. The little calculus soon has a translucent ring around it, which becomes broader and broader as the action of the carbonate of lithium spreads, the opacity of the calculus remaining in the centre only. Under the continued action of the lithia salt this last remnant of opacity also disappears, and the whole calculus is reduced to a translucent substance, which has the appearance of being made up of a great number of little vesicles. If polarized light be employed, this is seen to contain matter having a crystalline structure, but the still further continued action of the alkaline fluid ultimately removes this too, and the calculus is then seen as a mass apparently made up of colloid matter in a more or less membranous shape.

Before proceeding to the examination of the more complex renal calculi, I wish again to draw your attention to the spherules from the excretion of the serpent and the bird, that you may see how they behave under like circumstances. Of course the largest of these is very much smaller than the minutest calculus that we can make use of, but this fact in no way interferes with the observation of such spherules.

Let us first imagine that we put a particle of the white excretion on a microscopic slide in a drop of alcohol, which does not alter the spherules, and, after covering it with a thin glass disc, examine it carefully. Some spherules are seen to be large, some smaller, and some smaller still, till at length a size is reached which seems to be the smallest which they are capable of assuming. Next, let us place a moistened finger upon the thin upper glass and rub it upon the powder for a few seconds, using a fair pressure; then, on re-examination under the microscope, the whole of the spherules have disappeared, and in their place are seen innumerable irregularly rounded particles of a pretty uniform size. If, instead of using pressure, we allow the alcohol on the slide to evaporate and introduce a drop of a solution of carbonate of lithium, and then watch what follows, we shall see that the outlying spherules in the field are usually the first to be acted upon, and exhibit the following appearances:—After a few minutes only some of the spherules show a transparent line around them, which, on close examination, is seen to be composed of transparent beads; this ring grows larger and larger, so that in a short time no opacity remains, save in the centre of the spherule. As time goes on, with renewed application of the alkaline solution the dark central mass gets smaller and smaller, and at last altogether disappears, our original spherule being changed into a round membranous mass, without definite structure, containing crystalline matter which powerfully polarizes light, which matter also in turn gives way under long-continued action of the lithia solution.

If we compare this description of what I may call the "dissolving view" presented to us by the changes in the normal spherule of the bird or reptile, with that before given of those which occur in the small or rudimentary calculus, we cannot help being struck by their close resemblance; in fact, whatever differences there may be, seem to be little more than differences of degree. Surely this must make us reflect on the possibility of there being a close relationship between the two, and may fairly suggest to us the question whether the rudimentary uric calculi found in man may not be merely aggregations of spherules—the product of the original cell-formation of the uric acid. In the case of the bird and the reptile we are sure that the spherule cannot have been deposited from uric acid previously dissolved in the urine, seeing that there is no such fluid to dissolve it; and it may be that in the case of man also the individual components of these calculi are simply the original cell-formations of uric acid which have become somewhat altered in chemical composition, and rendered less soluble. If this be true, and if we can show that these rudimentary calculi are not produced by the precipitation of uric acid from the urine, we must at once remove them from that class of deposits which are called sand or gravel, seeing that these latter, whatever their size, have a totally different structure. It is to the spherular grains and the more complex structures that I shall confine the name of renal calculi.

In several renal calculi which I have examined I have found some spherular bodies—masses of irregular shape, resembling much the partially broken-up pyramids, into which the spherules of the excretion from reptiles and birds frequently split when carefully rubbed and only partially disintegrated. I have also found crystals of oxalate of calcium, many of them octahedral in shape. From these examinations I have formed the opinion that the appearances in the nucleus may arise from a slow alteration taking place in the first-formed or spherular urates by the action of the fluid urine upon them, causing the gradual decomposition of the original ammonia salt, and an increase of its insolubility, leading also to the subsequent production of oxalate of calcium, which we know is often the result of the action of a ferment on uric acid.

If, instead of a very small and rudimentary calculus consisting merely of an aggregation of grains, we take one of a larger size and more complex structure—one, for example, one-eighth or one-sixth of an inch in diameter—we find that around this granular central nucleus layers are arranged in concentric order—that is, the calculus becomes laminated, the number of layers depending greatly on the length of time during which it has been exposed to the action of the urine. These layers vary much in thickness and also in color, and probably are most of them originally composed of some urate, rather than uric acid itself. The subsequent action of an acid urine on a deposited layer of a urate would often slowly reduce the urate into a state of free uric acid. In examining renal calculi which have this laminate arrangement, I have frequently found the central nucleus almost devoid of color. What is the cause of this peculiarity of the nucleus? The only explanation which at all satisfies my mind is that the nucleus granules have never been in a state of solution since they were formed in the kidney cells, and therefore have never become recrystallized with the coloring matter of the urine—in fact, that they are in a condition very much like that of the renal spherules of the lower animals. The color of the layers—a pale pink or dark fawn—is not at all difficult to explain, for whenever uric acid or urates

are deposited from solution, they invariably take with them the coloring matter of such solution, which becomes intimately united with the crystalloid, giving it an altered shape.

Influence of Diet.—There can be little doubt that the occurrence of gravel and calculus is largely influenced by the diet, but on this subject I feel sure that the opinions frequently held are not altogether correct and require to be reconsidered. As we shall find that a gouty diathesis is so potent in the production of the diseases under review, it will be quite safe, in so far as the discussion of food is concerned, to assume that what tends to produce gout tends also to develop calculus, and that the diet which is of avail in the treatment of the one disease is equally so in the management of the other. It will be desirable to turn our attention to the principal groups of aliments and ascertain what influence they have upon the formation of uric acid and also upon its condition with respect to solubility.

1. *Sugar.*—The most common of the non-nitrogenized principles contained in food is starch, seeing that it forms 70 per cent. of wheaten flour, and almost the whole of many of the simple amylaceous articles of food, as rice, maize, arrowroot, sago, etc.; also of the potato, turnip, carrot, and so on, when these latter are dried. It can be shown that, when taken into the alimentary canal, starch is soon changed into glucose sugar by the action of the saliva and pancreatic juices; and, when cane sugar is taken, the same change ensues, so that however carefully sugar is avoided as an article of food, it is still abundantly formed in the canal when amylaceous matters are eaten, and the result is the same whether a pound of starch in any of its dietetic forms or a pound of cane sugar be taken.

There is a very popular idea that sugar causes what is termed acidity, and hence it is scrupulously avoided by many. Is this true? Between two or three years ago I was much struck at seeing an American surgeon of great repute putting lump after lump of white sugar into his tea, and I asked him why he did so. He told me that in the States it is a common habit to take sugar thus as a preventive of heartburn, and that he took it for that purpose. His answer made a strong impression on my mind, and since then I have often questioned dyspeptic patients as to their experience on this point. At first nearly all exclaim, "Of course sugar causes acidity," but as yet I have failed to find anyone who could assure me, from personal experience, that the eating of lumps of ordinary white sugar produces more so-called acidity than taking any other article of diet. It must be borne in mind that I do not for a moment include sweetened fruits, and such-like substances, in the same category as simple sugar. One can hardly believe that the eating of a lump of cane sugar would seriously add to the glucose which is daily produced in the alimentary canal of an individual living on an ordinary mixed diet. Let us see what has been found experimentally with regard to the influence of sugar on the production of uric acid. Böcker says that the effect, in man, is to lessen the quantity of that principle, and Bischoff and Voit have proved that, in dogs, starch produces the same effect on the urinary excretion as sugar, so I think we may say that there is no increase in the uric acid when sugar is taken.

I must devote a few minutes to the discussion of a most important subject—viz., the influence of different alcoholic beverages on the production of uric gravel and renal calculi. We must remember that all such beverages contain alcohol united with different proportions of water, some little more than this; others, however, contain sugar together with coloring and so-called extractive matters, also

salts of potash and lime united with vegetable or mineral acids. Many wines also contain a certain amount of some free organic acid. Now, have we any facts with regard to the special effects of different wines in the diseases which we are now considering? I think we have many, and much information which we can use to guide us in the prevention of such diseases. It may, as I believe, be confidently asserted with respect to gout, that, with an absence of alcohol in any shape, coupled with an absence of hereditary predisposition derived from alcohol-drinking ancestors, the disease would be practically unknown.

It is most essential to separate the different kinds of alcoholic beverages from each other in estimating their tendency to produce disease. Thus, alcohol in the form of distilled spirits, although when taken in excess it causes serious mischief, injuring the liver, kidneys, heart and other organs, still has little or no power of producing the uric acid diathesis, or, at any rate, the gouty development of it. In spirit-drinking countries, or among spirit-drinking families, gout is unknown. Look at Scotland and its whisky-drinking classes—the disease is practically absent, hardly ever seen in the hospitals. Look at Poland, where they drink a kind of arrack; the same holds good.

When, however, we investigate the influence of wines we shall find a different result. Drinkers of the common light wines, such as the red Bordeaux and the Rhine wines, suffer but little, while, among the same nations, those who indulge freely in beer are by no means free. The natural light wines, in which the alcohol is small in amount, while there is an almost complete absence of unfermented matter, which contain, also, a considerable quantity of acid vegetable salts, are little liable either to produce gout or to lead to the formation of calculus or gravel. On the other hand, the Peninsula wines and those which resemble them, which are stronger in alcohol, contain much unfermented matter, and are almost devoid of the vegetable salts, have great gout-producing power, and lead readily to a condition of urine favorable to the production of gravel and calculus.

We come, lastly, to the malt liquors, ale, beer, stout, and porter. From my own experience, and I believe it is also the experience of all who have attended to the subject, I can confidently assert that these beverages have a great tendency to produce the uric acid diathesis. Compare the hospitals of Edinburgh and Glasgow with those of London; in the former gout is scarcely known, in the latter the disease is common, the difference, as I believe, being chiefly due to the different beverages drunk by the working classes of the two countries; it is, in fact, the difference between whisky and malt liquors.

It is necessary that we should at least endeavor to ascertain what principle or principles, present in some of these alcoholic beverages, absent from others, lead to the development of this diathesis or aggravate it when it is already manifested owing to hereditary or other causes. It cannot be the alcohol alone; this, I believe, can be fully and satisfactorily proved, seeing that large groups of people whose custom is to drink freely of distilled spirits are yet free; instances are to hand in Scotland, Sweden and Norway, and Poland. It cannot be the sugar alone; for, although the partially fermented wines and malt liquors contain sugar, yet sugar added to distilled spirit does not appear to produce the uric acid diathesis. It cannot be the acidity alone; for the wines which are most harmless are quite as acid or even more so than malt liquors and the Peninsular wines, and many people who strongly object to the least acidity in wines, will often take lemon

juice to an extravagant extent. If, then, neither the alcohol, nor the sugar, nor the acidity by itself is the cause of certain beverages proving so injurious, is it a combination of any of these that does the harm? We already know that the combinations of alcohol with sugar, and that of alcohol with acid salts, are innocuous as far as the uric acid diathesis is concerned. What, then, is there left for us to fall back upon in explanation of the peculiar properties which some of these beverages possess, while others are devoid of them? The only conclusion that I can arrive at with my present knowledge—and it is the result of much thought during many years—is that it is something which is a result of imperfect fermentation, and you will find that it is those beverages in which fermentation has commenced, and has been allowed to proceed to a certain extent and has then been checked, which, of a certainty, cause gout, and probably lead also to the production of gravel and calculus. If I am asked to state more exactly what this principle is, I cannot do so; it may be an influence only, a condition of matter—a ferment.

In connection with this subject, however, I must return for a moment to that of sugar, which, I told you, had, as I thought, been regarded askance without due cause. I would say that I do not for a moment classify with sugar either sweetened fruits or vegetables; for I am quite sure that such articles of diet will frequently produce heartburn and other dyspeptic annoyances in individuals who are not in the least inconvenienced by sugar itself. I cannot help thinking that these contain a something which is not simple sugar, but a substance which is the result of the long contact of the sugar with the fruit or vegetable juices, a kind of semi-fermented matter—in fact, that same “something” which exists in the stronger wines and the various malt liquors. Of this I feel confident, that in many cases where sugar, whether by itself or in tea, coffee, and light puddings, does not disagree, and where fresh fruit, although sweet, produces no discomfort, the combination of sugar with these juices, if time has been given for them to act upon each other, will often cause well-marked dyspeptic symptoms. But, it may be said, if so, a ripe orange cannot be a good thing to eat, as it contains both sugar and acid juice, and these substances have been in contact with each other for a long time. I answer, not necessarily so; so long as the orange exists as a fruit, with its botanical structure intact, so long there may be no change taking place between its different constituents. We have a striking analogy to this in the case of the bitter almond. When whole this seed contains the crystalline amygdaline and an albuminous ferment. Separate one of these from the other, and each by itself is innocuous; crush and moisten the almond, prussic acid is immediately formed, and the union of the two principles is the production of a deadly poison.

—The death is announced of Dr. George Miller Beard, of New York, from pleuro-pneumonia. Dr. Beard was a voluminous writer. His name will be familiar to professional readers in connection with subjects which are not generally regarded as worthy the time and attention of busy practitioners. His death, though sudden, was not altogether unexpected by himself, and he is said to have philosophized, as his end approached, on the rapidly progressive changes he was undergoing, and to have expressed a wish to be able to record the thoughts of a dying man.

Original Papers.

REMARKS ON THE REMOVAL OF THE ENTIRE TONGUE WITH SCISSORS BY THE WHITEHEAD METHOD.

By W. H. A. JACOBSON, M.B., F.R.C.S. Eng.,

Assistant-Surgeon to Guy's Hospital, Examiner in Surgery at the University of Oxford, Surgeon to the Royal Hospital for Children and Women.

HAVING made use of the above method in two cases, I wish to state my experience of it, as the safety and extreme simplicity of Mr. Whitehead's operation do not appear to be as yet sufficiently recognized.

The ages of my patients were forty-nine and fifty-seven. In both “soreness” of the tongue had existed for a very long period. Thus in the first case a small sore had been produced twenty-eight years before the operation by a pipe being broken in the patient's mouth. Since this time the tongue had always been sore off and on, especially after smoking too much, or after indulging in wine. A long, valley-shaped, ulcerated fissure occupied the middle and posterior thirds of the tongue on the left side; with this coexisted numerous smooth bald patches and others of a “leucomatous” nature. The ulcer extended so far back, and was so intensely painful, that before an anæsthetic was given it was impossible to define its posterior limit. Thus it would have been a matter of great difficulty to get the loop of an *écraseur* behind it; and even when this was done, the loop, when tightened, would certainly have come dangerously near the ulcer. In this the superiority of Mr. Whitehead's method was strikingly shown, as it enables the surgeon to place his line of section of the tongue clearly and decisively behind the disease. In the second case the disease had also lasted a long time. A sore had first appeared on the right side of the tongue twenty years before admission; this used to heal and then break out again at intervals of varying length. For sixteen months the ulcer had been permanent and increasing steadily. On admission it was about an inch and a half in length, involving chiefly the middle third of the tongue, intensely painful, and bleeding freely when touched. The upper surface of the tongue showed manifold evidence of past irritation. In both cases glandular enlargement coexisted. In the first case this was marked upon the left side, in the second there was some enlargement in both submaxillary triangles, though to a less degree. Thus, owing to the long duration of the disease, the glandular infection, and the syphilitic taint, neither of the cases was a favorable one for operation.

The first patient was operated upon Dec. 1st, 1881, and left the hospital Jan. 4th, 1882, expressing great relief from the removal of his chief source of pain. The glands in the neck, which, as already stated, were enlarged before the operation, did not admit of interference, and the patient died from the effects of their ulceration in the following March.

In the second case the operation was performed April 25th, 1882. The patient left the hospital on May 30th.¹ The glands in this case also enlarged, subsequently suppurated freely, and then subsided. My old friend, Dr. Eastes, of Folkestone, who sent the case to me, tells me that the patient

¹ The operation wound healed in seventeen days, both patients were kept in for some time later in order to watch the enlargement of the glands.

was able to follow his employment till the middle of December, 1882, and that at the present time (Jan., 1883) his life is drawing to a close, owing to the enlargement of the glands and their pressure on the trachea and oesophagus. Dr. Eastes adds: "He has very little pain compared with that of the tongue before the operation." In both cases the operation passed off without any hitch save for the dyspnoea from the anæsthetic which was present in both cases, especially in the second. The hæmorrhage was well within control by the precautions mentioned below. The amount of sloughing in the floor of the mouth was very slight; for the first two days the wound was covered with a layer of dry glazed blood-clot, after this granulations sprang up rapidly. In the first case immediately after the completion of the operation I brushed over the floor of the mouth with a solution of the chloride of zinc (twenty grains to one ounce), to minimize the future fetor and sloughing. This precaution was superfluous, considering how very slight the after-sloughing was. I believe that it was also pernicious, and caused a certain amount of cellulitis, which delayed the patient's recovery and increased the glandular enlargement which existed prior to the operation. It should be stated that in this patient there was a cicatrix of an old abscess in the neck, and that perhaps the existence of "residual" inflammatory products made the patient very liable to cellulitis. The most efficient and painless way of keeping the mouth clean in such cases is the frequent use of iced Condy's fluid by means of a modification of Dr. Thudichum's syphon douche. The patient will readily take to using this himself.

I propose first to quote the chief details of Mr. Whitehead's method,* adding a few remarks which have been suggested by my experience of it, and then to contrast it with other methods, as Mr. Whitehead's operation must stand or fall according as his belief that it is simpler and safer than any other is verified or not by the experience of other surgeons.

1. "The mouth is opened to the full extent with a Mason's or any other suitable gag, the duty of attending to this important part of the operation being entrusted to one of the two assistants required."

The position of the patient during this operation is of great importance. As a rule it will be best to turn the head well to one side; by this means the blood will collect readily in the pouch of the cheek on this side, and one assistant, who with a finger draws out the angle of the mouth, is to frequently sponge out the blood as fast as it collects within the cheek. The sponges should be small, perfectly clean, wrung each time out of iced Condy's fluid, firmly secured to the sponge-holders, and promptly supplied. Another assistant, who has charge of the gag, should from time to time with similar, but rather larger sponges, wipe out the fauces, so as to prevent any collection of blood there. In whatever way the tongue is removed the operation is usually, especially at first, complicated by dyspnoea. A little patience, and removal of the gag, if necessary, until the patient is more fully "under," will usually be sufficient. Chloroform is usually indicated in patients who have reached the time of life at which epithelioma of the tongue is generally operated upon. Ether, by the increased secretion of mucus which it causes, adds to the dyspnoea which from one cause or another is usually present in these operations; this anæsthetic is, of course, especially to be deprecated if the surgeon should be led to

make only a partial use of the scissors, and divide the root of the tongue with the thermocautery. If the position of the patient's head, turned well to one side, is not found satisfactory, the patient should be propped up, and the chin depressed forwards, so as to keep the blood away from the fauces. This position will, however, be found less convenient to the operator, it is less safe for a patient under the influence of an anæsthetic during a severe operation, and it does not give equal facilities for the safe collection and ready sponging away of blood, as that which has been mentioned above.

One or two other matters require to be alluded to, though to some they may appear obvious and trivial. While I entirely believe that this method of Mr. Whitehead's is by far the simplest of all and perfectly safe, there is no doubt that it calls for special coolness and decision on the part of the operator, and promptness with their help from the assistants and nurses. A good light is most essential, and no crowding of spectators should be permitted. In making arrangements for a good light the surgeon should remember that while the operation itself takes but a short time, the getting the patient under the anæsthetic may be much prolonged.

2. "The tongue is drawn out of the mouth by a double ligature, passed through its substance an inch from the tip. This ligature is given in charge of the second assistant, with instructions to maintain throughout the operation a steady traction outwards and upwards."

By pulling on the tongue in this way the surgeon will remember that the upper orifice of the larynx is rendered more patent. This, of course, facilitates the entrance of blood, and should make the assistants more watchful to sponge out the cheek and also the fauces more efficiently. On the two occasions on which I have made use of this method I found it preferable to hold the ligature myself, as this not only gave a better view of the cavity of the mouth, but also made it more easy to keep up the firm traction which of itself serves to arrest the hæmorrhage from the smaller vessels in the substance of the tongue.

3. "The operator commences by dividing all the attachments of the tongue to the jaw and to the pillars of the fauces, after the manner suggested by Sir J. Paget, with an ordinary pair of straight scissors."

4. "The muscles attached to the base of the jaw are then cut across with a series of successive short snips of the scissors, until the entire tongue is separated on the plane of the inferior border of the lower jaw, and as far back as the safety of the epiglottis will permit."

5. "The lingual or any other arteries requiring torsion are twisted as divided. It is generally found that a moment's pressure with a small piece of sponge, held in sponge forceps, suffices temporarily, if not permanently, to arrest any bleeding; it is, however, regarded as desirable to twist, either immediately or after the tongue is removed, every bleeding vessel."

The surgeon must here follow Mr. Whitehead's directions to the letter. If a pair of scissors curved on the flat be made use of, the operator will find himself getting to an unequal depth into the floor of the mouth, and thus exposing himself to the risk of additional hæmorrhage, and of cellulitis from needless interference with the cellular tissue and planes of fascia, which are here met with. The scissors should be perfectly straight, and cut sharply up to the very points, which should be blunt, otherwise they will hitch in a very embarrassing way in the soft parts which are being divided.

* They will be found in a pamphlet on *Excision of the Tongue* (Churchill, 1881).

Both my cases bore out in every particular the correctness of Mr. Whitehead's statement as to the amount of hæmorrhage and the facility with which it may be met. The oozing is of course free, but it may be kept under control by keeping the patient's head in the position already mentioned, and by maintaining steady traction on the tongue, which, as is well known, comes forward quickly as soon as the mucous membrane of the floor of the mouth and the palato-glossi are divided, each successive snip bringing the tongue more and more under the surgeon's control. In both my cases only the ranine and lingual arteries on the left side required torsion, the hæmorrhage from the fellow vessels on the right side being readily arrested by firm sponge pressure. In one case there was some difficulty in twisting the left lingual, owing to the softness of the tissues, and, this being so, this vessel and the surrounding tissues were transfixed with a tenaculum, and a silk ligature applied and cut short.³ In neither case was there the slightest after-hæmorrhage, intermediate or secondary, though, as already stated, both patients were unfavorable subjects for operation, from the long duration of the disease, the gland infiltration, and the well-marked taint of syphilis.

The tenaculum is an instrument with which the surgeon should be provided in this operation as well as with torsion-forceps and scissors. It is most useful not only for the meeting of hæmorrhage, but also for the picking up of suspicious patches in the floor of the mouth; for the removal of these with scissors the tenaculum holds as well as any kind of forceps, and has the further advantages of being small, handy, and little in the way. In cases where after removal of the tongue hæmorrhage is dreaded a tenaculum should always be at hand by the bedside.

6. "A single loop of silk is passed by a long needle through the remains of the glosso-epiglottidean fold of mucous membrane, as a means of drawing forwards the floor of the mouth, should secondary hæmorrhage take place. This ligature may safely be removed the day after the operation; and, as it is invariably a source of annoyance to the patient, it is always desirable to adopt this rule."

I did not adopt this precaution in either case, and in neither was there the slightest after-hæmorrhage. It not only must cause, as Mr. Whitehead allows, great discomfort to the patient, but the silk will rapidly become foul, and by its mere presence will tend to irritate parts which are now extremely sensitive.

A few remarks will now be made upon the other methods of removing the entire tongue, by way of contrasting them with Mr. Whitehead's plan.

(a) *Removal by the galvanic écraseur.*—The use of the heated loop of wire has not of late years kept up its early reputation, and chiefly for the following reasons: 1. The necessary apparatus is expensive and often cumbersome. 2. It causes a most extensive slough, which not only takes some time to separate, thus exposing the patient to the risks of septic broncho-pneumonia and septicæmia, but also, when separating, may give rise to hæmorrhage. This hæmorrhage may be very difficult to arrest owing to the sloughy state of the tongue, and is especially dangerous at this time in consequence of the weakly state of the patient, whose recovery from a very severe operation is not likely to have been hastened by the sloughy condition of his mouth. Other objections which the galvanic écraseur shares with the ordinary instrument are:

3. That owing to the great strain which is put upon it, the wire must, however carefully fixing needles have been introduced (and this is not always, when the ulceration extends far back, an easy matter), draw dangerously, as it is gradually tightened up, upon the site of the disease. 4. The risk of breaking. The thermo-cautery has been used in some cases. It is, however, an inconvenient instrument to make use of far back in the mouth, and it has the further disadvantage, which is also shared by the galvanic écraseur, that as it sears through the tissues of the tongue it so alters the look and feel of parts that the surgeon may leave diseased portions behind without knowing it. Theoretically, of course, this may be avoided by cutting very free of the disease, but in practice this is not always easy. If, to facilitate the tongue's coming forward, the mucous membrane at the side and the pillars of the fauces are first snipped through with scissors, and the tongue then severed with the thermo-cautery, the patient has still to run all the risks of the detachment of a large slough in his mouth.

(b) 1. The ordinary écraseur, though it causes distinctly less sloughing than the galvanic loop, still leaves the parts in a much more bruised condition than a pair of clean cutting scissors. 2. There is the serious danger of the loop during the extreme tightening which it undergoes drawing close to the cancerous spot. 3. There is the risk of the wire breaking, though this risk may be much diminished by splitting the tongue and dividing each half separately, as recommended by Mr. Morratt Baker. Another objection to the wire écraseur is often seen at the close of the operation, when the loop, though screwed up to the uttermost, is still too coarse to divide the lingual artery, which is pulled out by the écraseur, and often requires division with scissors, and then torsion or a ligature. 4. I have already alluded to the dyspnoea which is always liable to accompany operations for the removal of the tongue; the swollen condition of the organ produced by the pressure of the écraseur sometimes produces this complication to a serious degree.

(c) Mr. Syme's operation of dividing the symphysis has been recommended when the floor of the mouth is involved. It is not only an extremely severe measure, but it is objectionable because in these patients, who are often much reduced in strength, it is liable to be followed by necrosis and tardy union of the sawn surfaces, which will interfere seriously with the patient's comfort and ability to take solid food. Furthermore, it appears to me to be needless, as diseased tissues in the floor of the mouth can usually be removed by scissors and a tenaculum, aided, in severer cases, by an incision in the submaxillary region for the extirpation of glands.

(d) The incision through the cheek has the advantage of giving additional room, and offers facilities for adjusting and watching the action of the écraseur. It heals readily, but the scar may be objectionable, and in any case the wound left after removal of the tongue is, at first, so painful that no additional wound should be made, if it can be

removed of the tongue by the écraseur, patients succumb to rapidly fatal affections of the lung, which come on either as a part of a general pyæmia or as a more local disease from the direct passage downwards of fetid emanations from the sloughing wound. To obviate these risks Mr. Barker admits pure warmed air to the lungs by means of a preliminary tracheotomy, the mouth and nostrils being plugged with cotton-wool, and the floor of the mouth being drained by means of a long tube passed through under the chin into a basin of Condy's fluid. I believe that these ingenious precautions, which must be somewhat irksome to the patient, and one of which, the tracheotomy, involves some additional risk, will be rendered superfluous by Mr. Whitehead's method, owing to the clean-cut surface and little liability to sloughing which this operation leaves.

³ Everyone who has demonstrated anatomy knows how commonly the lingual arteries are unequal in size.

⁴ Mr. Barker has shown how very commonly, after extensive

avoided. The readiness with which the tongue comes forward when removed by Mr. Whitehead's method has already been alluded to.

(e) Professor Billroth has practiced ligature of the lingual arteries preliminary to removing the tongue with scissors.³ Dr. Elder, of Nottingham, in recording a successful case of removal of the tongue by Mr. Whitehead's method, states that in repeating the operation he shall ligature the linguals first, as he considers the danger from hæmorrhage greater than Mr. Whitehead is inclined to admit. Mr. Treves,³ in the account of a case in which he removed the tongue by scissors, though, as he frankly admits, not by Mr. Whitehead's method, correctly speaking, as this was departed from in several important particulars, found the hæmorrhage so profuse that he states that in future he should first ligature the linguals.

It may be worth while to point out here that this step is by no means always easy of execution. As in a case recorded by Dr. Warrington Haward,⁴ it may be impossible to find the artery above the hyoid bone, owing to enlargement of the lymphatic glands and general infiltration of the tissues. If it be sought for close to its origin from the external carotid, the superior thyroid or facial may be mistaken for it, this being more likely if the point of origin of these vessels is at all abnormal, or if two of them arise together. Another difficulty which occurred to one of the most experienced operators in Europe, Professor Billroth, may be told in his own words:—"A. K—, aged fifty-seven, had first noticed pain and hardness of the right half of the tongue six weeks before admission. A cancerous ulcer, which extended far back, was seen on the right side of the tongue; no enlarged glands could be felt; he could only open the mouth to a slight extent. In order to avoid hæmorrhage as much as possible, I commenced by ligaturing the right lingual artery. I performed the operation *lege artis*, but had most extraordinary difficulties in discovering the artery. Finally, I thought I saw it pulsating, and placed a ligature round it. In removing the lower and under portions of the tongue, tolerably free hæmorrhage occurred from the lingual artery, and I had my doubts as to whether this vessel had actually been tied. The patient died two days later of septicæmia. Post mortem we discovered that the lingual vein had been ligatured instead of the artery. Every surgeon knows the difficulty of tying the lingual artery in old people; the vessel lies so deep, that it is very difficult to distinguish it from thick-walled, distended veins, especially when, owing to heart disease, as in this case, the veins pulsate. Never previously had I met with a lingual vein of such thickness."

I believe that any surgeon who, having made use of other methods of removing the tongue, shall be led to try Mr. Whitehead's operation, will give this a decided preference, as being equally safe, while it is far simpler and more speedy than any other.

— THE American journals announce the death of Dr. Walter Burnham, a surgeon of distinction in the States. Amongst other services he conferred upon the profession, was the part he took in the passing of an Anatomy Act for Massachusetts.

³ In his *Clinical Surgery*, translated by Mr. Dent for the New Sydenham Society, Professor Billroth speaks of having ligatured the lingual artery twenty-seven times.

⁴ To compare with the above two cases, Dr. Marshall, of Preston, records a case in which this operation was completed in four minutes and a half, the total loss of blood being estimated at rather less than an ounce.

⁴ Clin. Soc. Trans., vol. x., p. 130.

FOUR CASES OF EXCISION OF THE ENTIRE TONGUE BY SCISSORS.

By FREDERICK TREVES, F.R.C.S.,

Assistant Surgeon to, and Senior Demonstrator of Anatomy at, the London Hospital.

In the four following cases the entire tongue was removed from the mouth by scissors, by what is known as Billroth's method, the lingual arteries having been previously ligatured in the neck. For one of the cases (Case 2) I am indebted to the kindness of my colleague, Mr. James Adams, by whom the operation was in that instance performed. The procedure adopted in each of these cases was precisely the same, and was briefly as follows: The patient having been anesthetized, the linguals were first secured in the neck. Each vessel was reached by a curved incision that commenced behind at a point some little way below the jaw, opposite the anterior edge of the masseter, and that was continued down to the level of the hyoid bone, and finally carried up to a point behind and below the symphysis menti. The submaxillary gland having been displaced, the artery was exposed by cutting through the hyoglossus muscle in the floor of a triangle formed above by the ninth nerve, and below by the converging bellies of the digastric muscle. In no instance was there any difficulty in securing the vessel, although, owing to the depth of the incision, the proceeding is somewhat tedious. Care should be taken not to disturb the submaxillary gland more than possible, and it is most desirable that no part of the gland should be included in a ligature. Billroth, in speaking of ligaturing portions of the pancreas in pyloric resection, has drawn attention to the evils that often follow upon the application of a ligature to a solitary gland; and Case 4 serves to illustrate some of these inconveniences. Both arteries having been secured, the mouth is forced open by a Mason's gag, and the tongue drawn forwards by means of a stout ligature passed through its anterior part. The entire organ is then cut out with a pair of strong straight scissors. The frænum is first freely divided, and one blade of the scissors being thrust beneath the mucous membrane of the floor of the mouth, that structure is divided on each side between the tongue and the jaw, as far back as the epiglottis. Returning again to the middle line, the hyoid muscles are divided from before backwards, and, after a few vigorous snips with the scissors, the organ is free. The bleeding that follows is very insignificant, and usually is immediately arrested by firm pressure with a sponge. It is only far back, in the region of the tonsil, that any bleeding may occur that does not cease almost spontaneously. In two of the cases given below a touch with the cautery at once checked the oozing; in the other instances it required no treatment. The cut surface left after the removal of the tongue can be readily inspected by bending the patient's head a little forwards, and pushing up the floor of the mouth from the outside. As illustrated by these four cases, the operation may be spoken of as practically bloodless. For the first three days after the operation the patient is fed entirely through an india-rubber catheter passed into the gullet from the nose. On the fourth day he is able to feed himself, and usually finds it most convenient in swallowing his food to place the head very much to one side, so that the fluid may run by the side of the larynx into the œsophagus. The patient is up on the seventh day, if all goes well, and strong enough to leave the hospital by the tenth or eleventh day after the operation. In the cases detailed below

the mouth was kept constantly washed out with iced permanganate of potash water for the first week after the incision. When cough is complained of, considerable relief is given by causing the patient to inhale steam charged with a little compound tincture of benzoin. The incisions in the neck were dressed with carbolized lint, and all healed, with the exception of the right incision in Case 4, by first intention. Three patients out of the four made a rapid recovery, and were up and about by the seventh day. The fourth patient, a feeble and badly nourished man, died on the fifth day of pneumonia.

I think that the following advantages may be claimed for this procedure of Billroth's:—1. It is comparatively simple and requires no elaborate apparatus. 2. By its means more of the tongue can probably be excised than can be removed by the *écraseur*, no matter how applied. With the *écraseur* it is somewhat difficult to vary the exact amount to be removed in particular cases, since the surgeon can only deal with what can be included in a noose. It may be noted, moreover, that with the scissors an extensive excision can be performed without such complication as division of the jaw or cheek, or an opening into the floor of the mouth above the hyoid bone. 3. The procedure is practically bloodless, and the great source of danger in tongue operations is thus removed. It appears to me that on this ground Billroth's method is infinitely superior to Mr. Whitehead's modification of the same. Mr. Whitehead, it is well known, removes the tongue with scissors, but without previous ligation of the lingual arteries. The operation has been successful in the skilful hands of the surgeon who introduced it; but it would seem to subject the patient to a totally unnecessary and serious risk, a risk that is not counter-balanced by any other obvious advantage. 4. The wound left after the removal of the tongue is, in a surgical sense, extremely simple, and is actually a clean incised wound. Such a wound must compare favorably with the external charred surface left after the galvanic *écraseur* and with the lacerated wound that follows the use of the cold wire. When the tongue is removed by scissors there are no superficial sloughs to come away from the floor of the mouth, and there is therefore less opportunity for the formation of a fetid discharge. 5. The intra-oral part of the operation occupies but a brief space of time, the actual excision requiring probably about two minutes. It is needless to say that when a patient is anesthetized a prolonged operation upon the tongue is objectionable in many ways. The cold wire, if cautiously applied for the removal of the entire tongue, will usually not have cut its way through in thirty minutes.

6. Through the incisions made in the neck the surgeon is enabled to readily remove enlarged glands and to detect such bodies when they are not to be felt through the skin.

CASE 1.—Male, aged fifty-six. Epithelioma extending over the greater part of the dorsum of the tongue; the floor of the mouth was free; there were no enlarged glands to be felt. The ulceration had commenced four months previously. On June 7th, 1882, I removed the tongue by the method above described. No hæmorrhage except a little from the posterior part of the incision, which was readily checked by a touch with the actual cautery. The patient was in very feeble health at the time of the operation. He did well for six days, when he developed a sharp attack of pneumonia, of which he rapidly died. The wounds in the neck were almost entirely healed. The autopsy showed no evidence of pyæmia.

CASE 2.—Male, aged fifty-three. Admitted under

the care of Mr. Adams, July 20th, 1882. The epitheliomatous ulcer involved the centre of the tongue, extending to the edge. It had commenced two months previously. Two small glands could be detected below the jaw. On Aug. 3rd the tongue was removed. No hæmorrhage to speak of. The incisions in the neck healed by first intention. The patient was up and about the ward on the seventh day, and left the hospital to return to work on tenth day after the operation. His temperature after the operation never rose above 99°.

CASE 3.—Male, aged forty-five. Extensive epithelioma of the left side of the tongue of four months' duration. The floor of the mouth was free. On October 6th, 1882, the tongue was removed. No hæmorrhage to speak of. Highest temperature reached after the operation was 101° on the evening of the third day. The temperature was normal on the fifth day. The wounds in the neck healed by first intention. The patient was up and about on the seventh day, and left the hospital on the eleventh day after the operation. I have lately (January, 1883) seen this patient. The surface of the stump is well healed and the patient is perfectly comfortable and in good health.

CASE 4.—Male, aged fifty-eight. Extensive epithelioma of the right half of the tongue. The posterior limits of the mass could not be well made out. Induration was extending towards the floor of the mouth. Speech was much affected and great pain complained of. There were some enlarged glands in the neck on the right side. On November 1st, 1882, the tongue was removed. The enlarged glands were removed through the incision made for ligaturing the right lingual. In removing these glands the salivary gland was damaged, and I thoughtlessly included a little piece of it in a catgut ligature. The cancer proved to have extended very deeply, and it was found impossible to cut entirely beyond it. There was a little bleeding from the cut surface near the tonsils, which was readily checked by the actual cautery. On November 3rd the patient was sitting up in bed reading the paper. On the 6th he got up. By the 8th the wound on the left side had quite healed, but the wound on the right was discharging. He was detained in the hospital in the hope that the wound would heal, but on the 14th, when he was finally discharged, the incision was still open. The patient experienced considerable relief from the operation. He lost the pain in the parts, and his speech was much more intelligible without the tongue than with it. Here it was found impossible to remove the entire disease, but the main condition was rendered much more endurable by the operation. I hear (January, 1883) that the epithelioma is now rapidly growing again and is beginning to invade the neck below the right side of the lower jaw.

Gordon-square, W. C.

ON THE USE OF CONCENTRATED SOLUTIONS OF SALINE CATHARTICS IN DROPSY.

By MATTHEW HAY, M.D.,

Demonstrator of Practical Materia Medica in the University of Edinburgh.

In the course of an investigation of the physiological action of saline cathartics, now in course of publication in the *Journal of Anatomy and Physiology*, I examined the effect of the administration of a saline cathartic on the concentration of the blood,¹ and I succeeded in demonstrating from experiments on man and the dog that, if the salt be

¹ Vol. xvi, p. 430.

given in the form of a concentrated solution when the alimentary canal of the animal contains little or no fluid, it produces an almost immediate and very decided concentration of the blood, owing to the blood becoming deprived of a large amount of its water through the intestinal secretion which the salt excites; if, however, the salt be given dissolved in sufficient water, or if the alimentary canal contain sufficient fluid at the time of the administration of the salt, no such concentration of the blood occurs. In the former case the hæmatic concentration is very considerable, and is very quickly produced. It reaches its maximum within half an hour after the ingestion of the salt; and is so marked that after giving three-quarters of an ounce of sulphate of soda dissolved in three ounces of water to a man, whose alimentary canal must have been practically free from fluid, I found that the number of blood corpuscles in each cubic millimetre of his blood rose from about 5,000,000 to 6,790,000. An almost similar result was obtained with a dog. This excessive state of concentration does not last very long. In from one to one and a half hours after the administration of the salt it begins to decline, and continues to do so until at the end of about four hours the concentration is reduced to the normal. This reduction is effected not by the absorption of fluid from the intestines, but by the abstraction of lymph and other fluids from the tissues, and the quantity thus abstracted must be very large. These alterations of the volume of the blood take place apparently without any corresponding change of the blood-pressure. The blood, therefore, would appear to abstract the tissue fluids in virtue solely of its concentrated condition, and, in the nature of its action, to behave somewhat like a sponge. The presence of the salt in the blood may also influence the tissue fluids by acting on them endosmotically. Some hours after the administration either of a concentrated or of a dilute saline solution the blood undergoes another concentration, less in degree than the first, but continuing for the greater part of the day. This second concentration is evidently due to the diuretic effect of the absorbed salt. Doubtless, during this period also, as during the first concentration, the tissue fluids are being drawn upon.

From these remarks it will be readily understood how that a concentrated solution of a saline cathartic ought to prove of considerable service in certain cases of dropsy, where, owing to the great accumulation of transuded serum in vital parts and elsewhere, there is imminent danger to life and an urgent need for an immediate and active removal of a portion of the transuded fluid. In such cases the value of saline and other active cathartics has long been appreciated, but I am not aware that use has been made of the more powerful action of a concentrated saline cathartic. It removes the dropsical fluid by two channels: by the intestines and by the kidneys. No other purgative has this double action. It is questionable, also, if any other purgative acts so rapidly in reducing the fluids of the blood. This is of the greatest importance in certain critical cases of dropsy. It is almost perfectly certain that no other purgative excites intestinal secretion so powerfully, and at the same time produces so little irritation of the intestinal mucous membrane and so little disturbance of the body generally. This is an additional recommendation for the employment of the concentrated saline. The diluted salt, the form in which it is always given, has practically, in so far as it effects dropsical fluids, the action only of a diuretic. Based on these considerations, I have made several trials of the concentrated salt in suitable cases of dropsy, and in most of them with very satisfactory

results. It is sufficient for my present purpose to give details of one of these cases.

J. A—, a young lad, aged ten, had been an out-patient of the Edinburgh New Town Dispensary for over a year, when, as one of the physicians to the dispensary, I was asked to visit him. He had been suffering for several years from heart disease. I found him propped up in bed, being unable to lie down, and showing signs of great distress. His breathing was rapid and shallow, and he was suffering from great dyspnoea, with frequent coughing. There was a well-marked ascitic distension of the abdomen and general anasarca, observable especially in the lower limbs. A loud mitral regurgitant murmur could be distinctly heard over the whole of the front of the chest. The pulse was rapid, small, and weak. An abundance of soft râles, audible all over the chest, especially towards the base of the lungs, indicated a pronounced œdema of these organs. The dyspnoea was so great that he sat with his arms straight and almost perpendicular, and with the hands pressed on the bed, elevating and fixing the shoulders to bring the extraordinary muscles of respiration into play. He had been treated previous to my seeing him with almost every variety of renal and cardiac stimulant, and at intervals with cathartics. At the time I visited him, besides some medicine to relieve the cough, he was having iron and digitalis several times a day. In spite of this active medicinal treatment, his condition was gradually becoming more serious, and the dropsy and breathlessness were increasing. The administration of a saline cathartic, dissolved and diluted in the usual way, had been tried, it so happened, two days before I saw him, but its action was attended with only slight relief. As I thought this a suitable case for the use of the concentrated saline, I ordered that he should have as little as possible of food and liquids during the night, in order to free the alimentary canal from digestive juices or other fluids, and permit of the full action of the salt, and I asked his mother, who was nursing him, to give him next morning three-quarters of an ounce of sulphate of magnesia dissolved in two tablespoonfuls of water, no water to be given afterwards. The result exceeded my expectation. When I called next evening, the patient was lying quietly sleeping in his bed. The anasarca was greatly diminished, and the dyspnoea had almost entirely gone, and his breathing was much slower. The pulse was also less rapid, and the pained, anxious expression of his face had vanished. His mother told me that she had given him the salt as I had directed, and that in less than an hour afterwards the purgative action of the salt manifested itself, and there were repeated evacuations in the course of the next few hours; on each occasion the water seemed to "gush" from him, and he passed an unusually large quantity of urine. There evidently had not been merely a removal of so much fluid from the blood and tissues as was necessary for the usual dilution of the salt within the intestines, but the sharp, sudden withdrawal of fluid from the tissues by the concentrated blood had initiated a movement of the fluid into the latter, which had continued for some hours after the direct action of the salt and the blood had ceased, and until the tissues were in great part rid of their superfluous liquid. Next day I was pleased, on entering, to find him on the floor amusing himself with the other children, and looking perfectly comfortable and happy, and, except for his wasted and pallid features, showing little evidence of having been quite recently so dangerously ill. I was told he had not felt so well for five months before. I continued to see him for a month afterwards, during which time he resumed taking the digitalis and

iron, and throughout this period he had no return of the dyspnoea, and the dropsy was comparatively trifling. Owing to the removal of the family afterwards to England, I obtained no account of his further progress. The benefit of the concentrated purgative was in this case very striking, and, perhaps, more so than in any other case in which I used it. The conditions necessary for the successful administration of the salt are that the nature of the dropsy should be such as to permit of the full action of the salt. I have found it more useful in general dropsies than in local dropsies, and of general dropsies most beneficial in those dependent on a stasis of the circulation, as cardiac dropsy. The cases in which I have employed it are, however, as yet too few to warrant me in making definite generalizations. The other requisite conditions are that the alimentary canal, by the previous abstinence of the patient for some hours previously from food, and especially liquids, should be allowed to become as free from fluid as possible, and that the salt should be administered along with the smallest possible quantity of water. Sulphate of magnesia, on account of its being soluble in less than its own weight of water, is one of the most suitable of the saline cathartics for this purpose. Sulphate of soda is, owing to its greater insolubility in water (1 in 4), less suitable. The alkaline tartrates and Rochelle salt do not, however, present this objection, and may therefore be found useful. The phosphate of soda and the sulphate of potash are too insoluble to be of any service.

Edinburgh.

OBSERVATIONS UPON THE BACILLUS OF TUBERCLE.

By SAMUEL WEST, M.D., M.R.C.P.,

Physician to the Chest Hospital, Victoria-Park, etc.

A CONSIDERABLE number of observations upon the presence of the bacillus tuberculosis in the sputum of phthisical patients have been already published, with a very remarkable and perhaps surprising concordance. To this record I wish to add the results of my own observations. I have examined myself at least fifty cases of phthisis, and, with those which have been examined for me, the number is much larger. They were all cases in which from physical and other signs the diagnosis of phthisis was certain. The sputum was treated by Ehrlich's method, and stained with fuchsin.

1. The bacilli were found present in every case without exception, although in a few cases they were in such small numbers as to be found only after repeated and careful examination. 2. They varied much in number in different cases, and even in the same case at different times. In some instances the decrease in number was coincident with improvement in the general condition of the patient, but this was not always so. The number appears to vary with the rate of breaking down of the lung, and is so far a rough measure of the gravity of the case, but there is no relation between the number of the bacilli and the extent of the physical signs. 3. When numerous the bacilli were separate or grouped together. In some of the most acute cases which I have examined they were separate, though existing in very large numbers. In other cases they were grouped together in twos or threes, or in large numbers, and they occurred occasionally in very large masses. As a rule, when the bacilli are in large numbers, they are also grouped together. 4. In some instances the bacilli contained bright bodies, which have been called spores, and these were most numerous in cases

of very rapid progress, but they did not occur in all the acute cases. Similar small bright bodies were often found free when the bacilli contained the spores, as if they were possibly free spores. 5. There seemed to be but little variation in the size of the bacilli either in the same case or in different cases, and I am unable to confirm the statements made by Balmer and Fraentzel that different stages of development may be traced in the bacilli in sputum, and that their stage of development is of importance in prognosis.

Besides the sputum, I have examined in some few cases also the contents of the cavities in the lungs, and have made microscopical sections of the lung itself. The bacilli are found, it appears to me, in largest number and in greatest masses, not in the lung tissue, but in the caseous material lining the walls of the cavities. This observation has been made also by Balmer and Fraentzel, and its accuracy in some cases I can confirm. It is a very remarkable and important fact, if it be established, that the bacilli develop most freely, not in the lung tissue itself, but in the walls of the cavities; and it provides an explanation of the variation in number and grouping of the bacilli in different cases, and in the same cases at different times.

Although the importance of Koch's discovery cannot be overestimated, still, from a clinical point of view, too much must not be demanded from it at present. The bacillus is found in all cases of undoubted phthisis, and is therefore a new fact confirmatory of the diagnosis; but as it is probable that it can occur in the sputum only when excavation has taken place, we may expect to find the bacilli absent in very early cases, even when, it may be, the physical signs are sufficient, together with the constitutional symptoms, to justify the diagnosis of phthisis.

If, however, it prove from histological observation that there are cases of phthisis in which the bacillus is not found in the tissues or in the cavities, its presence will then become of very considerable diagnostic value. The possibility, however, of such a discovery is not great, seeing that in the heterogeneous cases of phthisis hitherto examined the bacilli have been present in the sputum of all alike. Moreover, in some of the rarer cases of phthisis, cough and expectoration are absent for some time. Two cases of this kind I have at present under observation. Both, I believe, from the physical signs to be cases of phthisis; but in neither is there any expectoration. In such cases excavation only takes place later in the disease, and therefore no help to diagnosis will be obtained in the early condition from the presence of bacilli. Bacilli are, I think, evidence only of excavation, and increase in most cases therefore *pari passu* with the physical signs. If, however, after a time of progression the disease ceases to advance, it is possible that the number and grouping of the bacilli may give evidence of it, but the evidence will, I think, be more clearly marked in all probability by improvement in the general condition of the patient. We have, however, at present not a sufficient number of observations upon these points.

Regarding then, as I do at present, the number and arrangement of the bacilli in the sputum as evidence of active excavation of the lung, it is clear that their value in prognosis will be the same as that of excavation. They will give, it is probable, moreover, an easier means of estimating the rate of this excavation than we at present possess in the physical signs, and will prove therefore of some aid in prognosis. They will be large in number, and grouped together in cases of rapidly progressing excavation; small in number and not

grouped in cases of slowly progressing excavation; and they will, by varying with the rate of excavation, provide a measure of the present progress of the disease. The relation between the temperature of the patient and the bacilli in the sputum has not yet been fully worked out. So far as my own observations go they show a close relation—i.e., those cases, as a rule, which have well-marked hectic fever, exhibit the largest number of bacilli in the sputum, as indeed would be expected if they are a measure of the amount and rate of excavation.

In the recent debate at the Medical Society Dr. Gibbes could not have understood the purport of my remarks, or he would not have credited me with the astounding statement that I thought there was nothing more to be made out in this subject. What I did say was this: that Koch's experiments were so masterly and complete, that little more had been done hitherto by subsequent observers than to confirm the results he had arrived at; and up to the present this is unquestionably correct. The field of research which Koch's experiments have opened out is very large. Few can even guess what a crop of knowledge its cultivation will yield. No one surely would be so rash as to prophesy that it would prove barren soil. It is in giving us the first real hold of the disease in its essential nature that the value of Koch's discoveries lies. If it be true that phthisis and tubercle in all its manifestations be due to a special bacillus, the imagination hurries on to the time when the bacilli may be killed or rendered harmless by appropriate remedies, or the body be protected against the ravage of the germs of tubercle, as it is already against those of small-pox, or, in the case of animals, of anthrax.

With reference, however, to the question of the contagiousness of phthisis, this discovery introduces dangers of its own. The conclusion is so tempting that the risk arises of its being adopted without proof. Yet it seems certain, from clinical observation, that in this country, at any rate, phthisis is not contagious in the ordinary acceptance of the term. The analogy of typhoid fever and pneumonia suggests itself at once; for in both these diseases, just as in consumption, isolated cases of direct infection or contagion occur from time to time, and yet they would never be classed under the head of contagious diseases in the ordinary sense. And I quite agree with Dr. Broadbent in his observations at the Medical Society's debate, that the selection of the question of the contagiousness of phthisis by the Collective Investigation Committee was hardly judicious at the present time, unless those in charge of the investigation are prepared themselves very carefully to sift the evidence brought forward in each case before giving it the sanction of their authority.

Wimpole-street, W.

INTRODUCTORY NOTE ON THE PHYSIOLOGY OF THE CARBOHYDRATES IN THE ANIMAL SYSTEM.¹

By F. W. Pavy, M.D., F.R.S.

My last communication to the Royal Society was entitled "A new Line of Research bearing on the Physiology of Sugar in the Animal System." During the time which has since elapsed I have been actively continuing my investigations in the direction started, and the results obtained give an entirely new aspect to the whole subject of the physiology of the carbohydrates in the animal system.

Modern research has shown that, besides the well-known carbohydrate principles, such as sugar, etc., there are several dextrins distinguishable by their optical properties and their cupric oxide reducing power. From the colloidal principle starch, which has no cupric oxide reducing power, principles (dextrins) are producible by the action of ferments possessing gradually increasing cupric oxide reducing power, until maltose is reached, which constitutes the final product, and which possesses a little more than half the cupric oxide reducing power of glucose. This is one foundation point connected with the researches I have been conducting upon the physiology of the carbohydrates in the animal system. The other foundation point is that the various members of the carbohydrate group are brought into glucose by the agency of sulphuric acid and heat.

Proceeding upon these facts, and taking the cupric oxide reducing power before and after subjection to the converting action of sulphuric acid and heat, I have prosecuted investigations upon the transformation of the carbohydrates within the animal system with the result of acquiring knowledge of an altogether unexpected nature.

Hitherto what has been observed as regards the transformation of carbohydrates by the action of ferments and chemical agents, has been a change attended with increased hydration—for example, the passage of starch into the successive forms of dextrin and maltose, and cane sugar into glucose. The issue of the researches, however, which I have been conducting recently is to demonstrate the passage of carbohydrates exactly in the opposite direction by the action of certain ferments existing within the animal system. Alike in the alimentary canal, the circulatory system, and the liver, the conditions exist by which this kind of transformation is effected. From the mucous membrane of the alimentary canal a ferment is obtainable which converts (1) glucose into a body possessing the same kind of cupric oxide reducing power as maltose; (2) cane sugar into maltose, and not glucose as formerly asserted; and (3) starch either into maltose or a dextrin of low cupric oxide reducing power.

The presence of carbonate of soda modifies the action of a maltose-forming ferment, and leads to starch passing into a dextrin of low cupric oxide reducing power instead of into maltose. The portal blood contains a ferment which possesses a maltose or a dextrin-producing power, and the contents of the portal system during digestion are charged with a notable amount of maltose sometimes, and at other times a low cupric oxide reducing dextrin. After the introduction of glucose into the circulatory system I have observed the presence of maltose. The liver also contains a ferment capable, under certain conditions, of carrying glucose into maltose, and I have further witnessed, by the same kind of action as the sugars and dextrins are moved from one to the other, the conversion of a carbohydrate into the colloidal material belonging to the animal system (glycogen), which holds the analogous position of starch in the vegetable kingdom. Evidence has likewise been supplied that by an action of the same nature as that which moves the carbohydrates from one to the other in the carbohydrate group, they are, under certain conditions, carried into a body out of the group, and thence not susceptible of being brought into glucose by the converting action of sulphuric acid; and, on the other hand, under other conditions, a substance is brought into the carbohydrate group and its nature made recognizable by the converting action of sulphuric acid and its cupric oxide reducing power.

The subject as it even now presents itself is a

¹ Read at the Royal Society, April 12th, 1883.

large one, and I propose to deal with it in detail in a series of communications. The first will be devoted to that which refers to the alimentary canal.

CASE OF POISONING BY CITRATE OF CAFFEINE; RECOVERY.

By CHARLES H. F. ROUTH, M.D.

A PATIENT of mine, aged sixty-three, had been under my care for some time. He was a very sober but very weakly man, very nervous, but of very good spirits notwithstanding. He had been ailing a good deal for the last two years with headache, especially at the back of the head and round the right orbital region. There was also occasionally severe chestache, which appeared to impede his breathing sometimes; and severe backache, not interfering with his movements, but referred to the region of the kidney. Several remedies were tried—alkalies, iodide of potassium, salicine and salicylates, hydrochlorate of ammonia, bromides, guaranas, blisters behind the ears, pediluvia, etc. He continued under me from Jan. 3rd up to Feb. 20th, and was much better and stronger. There was no heart disease, but it was very weak in its action. The urine was also normal and free from albumen; sp. g. 1025. On Feb. 20th, as my patient did not improve as readily as I wished, I ordered him to take one drachm of citrate of caffeine three times a day, and a sleeping draught at night. I meant Bishop's granular effervescent citrate, the only medicinal preparation in vogue. Unhappily I did not specify this exactly, never doing so, and having always received this preparation when ordering it simply as citrate of caffeine. But unfortunately, also, the chemist who made it up supplied the ordinary citrate of caffeine pure and simple. My patient took one powder at 4 p.m.—i.e., a whole drachm. Symptoms followed immediately. Burning in throat and gullet, succeeded by giddiness, faintness, nausea, numbness, and tremors of extremities; pain and tenderness of bowels and stomach; great thirst; dry tongue. At 4.45 he was violently sick, with vomiting of digested matters, and also violent purging. Much urine was also passed. This sickness and vomiting recurred at 5.45. On leaving the closet he could scarcely walk, and had to be assisted. These vomited matters consisted also of digested matters. I was absent at the time, and having ascertained that it was the pure citrate that the chemist had supplied (for a powder was brought to me), I managed to get to my patient at 6 p.m. He was then collapsed; pulse hardly perceptible, irregular, 120; skin cold and clammy, but all his senses perfectly intact, not even headache; sensibility of skin nowhere impaired, a symptom not presented throughout. I at once administered half an ounce of ipecacuanha wine. In about a quarter of an hour he was very sick. I now administered two tumblers of lukewarm water, and waiting another twenty minutes and no-sickness resulting, I again gave two teaspoonfuls of ipecacuanha wine, and made him sick by passing my finger down his throat. He soon felt a little better, and I now gave him one drachm of animal charcoal with ammonia, and two and a half drops of nitrite of amyl. He rallied a little; so placing him near the fire, I left him for a few minutes. My son, Dr. Amand Routh, soon arrived to take my place at 7.30. The patient in the mean while had been very sick, had vomited largely, and also all or the greater part of the charcoal.—7.30: Condition as before; hands and feet icy cold; muscular tremors in hands and feet; cardiac oppression, sense of impending death.

Pupils equally dilated, indeed rather contracted. Some lumbar pain and tenderness, some aching about the masseter muscles. Ordered sinapism to heart; to put his feet in hot water; ammonia, alcohol, and nitro-glycerine.—10 p.m.: Debility and depression of spirits, as before. Pulse rather firmer, hands and feet warm; lumbar pain worse; no urine passed. Taking greasy mutton broth at frequent intervals, and half an ounce of brandy every four hours. Throat feels very sore, and has a burning sensation down the œsophagus. Organs of sense have been throughout unaffected, and the head is free from pain. To continue one drop of nitro-glycerine solution every two hours. The patient continued to improve till 1.30 a.m. of the 21st, when I left him. I saw him with my son the next morning. He complained still of feeling very ill; but he was certainly not so weak; his pulse was stronger, but the top of the head was very painful; had urinated freely. The right orbital region was also very painful. Nitro-glycerine was continued; no sickness; took milk and soda-water freely. Cold to head to relieve pain. As he complained still of a burning sensation in the mouth, I ordered ice, but this producing intense abdominal pain it was stopped. The diluent drinks with raw beef-juice were freely taken. Later the headache increased and the pain in back, both of which were relieved by mustard poultices. Later I substituted digitalis and gave up the nitro-glycerine. From time this he improved. The prostration gave way, and he complained mainly of the back. On February 24th the pulse was 80, not over-strong; urine, specific gravity 1025, no albumen, doubtfully a trace of sugar. Lumbar pain relieved by pressure, only muscular; no headache. Food mainly bread and bread-and-milk, with brandy and soda-water.

In sum, the symptoms were those of a vegetable and depressant irritant. But for the violent sickness, I think the dose would have been fatal, especially with so a weak a man. It is, I believe the only case on record of poisoning in the human subject by caffeine, and as such, is, I think, worthy of record. I am, perhaps, to blame for not having written more precisely the drug meant; but the chemist who supplied it, I think, was equally to blame for not knowing that pure caffeine in these large doses would necessarily act as a poison. It is usually said convulsions occur in these cases. Here nothing worse was observed than muscular tremors. It may be worthy of remark that the mind was and has continued unaffected throughout. This case is also instructive as showing what a very powerful agent we possess as a nervous medicine in caffeine, if it be used in proper medicinal doses.

Montagu-square, W.

ON THE SIMPLE TREATMENT OF CONGENITAL CLUB-FOOT.

By EDMUND OWEN, F.R.C.S.,

Surgeon to St. Mary's Hospital, and to the Out-patients at the Children's Hospital.

THE common form of congenital club-foot is that in which the heel is raised and the sole twisted inwards. The speculation has been ventured upon that the deformity may be the result of the adaptation of the foot to the restricted accommodation of intra-uterine life. Whether this be so or not is immaterial to the aim of this short communication, in which I shall submit that in many, if not in most, of the cases of congenital talipes equinovarus a permanent shortening of the tendon of Achilles is the head and front of the offending.

When this tendon has shortened to the utmost in the elevation of the os calcis it can contract still further by effecting a rotation of the bone upon its antero-posterior axis, the astragalus also participating in the inversion. The natural bowing of the leg and the absence of malleolar projection upon the inner side determine that the secondary distortion of the foot shall be inwards. Probably in the early months of the compound deformity the tibial muscles have but little concern in the matter, though, if the treatment of it be delayed, their tendons have no more chance of undergoing due growth than have the bones and the pedal structures generally, and thus they may eventually require section. My reasons for advancing this view are briefly these:—1. Uncomplicated talipes equinus is by no means of infrequent occurrence as a congenital deformity, whilst simple inversion of the foot without any elevation of the heel is a rarity; and, as talipes varus is commonly associated with equinus, it appears not improbable that the inversion of the foot is but a further development of what would otherwise be an extremely common congenital deformity—talipes equinus. 2. In ordinary equino-varus the tendon of Achilles is displaced well to the inner side of the vertical median plane of the ankle-joint, as if, having expended its energy in raising the heel, it had finally imparted to it a definite inward twist; and this condition is to be made out even when there may be no great amount of contraction of tibial tendons. 3. In many cases of slight equino-varus, when one has been hesitating as to whether or not the tendons lying against the internal malleolus should be divided before that of the calf muscles, and has eventually decided against their divisions, on cutting through the tendon of Achilles all the inversion of the foot has disappeared. 4. A prolonged and intimate acquaintance with the employment of the plaster-of-Paris bandage has shown me that in many instances of the twofold deformity of infants division of the tendon of Achilles is the only cutting operation required.

If the theoretical parts of the foregoing sentences be deemed unsatisfactory, a total disregard of them will in no way interfere with the excellent working hypothesis with which I venture to associate them. And here I would remark that the "simple treatment" which I am about to describe in no way refers to those varieties of slight deformity which one has been accustomed to see effaced by massage or manipulation, or by the education of a splint of tin; nor, on the other hand, does it refer to those deformities of later childhood in which all the structures concerned have become rigid, misshapen, and displaced.

In the ordinary course of dealing with an infant's foot in which the heel was firmly elevated and the sole faced directly inwards one or more of the tibial tendons would be divided, and after the lapse of a few days the foot would be secured in a Scarpa's shoe, for the correction of the inversion. When this first step in the operation had been accomplished the second would be taken, which consisted in the section of the tendon of Achilles; and when the slight wound in the skin had become securely mended the heel would be gradually brought down by means of the working of a cog-wheel at the ankle. Subsequently through weeks or months precautions had to be taken to provide against a relapse. Those who have had much to do with Scarpa's shoes will probably agree in this, that, excellent as they are, they are costly; that in hospital practice at least they are apt to get out of repair; that the little patient has a marvellous knack of getting his small heel from out of the depths of the shoe; that the infant requires almost daily surgical supervision; and that, even

when the greatest care is being exercised, the localized pressure of a strap is apt to excite general irritability or distress, and to excoriate the foot. Now, by substituting a properly prepared plaster-of-Paris bandage for the mechanical shoe in many cases the tendon of Achilles only need require division; and about three or four days after the little operation the foot is to be put in a thickish sock which fits it evenly and smoothly. Then, from about the line of the clefts of the toes to a few inches above the ankle, the foot is to be quickly and firmly encased in the wet plaster bandage, and immediately that the last turn is finished the foot is to be forcibly manipulated, so that as the plaster is setting it may be steadily held in a position towards flexion and eversion such as shall give cheering and definite promise of eventual cure. In three minutes or less, when the plaster has hardened, the tip of the sock should be cut off in order that the toes may be exposed to view, for if they by chance were seen swollen or congested the hardened bandage would at once be removed; but if not, the casing might be left on for two or three weeks without being touched. At the end of that time it should be removed by finding the end of and unwinding the bandage. The foot should then be rubbed with oil and again enclosed as before, only as the plaster is hardening this time the position is to be absolutely rectified. In another three or four weeks the foot may be again examined, and then put up a third time in plaster-of-Paris, or fitted with a stiff leather boot, as may be deemed expedient; when the patient lives at a distance the former course is desirable, lest the needful frictions and manipulations being but imperfectly executed a relapse follow.

As a rule the infant suffers but little discomfort after the first few hours; and I am told by those who are in a position to judge that the smooth pressure of the casing does not distress the child even during that short period as much as does occasionally the tightening of the strap of a Scarpa's shoe. Certainly in a long series of cases which have been thus treated, I have never once seen the skin sore or even threatening. The supervision after a few days have passed need entail no trouble either on the part of the surgeon or the mother. At the present moment I have hospital patients who are being thus treated in Buckinghamshire, at Woolwich, and in several other outlying places, and, having arranged that on the slightest suspicion of there being anything going wrong under the bandage I am to see the child, I am able to let the mother attend once a fortnight. In one case there was some suppuration under the skin of the calf, which was in some obscure manner due to the bandage; but the complication soon passed away and merely prolonged the ordinary course of events.

I should say that, as a rule, the plaster bandage has to be reapplied three or four times; probably much of the success attending its employment depends upon attention to the following details:—The bandages should be about two inches wide and two yards long; one and a half or two of them will be necessary. The material of which they are composed should be "cross-wove crinoline muslin," and this should be boiled before it is used in order to free it of the stiffening of size with which it has been "dressed." When it has been dried its meshes can be more easily and thoroughly impregnated with the dry plaster which is to be rubbed over each side and well up to the ends of the bandage. The plaster should be quite fresh, and of that fine quality which dentists use for their maxillary models. A most important point is that the impregnated bandages be loosely rolled, so that immediately they are put into water every

molecule of the plaster may be straightway wetted. The roller must be dipped, not soaked, in the water, and should be applied dripping wet, for squeezing it drier in the hand involves the loss of much valuable plaster from its folds or meshes, and perhaps also some slight loss of time. A little common salt should have been dissolved in the water to hasten the setting of the plaster. The whole business occupies about five minutes; and on its conclusion a handful of moist sugar in the wash-hand basin will be found of excellent service in freeing the operator's fingers and nails of the tenaciously adhering plaster.

Seymour-street, W.

ON THE TREATMENT OF DOG-BITE IN THE EAST CONSIDERED WITH REFERENCE TO THE PREVENTION OF HYDROPHOBIA.

By PHILIP S. BRITO, M.B., M.Ch.,

Demonstrator of Anatomy at the University of Aberdeen.

ACCORDING to Dr. Hecker, it would seem that hydrophobia existed at least four hundred years B.C., and as time marches onwards instances of valuable lives sacrificed to the love we bear our domestic pets will perhaps be added to the already significant list of fatalities from this disease. It is saddening to contemplate such an event, and with the hope, therefore, that my remarks may possibly help to mitigate this evil, I crave publication for them.

An old Tamil proverb has it "that the bite of the dog needs the use of the sandal." (The sandal, I may inform my readers, is an open shoe worn in hot countries, and may, perhaps, be likened most to an ancient Roman "soccus.") This proverb grew probably out of the treatment adopted in cases of such injuries. The first thing done, and that as soon after the bite as possible, is to chastise vigorously with a sandal the part bitten. This remarkable procedure puzzled me not a little, and I was inclined to ascribe it to a charm, and therefore to discredit the rest of the treatment. But a depth of philosophy seems to underlie it. For on mentioning the circumstance to a professional brother he suggested what seems the true significance of the habit: the effect of such rough treatment being to make the wound bleed freely, and to ensure thus the removal of a portion, at all events, of the virus. It may be asked, Why use a sandal in preference to any other article? I believe it is from the readiness with which it is procurable, as well as from the firm purchase it affords the chastiser from its peculiar shape. Meanwhile some leaves of the *Murungai* (Tamil), *Murungah* (Singhalese), or "drumstick" tree,¹ are beaten up with a little chunam² (caustic lime), and applied to the wound, which is then bandaged. With this treatment the wound usually heals kindly. The interest of all this centres in the consideration whether we are not dealing with some constituent of the leaves which may modify or counteract, in short act as an antidote to, the poison contained in the saliva. Reliable statistics, and still better, reliable experiments, can aid us here. In the interest of science and suffering humanity would our medical brethren in the colonies, to which this tree is indigenous,

¹ I regret that I am not in a position just now to give its technical name. My readings of Emerson Tennent's Ceylon and allied works were attended with equal unsuccess. It is probably one of the cassias. Even for this information I am indebted to the courtesy of Dr. Trail, Professor of Botany, who, from the very general description I was able to give of the tree, imagines it to belong to that family.

² Lime obtained by the calcination of shells (Tennent's Ceylon).

and where happily they yet enjoy untrammelled the blessed freedom of vivisectional investigation, work out the details of the outline herein presented, and settle how far this treatment, so common in Ceylon and parts of India, is worthy of adoption or rejection?

Aberdeen.

ON A CASE OF CONGENITAL CONTRACTION OF THE KNEE-JOINTS WITH DOUBLE TALIPES; TENOTOMY, AND SUBSEQUENT EXTENSION WITH MARTIN'S RUBBER BANDAGE.

By T. HENDERSON POUNDS, M.R.C.S.

E. P.—, aged twelve years, was first brought under my notice in January last. She then presented the following deformity:—Both the knee-joints were contracted, the legs being flexed on the thighs almost at right angles. There was also a double talipes varus. The usual method of progression was on "all fours." On being suspended vertically from the axillæ the tips of the toes only touched the ground. The hamstrings offered a firm resistance to any attempted extension, and very severe reflex contractions ensued upon such an attempt. Finding the muscles on the weakened side responded slightly to the faradaic current, at the parents' request an operation was decided upon. Accordingly at the end of January last I operated on the right limb, dividing all the hamstrings and the popliteal fascia subcutaneously; this latter was distinctly ridged up into vertical fibro-cartilaginous bundles, which gave way on division with audible crepitus. The talipes was also treated at the same time by division of the tendo Achillis and tibials. The limb was put up in plaster of Paris, and left undisturbed for six days. The plaster was then taken off, the limb washed, only slightly extended, and a back splint applied at the knee. A Martin's rubber bandage was then wound round the instep over a stocking, well padded and brought up "on the stretch" on the outer side of the limb; this was fixed above the knee and then used to bind down the knee to the splint, each turn of bandage being put on the stretch; the knee was well padded, a thick pad being placed over the patella. The limb was thus brought gradually into its normal position, the talipes being remedied at the same time. The left limb was operated on a month later, with the same after-treatment. The strain of the antagonistic muscles being taken off, the limbs developed rapidly, the calf of the right limb within the month gaining two inches in circumference. Faradism, frictions of the limbs, "massage," and later on the application of a permanent apparatus with extensions at the knees and ankles, completed the case. The child can now walk a quarter of a mile without stopping, and with little support, although the limbs give to a certain extent at the knees from the want of sufficient power in the extensors.

Snodland, Rochester.

EXTENSIVE INJURY TO ABDOMEN AND THIGH; DISARTICULATION OF HIP.

By JOHN FOX, M.D., M.R.C.S.

ABOUT twenty-two years ago a young lad was brought to the Greenock Hospital, having sustained a most severe injury while attending at a circular saw in a wood yard. The destruction of the soft parts around the left side of the abdomen

and upper and anterior portion of the left thigh was so extensive and serious that there was no alternative left but to perform disarticulation of the limb at the hip-joint. This operation I performed carefully and slowly, and dressed the part with moist lint, straps, and plenty of support with cotton bandages.

The patient progressed satisfactorily for six weeks, no other application than the water dressing, already described, being used. In the course of one month and three weeks from the time of admission I thought proper to give him change of air and intercourse with his relatives, and accordingly I ordered him home, where I paid every attention to him for five weeks. The patient was walking about the house on crutches in less than three months after the operation, and shortly after I had the extreme gratification of seeing him in the street with the intention of going to visit a kind friend.

The great peculiarity of this case is that after the expiration of twenty years his spine is as straight and level as if no operation of the kind had been performed on him. His general health has been good, without the slightest interruption to any function, and he has not suffered from any ailment, not even trifling, since he was under my professional care. My very esteemed friend, Mr. Prescott Hewett, of Mayfair, saw him about six years ago, and, though much pleased with his then condition, warned me to look out for curvature of the spine, as the superincumbent weight would necessarily produce such a condition. My brother-in-law, the late Dr. Henry Davis, of Putney, also saw and carefully examined the spine subsequent to Mr. Hewett's visit, and he pronounced curvature as inevitable in the course of a few months. I had an opportunity of seeing my former patient within the last few days, and made it a point to examine him carefully; the condition of the man far exceeded my most sanguine expectations, the result being quite contrary to the grave anticipations of Mr. Hewett and the late Dr. Davis.

I may mention that from the day of admission to the hospital to the time of dismissal there was not one unpleasant symptom; on the contrary, the progress of the case was steady and highly encouraging. The ligature (silk) came away on the fiftieth day, and the union was complete in the course of a few days after its removal.

Successful cases of this kind of operation are so few, particularly in Scotland, that it ought to encourage surgeons, even where appearances are against the hope of ultimate success.

Greenock.

SPINAL MENINGITIS IN A CHILD FOLLOWING SPINAL CONCUSSION; RECOVERY.

By WILLIAM HENRY DAY, M.D.,

Physician to the Samaritan Hospital for Women and Children.

M. T—, aged twelve, a well-made, healthy-looking girl, was admitted into the Samaritan Hospital, Nov. 18th, 1881, suffering from the effects of concussion of the spinal cord. Three months before admission she jumped, it was said, from the top of a heap of dirt, and on touching the ground struck the lower part of the spine, directly over the sacrum, her feet turning upwards at the same time, as she glided some distance along her back. I think there is little doubt, from what the girl said, that she was stunned at the time of the accident, as she was told she did not answer in reply to questions put to her. This is an interesting point, as in violent falls on the lower end of the spine the

brain sometimes suffers from slight concussion. With the assistance of two school-fellows she got up, and was led home with difficulty. She suffered sharp pain over the seat of the accident, but, after remaining in bed two days, she resumed attendance at school. After two days as she could not sit up without pain at the bottom of the back, she gave up attempting to walk, and took to her bed till the time of her admission into hospital. On examination there was a distinct fulness over the sacral region, and the coccyx was tender, though on insertion of the finger into the rectum no fracture or dislocation of that bone could be detected. The whole spine was curved, owing no doubt to the position she had assumed in bed. She complained of pains down both legs; there was an inclination to draw them up, and there was a sensation of pins and needles, as if they were going to sleep. The patient walked with the face looking to the ground, the shoulders and head bent forward, and the nates prominently projected. On applying a needle to the legs, sensation in the right limb was much less than in the left. It was not recognized at four inches and a half apart as two pricks; in the left it was recognized at two inches. The temperature was normal, the tongue clean, the pulse quiet, and the bowels were regular. The urine was of a pale straw color, alkaline, sp. gr. 1020. The child was kept in bed, a light nutritious diet ordered, and the following draught was given three times a day:—Iodide of potassium, two grains; tincture of belladonna, five minims; compound tincture of cinchona, half a drachm; to half an ounce of water.

On Dec. 1st Mr. William Adams was kind enough to see the patient and to report that the case appeared to be a genuine example of spinal concussion, followed by inflammation of the membranes, which might extend to the substance of the cord, but as yet there was no myelitis. He recommended repeated small blisters to the spine in the lumbar region, reaching as high as the eighth dorsal vertebra, so as to relieve congestion about the lumbar enlargement, and a moderate amount of counter-irritation kept up. He thought absolute rest in bed with this for a few months would arrest further mischief. Mr. Adams further wrote, "I believe you are quite right in suggesting chronic inflammation with effusion, and the case should be very carefully watched for a long time, as possibly Pott's disease of the spine may become developed, or paralytic symptoms, preceded by pain; starting and drawing up of legs may show the extension of inflammation to the substance of the cord. Special symptoms were well marked at the time of the fall, as she could not get up, and was obliged to be carried home."—Jan. 20th, 1882: She is better, and makes no complaint of tingling in her legs; the puffiness and tenderness at the lower end of the back are less, but she cannot lie straight in bed. Urine clear, acid, non-albuminous. The blistering was repeated.—Feb. 10th: Has greatly improved since last report. She moves more easily in bed, and the pain and puffiness in the back are less. There is still some tenderness over the lower lumbar and sacral region, and she complains of occasional sensations of pins and needles, chiefly in the right leg. The medicine was omitted.—March 3rd: During the last week she has been walking about the ward for a short time; she is more upright, and the sensation of pins and needles has departed.—March 19th: She left the hospital with instructions to be kept lying on her back for three months.—Jan. 1883: A report from her friends reached me that she laid on her back as directed for three months, and then went to school. She is quite straight, and can walk well without limping, or feeling pain in her back

or limbs. No spinal support has been worn throughout. No one would know from her gait that her back had been affected.

ON A CASE OF COMPOUND COMMUNUTED FRACTURE OF THE SKULL; TREPHINING; RECOVERY.

By A. D. MURRAY, M.B., M.C.

ON October 26th, 1882, I was called to see H. G—, a man about thirty-eight years of age, who had been thrown out of a cart. I found him suffering from a downward dislocation of the shoulder and a severe wound of the head. After reducing the dislocation I examined the head, and found that there was an extensive fracture of the parietal bone, a triangular fragment being deeply depressed and driven under the sound bone. From the depression fissures could be felt running downwards for about an inch and a half towards the eye and ear. The man had very slight symptoms of concussion and none of compression; but looking at the amount of depression I resolved to trephine without waiting for symptoms to come on. The operation was performed in the usual way. A little more than half a circle was removed from the sound bone above the apex of the triangular depressed portion, and after a corner had been removed by means of the saw the piece was easily lifted out; a clot was found under this. The middle meningeal could be seen pulsating at the lower corner, but was uninjured. Some fragments were taken away, the wound dressed with carbolic oil, and washed frequently with carbolic spray. The man made an excellent recovery, never having had a bad symptom.

I think that this case points strongly to the advisability of trephining at once in compound comminuted depressed fracture of the skull without waiting for symptoms of compression. The operation does not add to the patient's danger, and may, in all probability, be the means of preventing serious complications. I feel sure that had the sharp point of bone remained pressing on the membrane serious irritation would have followed, and that the operation would ultimately have had to be performed under much less favorable circumstances.

Rickmansworth.

SEVEN CASES OF COLOTOMY, WITH REMARKS.

By GEORGE ELDER, M.D.,

Surgeon to the Hospital for Women, Nottingham.

CASE 1.—Three years ago I saw in consultation a case of absolute intestinal obstruction due to malignant disease of the rectum, when colotomy was advised and performed with the result of giving immediate relief to the patient's suffering and prolonging life for thirteen months. During the last two years six other cases have occurred in my own practice, of which the histories are briefly as follows:

CASE 2.—The patient was a woman, between thirty and forty years of age, suffering from syphilitic stricture and ulceration of the rectum. As a hospital out-patient she had had both general and local medical treatment without avail, and with the view of diminishing the intensity of her sufferings, if nothing else, the operation was performed on January 29th, 1881. Three weeks subsequently she was discharged—a gainer in comfort, flesh and strength. From time to time she appears amongst

my out-patients, very different from the prematurely old-looking, suffering woman of two years ago.

CASE 3.—On February 10th, 1881, I performed colotomy upon a woman with a recto-vaginal fistula due to syphilitic diseases; an opening into the descending colon was made. The exceeding debility of the patient, induced by a recent acute illness, made the case a very unpromising one; but the loathsome nature of her rectal disease, with its ever-present depressing effect upon her, decided me to operate. Her recovery was fairly good, and on March 16th she left the hospital, entirely relieved of her sufferings. On Dec. 9th of the same year she died, as I was informed, from exhaustion due to the original disease.

CASE 4.—On February 17th, 1881, left colotomy was performed upon a lady from Sheffield who had been under me at various times for several years suffering from many of the phases of syphilis. Mercury locally and constitutionally, the iodides in very large doses (one drachm and a half daily), medicated bougies, etc., had been long and fairly tried, until at length her sufferings from the constant tenesmus became so intense that she implored me, even at the risk of losing her life, to relieve her. Fifteen days after the operation she was able to undertake the journey home, and in a letter which I had from Mr. Pye-Smith, of Sheffield (to whom the patient applied last year to have the artificial anus closed because of its discomfort), he informed me that before making this attempt the rectum was examined, and the ulceration by lapse of time and absence of faecal irritation was found to have healed. He concludes his letter by saying that doubtless her life has been prolonged and pain alleviated by the colotomy.

CASE 5.—On May 19th, 1881, I performed the operation on a male with malignant rectal disease. The local distress had caused him to seek relief. Fifteen days after the operation the patient returned to his home, ten miles off, and when heard of last summer he was following his occupation of engine tenting, and although feeling acutely the disagreeables incident to an artificial anus, still free in a great degree from the distressing and almost constant bowel pains.

CASE 6.—On June 9th, 1882, in a case of pelvic tumour, which had developed malignancy, and almost entirely occluded the bowel, I formed an artificial opening. The patient had become so exhausted, from the local distress, coupled with the ravages the disease had inflicted on her general nutrition, that when the operation was agreed to death seemed imminent. The shock of the operation almost killed the patient, and although she lived for sixteen days perfectly freed from pain, still the wound never put on healing action.

CASE 7.—Four days after the above case, I again did the operation on a woman between sixty and seventy years of age for malignant rectal obstruction. Her recovery was uninterrupted and rapid, and relief from suffering most marked. The other day she called on me, grateful for what had been done for her.

Remarks.—Up till date these seven cases complete my experience of colotomy. In all the left lumbar operation was performed and the incision was oblique, running from the margin of the last rib across the quadratus lumborum to and in front of the anterior superior iliac spine. No particular difficulty was experienced in any of my cases, and the loss of blood was but trifling. In one instance a fold of subperitoneal fat so simulated the flaccid bowel that I had actually transfixed it before finding out my mistake. There is a danger of making the incision too far forward. This I did in Case 6 and in consequence wounded the reflected perito-

neum, but no harm was done the patient thereby. Carbolized catgut was used in my first two cases to fix the edges of the opening to the skin, but because of its solution before firm union had taken place it was abandoned for Chinese silk. Colotomy is not practiced so often as it ought to be. By diverting the feces and so giving rest to diseased parts it may be directly curative in its action, as illustrated by Case 4. For such cases its more general adoption would prove a great gain in the treatment of cases which otherwise are intractable to treatment. The repugnance which patients frequently manifest even at the thought of such an operation would in great measure be removed when the temporary character of the artificial opening was explained, and the strong reasons for its production. When cure is altogether out of the question, owing to the malignant nature of the disease, we can replace intense, even in many cases incessant, pain by comparative comfort, and, unless the operation is delayed too long, prolong life. This is abundantly shown in the cases above recorded, and by an operation the mortality from which is very small. If patients suffering from malignant disease were seen sufficiently early, a combination of colotomy, as a temporary measure until healing of the parts had taken place, and excision of the diseased portion of bowel would offer the best chance of ultimate recovery. But unfortunately such patients as a rule come too late.

Nottingham.

ON THE COMPARATIVE INUTILITY OF ANTISEPTIC INHALATION AS AT PRESENT PRACTICED IN PHTHISIS AND OTHER DISEASES OF THE LUNGS.

By ARTHUR HILL HASSALL, M.D. Lond.,

Late Senior Physician of the Royal Free Hospital; Founder of and Consulting Physician to the National Hospital for Consumption and Diseases of the Chest.

THE title of this communication will doubtless be a surprise to the advocates of antiseptic inhalation in phthisis and other diseases of the lungs. It has appeared to me that the practice of such inhalation, which is now so much in vogue, has not been shown to rest on any true or scientific basis or foundation, and further that the clinical evidence in its favor is so far singularly weak, notwithstanding the publication of a number of cases affirmed to have benefited thereby. Under these circumstances I have been led to institute a series of experiments and observations with a view to test the efficacy of antiseptic inhalation in the class of diseases mentioned, and I will now proceed to relate the results. The principal antiseptic substances used are phenol, commonly known as carbolic acid, employed much more frequently than all the others, and to which therefore the most importance is attached; creasote, which ranks next; thymol, now coming into more general use; and iodine. Phenol, or carbolic acid, C_6H_5O , has the following properties:—It melts at $107.9^{\circ} F.$ to a colorless fluid, which is slightly heavier than water. When pure it boils at $359.6^{\circ} F.$, and distils without decomposition. The crystals readily absorb moisture from the air; a hydrate, C_6H_5O, H_2O , containing 16.07 per cent. of water, and melting at $63.0^{\circ} F.$, being formed. One part of the absolute acid requires 10.7 parts by weight of water for complete solution. The solutions do not redden litmus, but the acid forms definite salts with strong bases. It is miscible in all proportions with alcohol, glacial acetic acid, and glycerine; also (when anhydrous) with ether, benzene, carbon disulphide, and chloroform.

Smell and taste are much less marked in the pure than in the commercial acid. It coagulates albumen, is a powerful antiseptic and poison, and acts as a caustic on the skin. Nothing is said in books about the volatility of phenol at ordinary temperatures, yet from the powerful odor emitted one would be led to infer that it must be volatile to some small extent. With a view to test this point the following experiments were made: 0.5 gm. exposed uncovered to the air, at a temperature of about $48.2^{\circ} F.$, lost .0035 gm. in two hours, and .0071 gm. in four hours; 0.5 gm., placed under a bell-glass and in air dried by sulphuric acid, lost .0025 gm. in two hours, and .0054 gm. in four hours. These experiments show that the volatility of phenol at ordinary temperatures is exceedingly slight; it increases, however, as shown by some further experiments, which it is not necessary to detail in this place, in proportion as the temperature is raised. One-half gramme of phenol, or 500 milligrammes, equal to about 7.70 grains, was dissolved in water, and placed on the sponge of one of Mayer and Meltzer's cellulose oro-nasal inhalers, and the inhalation was continued for one hour. Of the 500 milligrammes taken 412 were recovered from the sponge, showing a deficiency of only 88 milligrammes. In the second and third similar experiments the amounts recovered were 413 and 458 milligrammes respectively, showing a loss of only 87 and 42 milligrammes. Thinking that the volatility of the carbolic acid would be aided by dissolving it in some more volatile substance than water, experiments were next made with spirits of wine and spirits of chloroform as the solvents. In three trials with half a gramme of carbolic acid, equal to 500 milligrammes dissolved in alcohol, the amounts still retained in the sponge at the end of the inhalation were 442, 485, and 480 milligrammes respectively, showing deficiencies of 58, 15, and 20 milligrammes only. The results of two experiments with spirits of chloroform as the solvent were similar, the amounts recovered being 485 and 495; in the one case 15 milligrammes had disappeared, and in the other five only. It thus appears that the solution of the phenol in alcohol and chloroform in place of increasing really lessens the volatilization.

I may now state that the phenol was quantitatively determined by the very delicate and accurate process of M. T. Chandelon. It is difficult to suppose that the small quantity of carbolic acid which disappeared during the several inhalations could exercise any marked effect in the alleviation or cure of such a malady as phthisis, even if the whole quantity made its way to the seat of the disease, but this it certainly does not do; some is lost in the respirator itself, more in the manipulations necessary to remove the remaining phenol from the sponge, but a still larger amount is absorbed by the skin of the lips and the mucous membrane of the nose, mouth, and fauces; so that it becomes extremely doubtful whether any portion of this antiseptic ever reaches the air cells of the lungs. This doubt is greatly strengthened by the fact that the sputa in cases of phthisis brought up shortly after inhalation never, so far as my experience goes, smell of carbolic acid; neither have I ever found that acid present in them in any notable quantity. Another fact corroborative of this view may here be cited. The air expired during the inhalation of the carbolic acid was passed through distilled water which was afterwards tested for the acid, the faintest trace only being discovered.

The next antiseptic experimented with was creasote. No volumetric chemical process being known for the quantitative estimation of this compound, the gravimetric method had to be pursued, which,

however, furnishes results sufficiently precise for the purpose. Creasote, as is well known, is the product of the distillation of wood tar; it is a very variable admixture of several phenol-like bodies; guaiacol, $C_8H_8O_2$, boiling at $392^\circ F.$; creasol, $C_8H_8O_2$, boiling at $422^\circ F.$; phlorol, $C_8H_8O_2$, and methylcreasol, $C_8H_8O_2$, being the chief constituents. The composition of creasote varies with its origin. Carbolic and cresylic acids occur in pine wood creasote. Guaiacol predominates in Rhenish creasote. Morson's English creasote consists chiefly of creasol, and boils at about $422^\circ F.$ Creasote is sparingly soluble in water, possesses a smoky taste and smell, and is a powerful antiseptic; it preserves animal matters without causing disintegration, as phenol is apt to do, and is less powerfully caustic than the latter. Creasote is miscible in all proportions with alcohol, ether, benzene, chloroform, acetic acid, etc.; like phenol, with which it is often adulterated. 0.5 gramme exposed to the air under the same circumstances as the phenol lost .0090 gramme in two hours, and .0113 in four hours; another 0.50 gramme placed under a bell-glass with sulphuric acid lost .0084 in two hours, and .0106 gramme in four hours. It thus appears that creasote is somewhat more volatile than phenol, but still is of very slight volatility. From half a gramme or 500 milligrammes of creasote, inhaled with water for one hour, 430 milligrammes were recovered, the creasote being dissolved out of the sponge by means of alcohol. From the same quantity of creasote dissolved in spirits of wine there were recovered in the first experiment 406, and in the second 410 milligrammes. While lastly, from the same quantity of creasote dissolved in spirits of ether there were obtained 416 and 406 milligrammes respectively. These experiments show, as was the case with the phenol, that upwards of four-fifths of the creasote used remain in the sponge of the inhaler, while of the remaining small quantity some is lost in the inhaler itself, some is absorbed by the mucous membrane of the nose and mouth, while part is lost during the evaporation of the spirits of wine and ether employed as the solvents of the creasote.

I will now detail the results of the experiments with thymol. Thymol, $C_{10}H_{14}O$, is the camphor of oil of thyme, and is a solid crystalline substance with a pungent taste and aromatic odor. It melts at $111.2^\circ F.$, and does not easily resolidify unless touched by a solid body or a crystal of thymol. It boils at from 428° to $446^\circ F.$; it is slightly heavier than water; in the fused state rather lighter. It is but little soluble in water, requiring about 1,000 parts for solution. Thymol is a powerful antiseptic, its preservative power being ten times as great as carbolic acid, according to Bucholz, and four times as great according to Willmott. It acts as a caustic on the lips and mucous membrane, but does not irritate the skin like carbolic acid. It is soluble in ether, strong acetic acid, and in its own weight of rectified spirit, but is very sparingly soluble in glycerine. 0.5 gramme gained .0003 gramme at the end of two hours, and the weight had not altered after four hours. In an experiment in dry air under a bell-glass there was also no alteration of weight, even at the end of four hours. These figures show that thymol is not in the least volatile at ordinary temperatures. There were recovered after an hour's inhalation in the first experiment 412, and in the second 466 out of the 500 milligrammes employed, and which were dissolved in ether. From the same amount of thymol dissolved in spirits of wine there were obtained 450 and 466 milligrammes. It is therefore scarcely possible to conceive that this antiseptic can, as at present employed, exert any beneficial effect.

The last antiseptic of which trial was made was iodine. Iodine volatilizes at ordinary temperatures in the open air, especially in the presence of moisture; it melts at $224.6^\circ F.$, and boils at from 347° to $356^\circ F.$; it is very sparingly soluble in water, 1 in 7,000 parts only, but is much more soluble in alcohol and ether, and in aqueous solutions of the soluble iodides. It resembles closely chlorine and bromine in its chemical relations. 0.5 gramme exposed to the air lost .0124 gramme in two hours, and .0178 gramme in four hours; 0.5 gramme in dry air under a bell-glass lost .0103 gramme in two hours, and .0145 gramme in four hours. The only experiments made with iodine were the following, but, as will be seen, these were very conclusive:—200 milligrammes of iodine were dissolved in 10 cubic centimetres of spirits of wine, and of this mixture 1 cubic centimetre containing .020 of iodine was placed on the sponge of the inhaler, with a little alcohol added, and inhaled for an hour. A similar experiment was made with spirit of ether as the solvent. The vapor given off was at first pungent and stinging to the mucous membrane of the nose and mouth, but on examining the sponge at the end of the hour all but a trace of the iodine was found to have disappeared. In iodine, therefore, we really have a volatile agent to deal with, and hence it might be presumed that it did, in fact, make its way into the lungs. This conclusion, though apparently warranted by the disappearance of the antiseptic during inhalation, is not confirmed by further observation.

When testing the saliva and mucus of the mouth and throat on the completion of the inhalation with a solution of starch, I noticed that the color of the starch was unchanged, proving the absence of free iodine. On applying, however, an acid to the mucus, the blue color was abundantly developed, showing that very much of the iodine inhaled, and possibly the whole of it, had become converted into an iodide, in which transformation it loses entirely its antiseptic properties. This is an interesting and important fact, not only in relation to the subject now under consideration, but in other ways. Thus, for one thing, it shows how useless it is to administer free iodine as a medicine. Again, it should be known that when, as is frequently the case, carbolic acid and iodine are inhaled together, a strong chemical action is set up between them, whereby probably the antiseptic properties of both are impaired. In the case of iodine, then, evidence is also wanting to show that this antiseptic does really make its way into the lungs. Now it may be urged that if the inhalation of the several antiseptics had been continued for a longer period than an hour, the result would have been different—that is to say, that more of them would have been inhaled. In order to test this point, the inhalation of carbolic acid was continued for two hours in three experiments with the following results:—Of the 500 milligrammes taken, there were recovered by Chandelon's process 410, 400, and 390 milligrammes respectively, thus showing only a very moderate increase, quite insufficient to affect in any material manner the general results arrived at. Even had the amount inhaled been much greater, it would by no means have followed that a proportionate increase of the antiseptic was to be found in the lungs. Supposing a small quantity of any of the antiseptics really reaches those organs, it is not to be supposed that it remains there for an indefinite time, and goes on accumulating as long as the inhalation is continued. The action of the absorbents would doubtless come into play, and the antiseptic which was inhaled the first hour would become removed by absorption during the second hour. Again, it

might be urged that if smaller quantities of the antiseptics were placed in the inhaler, the proportionate volatilization would be greater. 250 milligrammes of phenol in water were sprinkled on the sponge of the inhaler, and inhalation continued for an hour, at the end of which time 234 milligrammes were recovered from the sponge, showing a smaller, and not a larger, proportionate loss.

It will, I think, now be readily acknowledged that the title of this communication was fully warranted by the facts and evidence produced; indeed, it appears to me that a stronger title would have been justified. The subject of antiseptic inhalation in diseases of the lungs is a very important one, and is by no means exhausted in the present communication. I am continuing my observations and experiments; but so far I have come to the conclusion that the most practical method of accomplishing the object in view is by means of an inhalation chamber. There are many difficulties in the way of the construction of such a chamber, and many points would have to be attended to; but the difficulties are by no means insuperable. I have already devised the plan, and am about to have the chamber constructed, so as to be in readiness for the use of patients during the ensuing winter season at San Remo.

San Remo.

ON THE REMOVAL OF A DEEP SEBACEOUS CYST OF THE NECK THROUGH THE MOUTH, AVOIDING AN EXTERNAL SCAR.

By W. J. WALSHAM, F.R.C.S.,

Assistant-Surgeon to, and Demonstrator of Orthopædic and Practical Surgery at, St. Bartholomew's Hospital; Surgeon to the Metropolitan Free Hospital.

SINCE my attention was called, some ten years ago, to Langenbeck's description of deep sebaceous cysts of the neck (Dermoid or Atheromycysten des Halses), although I have constantly looked for the affection, it has but twice fallen to my lot to see an example of it: once about five years ago at the Metropolitan Free Hospital, where I helped a colleague to remove such a cyst by an incision below the jaw; and once during the last autumn at St. Bartholomew's Hospital, where I removed one through an incision in the mouth. The comparative rarity of deep sebaceous cysts of the neck, and the facility with which I was enabled to remove the whole cyst through the mouth, thus avoiding an external scar, are my reasons for drawing attention to the subject. Sebaceous or atheromatous cysts, says Langenbeck,¹ apart from their frequent occurrence in the scalp and skin, are only found deeply seated in the region of the neck and throat, sometimes under the superficial fascia, sometimes deeper, having attachments to parts of the larynx or pharynx or to the carotid sheath. They appear as tumours of a globular or ovoid shape, with a smooth and even surface, and are tense and elastic to the touch; whilst, with one finger in the mouth and the other pressing upon the swelling in the neck, fluctuation can be distinctly felt through them.

In several of the cases referred to by Langenbeck a transmitted pulsation of the carotid artery was felt on extension of the head; but in these cases the cysts had an intimate connection with the sheath of the great vessels, and most of them were contained in the superior carotid triangle. In both the cases I have seen the growth corresponded with Langenbeck's description, but in neither did I detect any transmitted pulsation from the carotid artery, nor discover any connection

with the carotid sheath, but then they were situated almost entirely in the digastric triangle. Both appeared globular, and to have only superficial attachments; but at the operation for their removal deep ramifications were found extending amongst the muscles of the tongue and hyoid bone. That at the Metropolitan Free Hospital occurred a little below and in front of the angle of the jaw, and extended down the neck to above the level of the hyoid bone. It appeared to be about the size of a Tangerine orange, was freely movable, and fluctuation could be felt through the mouth. On removal deep prolongations were found running in several directions, one as far forward as the symphysis, and others amongst the muscles of the tongue. Notwithstanding these it was fairly easily shelled out with the finger leaving the various structures forming the floor of the digastric triangle exposed to view. The cyst that I myself removed occurred in an unmarried woman thirty-four years old. She had first noticed a swelling under the jaw about five years ago, and it had since been growing gradually larger. She was certain that it had not existed longer than that time. On admission the swelling was about the size of an orange, and situated in the right side of the neck, extending downwards into the neck for about two inches, and upwards into the mouth. It was globular, circumscribed, apparently freely movable, non-adherent to the skin covering it, which was normal, moderately tense, smooth on the surface, and giving no pain when handled. On pressing it upwards from the neck, it could be made to project prominently into the mouth, where it could be felt reaching from the base of the right anterior pillar of the fauces to the symphysis. Fluctuation, with one finger in the mouth and the other on the neck, was readily perceptible. I was unwilling to remove it by an incision in the neck, feeling sure from former experience that notwithstanding that it felt freely movable and circumscribed, it would have deep connections, and therefore that the wound, considering, the laceration and bruising of the tissues which would necessarily ensue, could hardly be expected to heal by the first intention. I was anxious, the patient being a woman, and of not unprepossessing appearance, to avoid a scar. Langenbeck's experience of tapping or incising these cysts, moreover, was not encouraging. In one case treated by incision the cyst filled again and again for four years. Mr. Willett, who kindly saw the case with me, thought that it might be removed through the mouth, and considering the ease with which the former cyst, in spite of its deep attachments, shelled out, I determined to make the attempt. The patient having been brought under the influence of chloroform, a gag placed in the mouth, and the tongue drawn over to the left side, an incision was made in the floor of the mouth from opposite the last molar tooth to the symphysis, and the sublingual gland having been turned to one side, the wall of the cyst was exposed. The capsule was opened, and the cyst separated with the finger quite easily from its posterior, external, and anterior connections. On its inner or deeper aspect the enucleation was less readily accomplished, several prolongations extending among the muscles of the tongue and hyoid bone. In freeing the deeper parts the cyst wall, which up to this time had remained unbroken, was ruptured at its upper part by coming into contact with the teeth. After evacuating the greater part of the contents (pseudo-sebaceous or porridge-like material), carefully preventing any from entering the wound, the whole cyst, with its deep ramifications, was completely removed. There was no hæmorrhage; the wound therefore was not plugged, but only a small piece of oiled lint placed

¹ Archiv für Klinische Chirurgie, Band i., 1860, p. 1.

in it superficially to prevent its closing, and a bandage applied to the neck so as to make gentle pressure upon its deeper parts. With the exception of a sharp rise of temperature on the morning after the operation, which rapidly subsided on removing the lint from the wound, the patient convalesced without a bad symptom. The wound was syringed out hourly with a weak solution of carbolic acid (1 in 100), and gentle pressure continued on the neck by means of a bandage. It completely healed in a fortnight, and the patient was discharged at the end of three weeks without a trace of any external swelling in the neck.

The origin of these cysts would seem involved in some obscurity. In several of the cases quoted by Langenbeck and Gurlt they were attached to the carotid sheath, from or in which they are believed by Langenbeck to grow. In most of the cases the cysts appear to have existed a long time, and in some to have attained a large size. One cyst,* which began below the lower jaw, and at first was no bigger than a hazel nut, in ten years grew so large that it extended to the clavicle. In neither of the cases under present consideration had the cyst any connection with the carotid sheath, nor, as far as I could determine, with either the larynx or hyoid bone. For my own part, I should regard such a connection rather as accidental—i.e., that the sheath of the vessel or other structures had merely become involved in one or more of the out-growing processes of the cyst as the latter increased in size and depth. If such be the case, it is a point in favor of their early removal, for in some of the published cases the cyst has been found so intimately attached to the sheath of the great vessels that its removal has involved the excision of an inch or more of the jugular vein; or, in consequence of its relation to the artery itself, the operation has had to be abandoned. Although no general rule of practice can, of course, be drawn from the experience of a single case, I venture to suggest that where, as here, the cyst is freely movable, and can be made easily to project into the mouth, removal through the mouth will be found the best method of treatment. It may, of course, be objected that such a proceeding involves a deep wound with no depending opening, and that it must be attended with considerable bruising and laceration of the surrounding tissues. I think, however, if pus is prevented from collecting in the deep parts of the wound by maintaining a free opening into the mouth, by frequent syringing, and by applying well-regulated pressure to the neck, that, considering the vascularity of the parts, no difficulty need be apprehended in the rapid healing of the wound. The avoidance of an external scar in the removal of such growths is alone, I think, sufficient to render this method worthy of further consideration.

Weymouth-street, W.

A RAPID METHOD OF DEMONSTRATING THE TUBERCLE BACILLUS WITHOUT THE USE OF NITRIC ACID.

By HENEAGE GIBBS, M.D.,

Curator of the Anatomical Museum, King's College.

THE following method, which I have used for some time with great success, will I think prove useful to those requiring the demonstration of the tubercle bacillus for diagnostic purposes in a rapid manner. The great advantage consists in doing away with the use of nitric acid. The stain is

made as follows: Take of rosanilin hydrochloride two grammes, methyl blue one gramme; rub them up in a glass mortar. Then dissolve anilin oil 3 c.c. in rectified spirit 15 c.c.; add the spirit slowly to the stains until all is dissolved, then slowly add distilled water 15 c.c.; keep in a stoppered bottle. To use the stain: The sputum having been dried on the cover-glass in the usual manner, a few drops of the stain are poured into a test tube and warmed; as soon as steam rises pour into a watch-glass, and place the cover-glass on the stain. Allow it to remain for four or five minutes, then wash in methylated spirit until no more color comes away; drain thoroughly and dry, either in the air or over a spirit lamp. Mount in Canada balsam. The whole process, after the sputum is dried, need not take more than six or seven minutes. This process is also valuable for sections of tissue containing bacilli, as they can be doubly stained without the least trouble. I have not tried to do this against time, but have merely placed the sections in the stain and allowed them to remain for some hours, and then transferred them to methylated spirit, where they have been left as long as the color came out. In this way beautiful specimens have been made, without the shrinking which always occurs in the nitric acid process. The stains may be procured from Messrs. R. & J. Beck, 68 Cornhill, E.C., either in crystals or in solution, ready for use.

THE POISON OF THE VIPER, AND PERMANGANATE OF POTASH.¹

By DR. GIUSEPPE BADALONI,

(Of Nocera-Umbra, Italy),

Corresponding Fellow of the Medical Society of London.

[DR. BADALONI commenced his paper with a short historical sketch of the investigation of the viper poison, from the days of Francesco Redi downwards. Having described the poison apparatus of the viper, he passed on to the chemical nature of the venom, and quoted the analysis of Prince Louis-Lucien Bonaparte, made in 1843, comparing it with Professor Weir Mitchell's analysis of rattlesnake poison, in 1861, as follows:

Viper poison.

Echidnin or viperin, the active principle; a yellow coloring matter; a substance soluble in alcohol; albumen, or mucus; fatty matter; chlorides and phosphates.

Rattlesnake poison.

An albuminoid body, crotafin (the active principle); an albuminoid substance coagulating with heat; a coloring matter, and an undetermined substance, both soluble in alcohol; a trace of fatty matter; chlorides and phosphates.

Echidnin, according to Prince L. L. Bonaparte, had the appearance of a gummy varnish, being inodorous, glistening, and transparent. It detached itself from the watch-glass, when dried, in brilliant scales like those of tannic acid. It was inodorous and without definite taste; it did not redden litmus or turn syrup of violets green; it evolved ammonia when heated with caustic potash; it acted on the blood of animals in the same way as the natural poison; mixed with human blood it darkened its color and arrested coagulation. The mode of action of the poison on the economy was to exercise a depressing influence on the nerve

¹ Naegle: Brünninghausen, Ueb. d. Exstirpat. d. Balgeschwülste am Halse (s. a. 239), s. 51.

¹ Communicated to the Medical Society of London, in an English Translation, on April 16th, by Dr. Isambard Owen.

centres and on the heart. Dr. Albertoni, of Genoa, in 1879, had formulated from his experiments the following results: (1) There was a close relation between the severity of toxic phenomena, the rapidity of the fatal ending, and the blood pressure. (2) When the blood pressure was reduced to about 50 mm., death followed in a few minutes. (3) The blood pressure was always lowered by the action of viper poison. The post-mortem appearances—the multiple hæmorrhagic and inflammatory congestive lesions of the more active and vascular tissues—might be ascribed to the depressed nervous action, or perhaps to the slackening or arrest of the circulation. In 1879 Dr. Jean Baptist de Lacerda, vice-director of the Physiological Laboratory in the National Museum of Rio Janeiro, announced the discovery of organized ferments resembling bacteria in the poison of serpents, and recommended alcohol as an antidote. These organisms Dr. Badaloni had failed to find in viper poison, and on treating the poison with alcohol for twenty-four hours he found its activity in no way diminished. Alcohol, too, had been used by Prince Bonaparte in preparing the echidnin, which possessed all the properties of the viper poison. In 1881 Dr. de Lacerda, abandoning the bacterial view, stated the poison to be a digestive juice analogous to the pancreatic secretion, though far more powerful; and the subcutaneous injection of permanganate of potash in a 1 per cent. solution to be the true and only means of counteracting it. These conclusions, supported by forty experiments, were made public on July 20th, 1881. "The rapidity of the neutralizing action of the substance employed as an antidote," Dr. de Lacerda said, "showed itself not inferior to the rapidity of the disturbing action of the poison." In 1882 the same author published a pamphlet containing a series of clinical cases, to the number of forty, in support of his experimental results. The permanganate, he stated in a circular dated Aug. 1st, 1881, should be injected subcutaneously if the poison had been absorbed by the lymphatics from the connective tissue, and into the superficial veins if it had penetrated directly into the circulation. The requisite indications would be afforded by the relative rapidity and intensity of the general and local symptoms. A bandage should be tied above the wound immediately on the accident, and three or four grammes of the 1 per cent. solution injected, if possible in the track of the puncture, stimulants being given meantime to counteract the general depression. To the action of the poison, as described above, Dr. Badaloni said the permanganate was not a physiological antidote. Its effects, if any, must be due to its chemical action on fermentative substances. Dr. Badaloni then detailed his own experiments with the permanganate, which were as follows:]

First Experiment (Sept. 15th, 1881).—3 P.M.: I took a large and mature *Vipera aspis* just behind the head, and, bringing it against the left side of the upper lip of a large rabbit, made it bite. A few drops of blackish blood oozed from the wound. I made it give a second bite in the middle of the left front paw. After ten minutes I observed the development of toxic phenomena—viz., drowsiness, which quickly passed into somnolence, and slight dilatation of the pupils. A little later a slight degree of meteorismus presented itself, and the head, as if left to itself, fell on one side, as though the animal were oppressed by deep slumber. After fifteen minutes of this pathological condition I made an injection with a Pravaz' syringe of a gramme of the solution, inserting the needle into the areolar plane above the right shoulder, close to the neck. The rabbit seemed little relieved and soon fell into a lethargic state

anew. After the lapse of twenty minutes more I made it walk, but it did not keep its feet and fell. A fresh injection of a gramme. No amelioration; on the contrary, after ten minutes, extreme dilatation of the pupils, followed by convulsions, violent though very short, and death. Although the antidote was not injected in the actual seat of the wound, yet in thirty minutes it should have been able to act on the poison and prevent death. An hour later Dr. Walter Battistini, veterinary surgeon, made the post-mortem examination, from which I quote the following:—Heart dilated, flaccid, free from clots. Blood dark and very fluid, slow to coagulate. Hyperæmia of the mucous membrane of the stomach with a number of submucous hæmorrhagic puncta. Intestines, especially the small, extremely injected, with hæmorrhagic puncta. Mesentery the same. Lungs, liver, spleen, and kidneys normal. With electricity, contraction of all the muscles.

Second Experiment (Sept. 23rd, 1881).—4.16 P.M.: The same viper used on the 15th was applied to the right side of the upper lip of a large and healthy rabbit. Anal temperature 39.7° C. (103° F.).—4.40 P.M.: Bitten by the viper.—4.45 P.M.: Symptoms of poisoning.—4.47 P.M.: Injection of one gramme in the areolar tissue close to the neck. Temperature 39.4°.—5 P.M.: A second injection of a gramme in the same place.—5.37 P.M.: Temperature 38.1°.—6.20 P.M.: Temperature 37.2°.—The rabbit remained for several hours in a state of prostration and apathy, but not of severe depression. After a time it recovered strength progressively, and after twelve hours the temperature regained the normal.

Third Experiment (Sept. 27th, 1881).—2.45 P.M.: A young *Vipera berus* was made to bite the upper lip of the rabbit that had been used in the preceding experiment. Temperature 39.5° C.—2.50 P.M.: Bitten.—2.58 P.M.: Somnolence.—3.35 P.M.: Temperature 38.6°.—4.30 P.M.: Temperature 37.4°.—This time I made no injection at all of the antidote, so as to see if the temperature followed the same curve. In the result the thermometer at 5.28 P.M. marked 36.1°. I left the animal to itself, and when I visited it the next morning it was a little slow in its movements, as in the preceding experiments, but the temperature was restored to the normal.

Fourth Experiment (Nov. 12th, 1881).—2.40 P.M.: The rabbit of the preceding experiment was bitten on the right side of the upper lip and on the left hind leg by two *Viperæ aspidæ*, which had fasted for more than a month. Anal temperature 39.8°.—2.45 P.M.: Bitten by one viper.—2.55 P.M.: Temperature 38.7°; loss of urine; somnolence.—3.10 P.M.: Bitten by the other viper; loss of urine; somnolence.—3.15 P.M.: Temperature 38.7°; loss of urine; somnolence.—3.25 P.M.: Temperature 38.5°.—3.40 P.M.: Symptoms aggravated. Three grammes of the antidote injected into the actual seats of the wounds.—3.45 P.M.: Temperature 37.5°.—Sleep and difficulty of walking more marked. A second injection of the solution of permanganate.—3.50 P.M.: Temperature 37°.—4 P.M.: Dilatation of the pupils.—4.7 P.M.: Temperature 35.6°.—A fresh injection of a gramme. The pupils more widely dilated. Somnolence passing into the comatose state.—4.30 P.M.: Temperature 35.5°.—5.10 P.M.: Temperature 35.2°. Same symptoms.—6.40 P.M.: Temperature 34.5°; insensibility; eye motionless; extreme dilatation of the pupils.—10.15 P.M.: Temperature 35.3°; pupil less dilated and somnolence less; movements easier. The temperature went on rising till, the following morning, though the animal refused food, it had normal agility in its movements.

Recapitulation.—In the first observation two

grammes of the antidote were injected, and the animal died in about an hour. Similarly in the second, where death did not occur, the temperature went continuously down as low as 37.3°C . In the third, without any solution of the permanganate having been injected, the temperature fell to 36.1° , and in the sequel the active power of the poison was weak and unable to produce death. In the fourth, while it is an important point that the notable lowering of the temperature was the effect of the poison of two vipers, five grammes of the antidote were injected without obtaining any benefit. On the contrary, the temperature was reduced to 34.5° an hour and a half after the injection of the last gramme. If permanganate of potash neutralized the action of viper poison, the temperature of the wounded animal, instead of going down, ought after its application, if not to rise, at least to remain stationary; not therefore to fall as far as from 39.8° to 34.5° , or through five degrees and three-tenths. Thus the cases that did not end fatally presented a constant lowering of bodily temperature, which, in spite of the injection of the antidote, continued decreasing until death seemed impending.

I then made another series of experiments on smaller animals—viz., mice (*Mus musculus*) to eliminate the doubt that in the previous experiments death failed to occur by virtue of the antidote, not owing to the enfeebled power of the poison.

1. On Dec. 13th, 1881, at 1.50 p.m., I took a mouse weighing 90 grammes and submitted it to the bite of a *Vipera aspis* on the right hind leg. Immediately I injected two grammes of the solution of permanganate of potash at the same spot. Ten minutes later all the symptoms of poisoning showed themselves severely, and not only did I obtain no amelioration whatever, but the animal succumbed amid convulsions in another thirty-four minutes. The postponement of death for three-quarters of an hour in a little mouse, which in summer falls a victim in from five to seven minutes, at the same time convinced me of the feeble power of the poison when the temperature of the air is cold, and gave confirmation of the inefficacy of the remedy used, all the more as, if four grammes of the antidote sufficed for a man, two should be more than enough for a mouse. Cadaveric rigidity showed itself four hours after death, to disappear thirty-six hours later. The point of injection was in the areolar tissue between the thigh and the abdomen; the liquid had been absorbed and the color of the neighboring tissues was everywhere dark from the injection of the solution of permanganate. But the objection might be raised, was it not the two grammes of the solution of permanganate that, by undue intensity of action, caused the death of the mouse rather than the poison of the viper? On the 17th of the same month I took three other large mice. Before commencing further experiments it was necessary to irritate strongly my vipers, in order to arouse them in some degree from the lethargic state, and I should remark here that the atmospheric temperature had fallen to the freezing point.

2. I caused the first mouse to be bitten on the right leg by a well-grown *Vipera berus*, and at once injected a gramme of the antidote by the actual opening made by the tooth. Symptoms of slight poisoning quickly appeared, but of short duration, and in half an hour the little animal appeared as lively as before.

3. I did the same to the second mouse, with identical result.

4. I placed the third mouse inside a basket, in which I kept four vipers of different sizes and ages. As soon as they saw themselves in company

with a mouse, an animal for which they display the most unbridled hate, they erected their heads and quivered convulsively, emitting prolonged and frequent hisses. Each held its mouth wide open, and waited in readiness for the mouse to move to attack. In fact, after a few movements of the unfortunate stranger, which was endeavoring to flee, all the vipers launched furious blows at it, and their heads fell like hammers on the body of the wretched mouse, which now squealed, now shunned the blows, and now, shrinking and trembling, seemed to seek to calm the anger of its enemies, as if suing for peace. The strife lasted some time, and peace only returned after I removed the poor animal from the cage. It had received no less than eight bites. I did not inject any dose of antidote into this last mouse, which I attentively watched. It kept quieter than the others. Its movements were less agile and more sluggish. It sought neither to flee nor to hide itself, and seemed much prostrated in power. These symptoms lasted for little more than a quarter of an hour, only half the duration of the symptoms in the two preceding experiments, at the end of which time it had returned to its original condition.

From the sum of these experiments of mine three points should remain proved—(a) That the poison of the viper in the cold season exercises an action almost *nil* on even the most delicate organism. In fact, the experiments practiced on days successively colder gave results relative to the level of the atmospheric temperature. (b) That the permanganate of potash is incapable of neutralizing the action of viper poison, since the symptoms, instead of improving after the hypodermic injections, followed all the phases of poisoning. (c) That if death did not actually occur, it was only from lack of power in the poison, and not by virtue of the antidote.

[To these experiments Dr. de Lacerda had objected—(1) That in such small animals absorption of the poison would take place too rapidly for the antidote to reach it in time; (2) that the injection should have been made immediately after the bite, as the permanganate neutralizes the poison only if brought into contact with it before it is absorbed; (3) that Dr. Badaloni had not measured the amount of poison injected. To these objections Dr. Badaloni replied—(1) That, small as the animals were, the effects of the poison were very prolonged, leaving ample time for the action of the antidote. (2) It remained to be shown that the action of a purely chemical antidote would be exercised only in the seat of, and immediately after, inoculation; and, furthermore, immediate injection in the track of the bite was practiced in the case of the mice without any apparent result. (3) The measurement of the poison was unnecessary in experiments of a merely qualitative character. To the experiments of Vincent Richards, cited by Dr. de Lacerda, Dr. Badaloni opposed those of Sir Joseph Fayrer, described in "The Thanatophidia of India," the results of which were purely negative.

Professor Mantegazza had called in question Dr. Badaloni's assumption of the identity of the chemical nature of the viper and rattlesnake poisons, founded on Prince L. L. Bonaparte's analysis, made so far back as 1843. But Professor Weir Mitchell's parallel investigation, on which he relied as well, Dr. Badaloni replied, was made at a much later date (1861) and came to precisely similar results. Prince Bonaparte's work had, further, been cited by Poggiale in 1869 as being in advance of Mitchell's. Considering the purely qualitative nature of these analyses, he considered himself justified in relying upon them, and he believed the two poisons to be in every way identi-

cal, as De Lacerda himself admitted; the greater virulence of the *Crotalus* being due to the amount of poison which it is capable of injecting.

Whatever value should be given to the experiments made with permanganate of potash by different observers up to the present date, the question of an antidote to viper poison remained unsolved, for this substance had not yet answered the expectations of European experimenters as it had in the hands of Dr. de Lacerda.]

A Mirror

OF

HOSPITAL PRACTICE

BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

MIDDLESEX HOSPITAL.

ACUTE TETANUS, FOLLOWING A CONTUSED WOUND OF THE FLESHY PART OF THE END OF THE THUMB; DEATH.

(Under the care of Mr. GEORGE LAWSON.)

For the notes of this case we are indebted to Mr. Guilding.

The following case is an example of acute traumatic tetanus, a disease from which a patient very rarely, if ever, recovers. On Monday, January 22nd, the man met with a comparatively slight injury to the thumb. On Thursday the premonitory symptoms of tetanus commenced in a feeling of slight stiffness at the back of the neck. On Friday there was an extension of these symptoms, and on Saturday afternoon feeling himself worse the patient applied to the hospital and was admitted. When admitted he had had no convulsive attacks. The convulsions did not begin until eight o'clock in the evening, and the patient died in one of them at about ten o'clock the following morning. The treatment consisted in the subcutaneous injection of the extract of Calabar bean, repeated injections of morphia, and the putting the patient under chloroform. The thumb was amputated with the faint hope that the removal of the source of irritation might exercise a favorable influence in quieting or arresting the convulsions. Unfortunately the medicines exercised no power in controlling the progress of the disease; they certainly eased the suffering of the patient, but the tetanic convulsions increased in severity, and in fourteen hours from the first convulsion the patient died. The following are the details of the case.

Eli L—, aged fifty-one, a strong muscular man, with dark complexion and iron grey hair, was admitted into Broderip ward on Jan. 27th, 1883, with tetanic symptoms following an injury to the right thumb. On Monday, Jan. 22nd, five days previously, the patient crushed his finger, and at the same time tore the skin over the centre of the pulpy tissue which covers the last phalanx of the thumb for about a quarter of an inch in extent. From this time the finger was very painful; it inflamed and suppurated. On Thursday afternoon the patient felt a slight stiffness at the back of the neck. On Friday he found that his neck was very hard and rigid, and that his head was drawn forcibly back; he also noticed that he could not open his mouth as wide as usual. On Saturday, Jan.

27th, feeling himself worse, he came to the hospital in the afternoon, and was at once admitted.

State on admission: The patient spoke very indistinctly, owing to his utter inability to separate his lower from his upper jaw, and on applying force to them it was impossible to part them. He complained of pain at the epigastrium, and down the back. On lifting the patient up in bed the head was pulled violently back on to the shoulders, as if by a steel spring, and the muscles at the back of the neck could be felt tense and rigid. There was no rigidity or spasm of any of the other parts of the body. The patient lay in an apparently drowsy state, but could be easily aroused, and answered all questions readily. The bowels were constipated, not having been opened for five days. Temperature 97°. On examining the thumb the tissues over the first and second phalanges were inflamed and swollen, and from a small wound about a quarter of an inch in length over the palmar surface of the last phalanx there was a slight discharge of pus. Any attempt to swallow increased the spasms to such an extent that it was impossible to give him either medicine or food by the mouth. About 8 p.m. the patient began to have severe convulsive attacks, which were greatly aggravated by the least attempt to touch him. The body was violently contracted into a condition of opisthotonos, the legs were rigid, and the muscles of the back like rods of iron. The intercostals, and probably the diaphragm, were in a state of strong spasm, as respiration during the attacks was arrested, and the face and surface became of a dark-bluish color. The flexors of the forearm were free from spasm. These attacks came on about every half-hour, some being more severe than others. At about 11 p.m. he had a most severe attack; his muscles of respiration were involved; he ceased to breathe, his heart and pulse stopped, and the patient was black in the face, when, with a sudden bound, the pulse began again, and he recovered for the time. In this attack his tongue was caught between his teeth, and almost bitten in two. Mr. Lawson then saw the patient, and amputated the thumb after he was put under the influence of chloroform. The patient inhaled nearly four ounces of chloroform before he was well under its influence, and even then his limbs were rigid. Before awaking from the chloroform the patient was injected subcutaneously with half a grain of the acetate of morphia. Under the combined effect of the chloroform and the morphia the patient was quiet for nearly three hours. At a quarter to three o'clock the convulsions recurred. The first convulsion was at about a quarter to three o'clock; the second at half-past three; the third at a quarter-past four; the fourth at about a quarter to five. From this time the convulsions were repeated every ten or fifteen minutes, and he died in one of them at ten minutes to ten on Sunday morning.

The treatment during the short time the patient was in the hospital was as follows: Soon after admission he was injected subcutaneously with the one-sixteenth of a grain of the extract of Calabar bean, and this was repeated in about one hour. Finding no relief, a third of a grain of the acetate of morphia was injected subcutaneously. The injured thumb was then amputated, and whilst the patient was under the influence of chloroform he was injected with half a grain of the acetate of morphia.

Necropsy (abstract from the notes of post-mortem examination made by Dr. Fowler).—Thorax: Organs healthy; some post-mortem congestion. Kidneys were enlarged, congested, and indurated; capsule adherent; on stripping off the capsule a granular surface was left, but no wasting of cortex.

Brain: Vessels (veins) of meninges over occipital region were full of blood (post mortem). On removing the membranes no marked changes were seen in the pia mater or convolutions. On sections being made through the brain, no decided changes could be detected with the naked eye. There were some post-mortem coagula in the lateral sinuses. The base was unchanged. Cord: Membranes showed some post-mortem congestions, otherwise they were healthy. There was an enormous number of calcareous patches in the membranes, extending from above the cervical to below the lumbar enlargement; but beyond this nothing abnormal was detected.

ROYAL ARSENAL HOSPITAL, WOOLWICH.

CASE OF TRAUMATIC GANGRENE OF THE PENIS AND SCROTUM; NECROPSY.

(Under the care of Surgeon-Major W. F. STEVENSON.)

W. J —, a painter, married, aged forty-three, was admitted into hospital on Jan. 3rd, 1883, with great swelling and ecchymosis of the penis and scrotum, but not extending into the perineum. He stated that on the previous day he had strained himself while at work by attempting to support a tent-pole (weighing thirty pounds) which was falling on him, but that he did not fall and did not receive any blow or direct violence of any kind. He suffered considerable pain at first, but remained at work during the afternoon. When he went home he applied fomentations.

On admission, at 10.30 A.M., the scrotum was as large as an infant's head from effusion of serum into the cellular tissue, and the penis much enlarged from the same cause; these parts were also almost black from ecchymosis. The perineum was not affected. There was not much pain. On the left side of the penis the cuticle had been removed from a piece of skin about the size of a half-crown, and a thin grey slough remained. The man looked very ill; he was pale and cold; the pulse weak and 136; he had voided water freely during the night, and stated that it contained blood. A catheter (No. 10) was passed with ease, and a small quantity of urine containing no blood was drawn off. During the day he passed a very little clear urine without the use of the catheter. In the evening he was still further collapsed; the skin was cold and moist, and the pulse imperceptible. During the night he was very restless, and next morning his condition, both locally and constitutionally, was much worse; the swelling had passed into the perineum, and that of the penis and scrotum had increased. Gangrene of the parts first affected had evidently taken place. A very little, if any, urine had been passed during the night. An erysipelatous redness was extending over the pubes and abdomen. Tongue was furred and dry; surface cold and clammy; no pulse. A catheter was passed, but no urine was found in the bladder. Several incisions were made into each side of the penis, scrotum, and perineum, giving exit to a large quantity of serum. Two incisions were also made into the abdominal wall where the erysipelas appeared, but the circulation was so feeble that blood hardly flowed from them. In the evening the swelling was much less in consequence of the continuous drain of serum which had taken place from the incisions. There was no urine in the bladder. The state of collapse was profound, and the man was delirious and very restless. This condition lasted until 1 A.M., when he died exhausted. The treatment had consisted in efforts, by means of warmth and stimulants, to combat the state of collapse which was well-marked even on admission, but

which, notwithstanding all endeavors to the contrary, increased up to the time of his death, about fifty hours after the strain was supposed to have occurred. Opium was given internally and fomentations used locally.

On post-mortem examination, the internal organs were found healthy; there were some old pleuritic adhesions in the right side of the chest. The bladder was healthy and quite empty; the urethra was healthy in appearance, except towards the outer end, where, for about one inch, there was some ecchymosis. The cellular tissue of the penis and scrotum was infiltrated with serum; the body of the penis was distended with dark blood, which oozed out on section of the corpora cavernosa; the tunica vaginalis contained very little fluid. That such a condition should have originated in a strain, such as described, would seem strange. A witness at the inquest which took place stated that the tent-pole fell between the man's legs. If this occurred, which the man himself denied, possibly the penis received a contusion at the situation of the ecchymosis found in the urethra, causing rupture of some of the vessels in the corpora cavernosa, resulting in such distension of those organs as to interfere to such an extent with their circulation as to bring on gangrene of the penis, which spread backwards to the neighboring parts.

MANCHESTER ROYAL INFIRMARY.

CASE OF POPLITEAL ANEURISM; RUPTURE INTO KNEE-JOINT; AMPUTATION THROUGH THE THIGH; RECOVERY.

(Under the care of Mr. WHITEHEAD.)

For the following notes we are indebted to Mr. G. Preston.

William B —, aged forty, a laborer, was admitted on January 1st, 1883, suffering from aneurism of the left popliteal artery. His previous history was as follows: About seven months ago the patient's left leg was crushed just below the knee. The joint, he says, was severely strained by the accident, but it was not so badly hurt as to keep him from his work. On the following morning he noticed a small lump, about the size of a marble, at the lower part of the popliteal space. He suffered no pain in it; but still he considered it advisable to stay at home that day and rest his leg. On the next day, the second after the accident, he went to his work as usual, and for fourteen days he noticed nothing further as regards the lump, but at the end of this term he experienced some slight pain when walking or when he tried to extend his leg fully. On examining the swelling he found that it had increased to the size of a hen's egg. Though the patient still went on with his work, the condition of his leg remained the same up to a week before his admission, when he sustained what he describes as another strain of the same knee; by the following day the swelling had increased considerably in size, and he suffered great pain in the knee and down the leg. He stayed in bed and applied hot fomentations and poultices to the swelling, the result being a gradual increase in the size of the swelling and an increase in the pain. He now, for the first time, consulted a medical man, who sent him to the hospital.

On admission the left knee was much swollen, the outline of the pouches of the synovial membrane being particularly well marked out, but there was no pulsation of them, and the patient stated that he had never noticed any pulsation in front of the knee; behind the knee, in the popliteal space, and to all appearances almost filling it, was a fusiform swelling, which was distinctly

pulsatile and expansile; very slight pressure on the femoral artery completely stopped the pulsation; the pulse could not be felt in the tibial arteries, and the left leg was much colder than the right, but there was no oedema of the leg; a very loud systolic bruit could be heard over the tumour, and also over the femoral artery. The patient had severe pain in the knee-joint and down the leg to the toes. He had aortic stenosis and regurgitation, and a hypertrophied left ventricle. He had a well marked "water-hammer" pulse. The patient was put to bed, and a Signoroni's tourniquet applied to the femoral artery at once; the flow of blood was not stopped entirely, though nearly so. The tourniquet was kept applied for about two hours at a time (the patient could not bear it longer) during that day and the following, but on the third day after admission his leg became extremely painful, and he took the tourniquet off. It was now found, on examination, that the knee was more swollen and tense, and that there was distinct pulsation above and below the patella in the situation of the distended pouches of the synovial membrane of the joint. The tourniquet was again applied so as to completely control the blood-supply to the limb; the tourniquet was slackened on Mr. Whitehead's arrival, but now the pulsation in the knee had ceased. That the aneurism had ruptured into the knee-joint was made certain by drawing off blood from the joint with a small syringe. Owing to the man being the subject of aortic disease, with consequent strong pulsation in his arteries, together with the fact that the vessels appeared to be atheromatous, it was thought advisable to abandon the ligature in this case, and resort to amputation at the junction of the middle and lower thirds of the thigh.

Pathological examination.—It was found that there was a large fusiform aneurism of the popliteal artery; the knee-joint was distended with blood, and on removing this, it was found that there was a small circular aperture in the posterior ligament of the joint, which communicated with the sac of the aneurism. The surrounding structures were perfectly free from any extravasated blood.

After the operation the tourniquet was kept in position for fourteen days, moderating, to a slight extent, the flow of blood to, or rather the strength of the arterial pulsation in, the stump, as secondary hæmorrhage was considered very likely to occur. No such catastrophe happened, however, and now the stump is quite healed, and the patient convalescent.

GUY'S HOSPITAL.

RECTO-VAGINAL FISTULA; COLOTOMY; DEATH.

(Under the care of Mr. BRYANT.)

For the report of the following case we are indebted to Mr. Tresidder:

S. E. S—, aged forty, was admitted into Lydia ward on April 20th, 1881. She was in the hospital three years previously, suffering from what was considered to be syphilitic stricture of the rectum. She was treated with bougies and sponge-tents, and when discharged was much relieved. From that time there had been a constant discharge from the rectum, and occasionally a little blood. There had also been much pain across the stomach, and her motions had always been loose. For about a year before admission she had noticed fæces come from the vagina, and for six months nearly the whole had so passed.

On admission, the rectum was apparently closed up, scarcely admitting the tip of the little finger. There was a fistula opening from the rectum to the

vagina, and another from the vagina perforating the perineum. She had been subjected to much ill-treatment, and was but poorly nourished.

On May 3rd, under the anæsthetic mixture (alcohol, chloroform, and ether), she was turned upon her right side, and a pillow placed under her loins. An oblique incision, four inches long, was made just above and parallel to the crest of the ilium. There was not much fat, and the outer border of the quadratus lumborum muscle was easily found. Below this the kidney was felt and pushed aside, and the colon was hooked by means of the finger. The colon was then transfixed by two sutures, opened, and the edges secured. No fæces passed, and the patient was not sick after the operation.—4th: Ordered a one-grain opium pill every six hours; pulse very quick and feeble; respiration 48; complained of headache.—6th: At the posterior corner the bowel had not united to the surface, and there was a discharge of inflammatory material. 23rd: The rectum was washed out, and was open throughout the whole extent. No fæces were removed, and only a little mucus. The vagina also was washed.—29th: The patient had very rapidly become emaciated, and now looked bluish and pale, and lay inclined to the right side, and took short respirations. Over the front of the right lung were sharp inspiratory and expiratory râles of a tubular character. The bases were not examined.

June 3rd.—Vaseline used in dressing the wound; it was covered with a piece of protective.—9th: On removing the dressings they were found to be blood-stained, and when the wound was syringed a large quantity of disintegrated blood-clot came away.—13th: The wound looked more healthy, and had improved since the vaseline had been used. There were two red spots which had appeared over the right trochanter.—15th: In great pain from sores on her back.—16th: Died.

Necropsy.—The wound of the operation was almost healed, but a large abscess was found behind the descending colon. The rectum, sigmoid flexure, and descending colon bore traces of ulceration. There was great thickening of the coats of the rectum, forming a stricture.

STRICTURE OF RECTUM; OBSTRUCTION; COLOTOMY;
WELL.

(Under the care of Mr. BRYANT.)

For the following notes we are indebted to Mr. Tireman:

Charles C—, aged sixty-four, was admitted on June 16th, 1881, into Job ward. There was no history of syphilis. Since the previous Christmas the patient had had diarrhoea with great pain over the right hypochondrium and lower part of the abdomen. During the whole of this time he had passed no solid motion. He had sometimes gone to stool as often as sixteen times in the day, but nothing had passed except slime and blood. His abdomen had been distended more than once, but was on admission larger than ever. On Monday, for the first time since the onset of his symptoms, he passed a tolerably solid stool, and since then he has not been to stool. He has taken no food except a little milk and tea. On Tuesday and the whole of the following day he vomited continually; the vomit was brown and offensive to the taste and smell. On the day before admission he passed a little flatus and a little slimy motion.

On admission he was much emaciated. His face and hands were of a dusky-red color. His hands and feet were cold and bluish. The tongue was dry and covered with white fur. The abdomen was moderately hard, the distension being as great in the lateral parts as in the centre. There was no

pain on handling. The coils of the intestines could be seen and felt, but there was no visible peristalsis, even after lightly rubbing the surface, but the patient said he had seen a creeping movement. No gurgling could be heard. The patient was troubled with hiccough and passed a good deal of flatus, especially when speaking. Mr. Bryant passed his finger into the rectum and found a stricture "very much resembling an os uteri."

Operation.—On June 18th, under chloroform, a transverse incision four inches long was made midway between the last rib and the iliac crest. The vessels were twisted; the fascia and fat were drawn aside, and the bowel when exposed was secured to the edges of the wound by two silk sutures. The gut was opened, and each of the sutures divided in the middle, and the four corners of the gut were tied back. The wound was dressed with terebene lint and a binder applied. One vessel in the wall of the gut was ligatured. Opium suppository.—20th: Passed a good night, and feels quite comfortable; is taking milk. Temperature 100° 2'. Opium pill, one grain three times a day. The posterior sutures seem to have slipped, and there is a good deal of fecal matter about the wound. There was an enormous discharge of feces after the operation, and the abdomen has gone down to the natural size.—23rd: Looks very much better; he has lost the dusky hue of face, and coldness and blueness of the extremities. The tongue is now quite clean and healthy. Is taking milk and arrowroot and beef-tea. Temperature and pulse normal, and the patient is free from all pain. The remaining stitches were removed.—27th: Complains of great pain in the left side. Appetite continues good; the wound looks healthy. Temperature 99°.

July 13th: Temperature normal. There is prolapse of the bowel, but the wound looks well, and the patient is otherwise better.—26th: Daily passes motions per rectum. The colotomy wound nearly healed.

Aug. 13th: Allowed to put his clothes on and walk about.

Sept. 5th: Urine examined; large quantity of urates, no albumen. Colotomy belt supplied.—7th: Discharged. The patient has a perfectly artificial anus, and, with the exception of a slight pain across the lower part of his back, is quite comfortable. His general health is good. He relieves his bowels twice a day, and has no inconvenience from the feces escaping.

CASHEL UNION HOSPITAL.

UNUSUAL TERMINATION OF MORBUS COXÆ; DELIRIUM; CONVULSIONS; AMAUROSIS; DEATH.

(Under the care of Dr. LAFFAN).

M. D.—, aged fifteen, a scrofulous young laborer, was admitted March 14th, 1881, for morbus coxæ in left side. The disease was in the first stage. He was put up in Sayre's long-extension splint (figured in page 269 of Dr. Sayre's work on "Orthopedic Surgery"). This splint, though applied with the greatest care, could not always be borne, and it had to be now and again removed. When the boy was confined to bed he scarcely ever complained of it, and the relief it afforded to the pain was very marked. Though at first, and for some weeks, the same immunity from pain was enjoyed when taking exercise, which he was freely allowed to do in the hospital grounds, yet afterwards the apparatus had to be removed from time to time and the patient allowed to rest in bed. Cod-liver oil and syrup of the phosphate of iron were given internally, and counter-irritation was locally applied. On this treatment he progressed

fairly for some months, but an abscess formed on the front of the thigh which appeared to be connected with the joint; and from this there was a perceptible declension in his condition. Diarrhœa was the most prominent intercurrent symptom, and for this no obvious exciting cause could be assigned.

From the end of August meat had to be stopped on account of diarrhœa.

By Sept. 1st his appetite had almost entirely disappeared. From the 1st to the 3rd he scarcely took anything; on the 4th a violent frontal headache set in, which continued for a whole fortnight, with nocturnal remissions. On the 12th, 13th, 14th, and 15th he was seized with uncontrollable vomiting. On the 17th delirium, with occasional convulsions, set in, and these continued at intervals for about three days, during all of which time he was entirely unconscious. At the termination of the convulsions he was found to be completely amaurotic. On one of those days he vomited a large worm.

From this time forward till the date of his death (Oct. 5th) the vital powers rapidly failed. There was occasional severe vomiting, with delirium and severe convulsions from time to time. On Sept. 26th it was noted that he picked his nose so violently that his hands had to be tied. Floccitation and involuntary evacuations preceded the final scene for some days. Delirium and convulsions were present from time to time, and unconsciousness, which from its first invasion had at intervals been present, became profound and permanent, and closed the final death scene.

Remarks.—The treatment pursued in this case did not realize the benefits predicted for it by Dr. Sayre; but, on the other hand, no connection could be traced between it and the strange cerebral symptoms which carried off the patient. Were it not for a case reported by Dr. Graves in his clinical lectures, and for a few similar ones recorded since then in which cerebral symptoms just as marked as those in my case were present without any cerebral mischief whatever, and where abdominal lesions only were demonstrated after death, it would be deemed absurd for anyone to question the presence of cerebral disease in the foregoing case. Unfortunately no post-mortem examination was obtainable, and I can only therefore indulge a speculation as to whether intestinal worms might not have been responsible for all the head symptoms. Suitable vermifuge treatment was, of course, tried and persisted in from the moment of the first discovery of the worm; but this was barren of result so far as the expulsion of any others was concerned. The case is of some little interest on account of the unusual termination of hip disease it presents, and of the important question of the simulation of profound centric lesions by peripheral irritation, which it at least will recall to the mind of the thoughtful reader.

OBSCURE THORACIC TUMOUR.

(Under the care of Dr. LAFFAN.)

The following case possesses the interest which always attaches to those in which certainty of diagnosis is impossible. Positive signs of tumour were absent, but the intermitting dysphagia, pupillary contraction, and inequality of radial pulse, afforded a reasonable presumption of the presence of an intra-thoracic growth. Whether this, however, was cancerous or aneurismal the existing signs and symptoms did not afford means for discriminating. There were present and absent those that pointed both ways; while the last fatal hæmorrhage pointed more towards aneurism, the absence of the peculiar cough, cardiac murmur, etc., told the other way. A post-mortem examination

would have solved the difficulty; but the law must deal more liberally with Poor-law hospital physicians if these are to be available when the interests of humanity and science demand. This fact Dr. Laffan has in vain brought under the notice of the Collective Investigation Committee.

N. W—, laborer, aged sixty-four, was admitted on Feb. 8th, 1882. He had for five weeks before admission, felt the food and drink stop in the passage, and had to be immediately ejected. At other times both food and drink passed down. The first time he noticed the difficulty was on the occasion of taking a pint of porter. During the five weeks previously referred to, when the food and drink did sometimes pass, it was with some difficulty. He was of intemperate habits, and lived, of course, poorly. He had not sustained any injury, and had not had syphilis.

Present state.—March 24th: His general appearance is somewhat wasted, particularly about the face. He sleeps well. He complained of a lightness in his head for the past ten days. His sight is weak; the right pupil is larger than the left. The tongue is somewhat coated and full of transverse indentations. The left pulse is much fuller than the right. Some râles in chest; he coughs a little and expectorates; some slight bronchitis exists; heart sounds normal. The appetite is becoming poorer; he spat up this morning about a wineglassful of blood. On four or five occasions he spat up a trifling quantity; bowels very costive, and not moved without medicine. Urine, specific gravity 1020; no albumen. Soon after his admission a probang was tried, but failed to pass the entire way, and when drawn up was found covered with blood and pus. For the last few days he suffered considerable pain in the epigastrium, between the two scapulae and in the right shoulder. No other signs could be detected.

Further history.—The respiration continued high; the troublesome cough persisted; lightness in the head and weakness of sight occasionally assailed him; the appetite gradually decreased. There was occasional hæmoptysis, sometimes a large and at other times a small quantity of blood being spat up. Pus was spat up on more than one occasion mixed with the blood. He continued to suffer from dysphagia, but inconstantly, as at times the food passed readily. Decubitus was on more than one occasion rendered impossible by the severity of pain between the shoulders. He complained of great coldness in the feet. On April 15th he spat up a great quantity of pus; on that day, and for two days previously, he suffered from a most harassing cough. During the night of the 15th he spat up five or six times a small quantity of pure blood; on the 16th he suddenly spat up a large quantity of blood and died immediately.

Remarks.—The treatment in this case was directed to meet symptoms, and any detailed account thereof would convey no information. From first to last bronchitic emphysematous signs alone were detected. There was nothing detected by auscultation or percussion which could clearly point to the existence of cavity or tumour, and the exact diagnosis therefore must remain in doubt.

STANLEY HOSPITAL, LIVERPOOL.

FRACTURE OF HUMERUS, WITH DISLOCATION AT RIGHT SHOULDER AND ELBOW.

(Under the care of Mr. ROBERT JONES.)

R. P— whilst plastering a lofty ceiling fell, and in falling grasped at an open door. He came next day to the Stanley Hospital suffering from dislocation of the right shoulder and elbow with

(4)

fracture through the middle of the right humerus. The head of the humerus was felt beneath the clavicle. The radius and ulna were dislocated backwards, and the fracture was oblique. Splints were temporarily adjusted in order to permit of the necessary manipulations for reducing the luxations. This was easily completed without the administration of ether, the splints were readjusted, the arm placed in a sling, and the man requested to attend as an out-patient. In six weeks from the date of injury consolidation had taken place, and movement both at elbow and shoulder was free and painless.

In treating the case it was thought wise to fix the elbow so as to restrain all movement, as signs of effusion appeared on the third day. This, however, was rapidly absorbed. The reductions were easily accomplished by gentle manipulations. The patient had at previous times dislocated both hips, and on three occasions the left shoulder.

LONDON HOSPITAL.

DISLOCATION OF THE HIP-JOINT BACKWARDS; REDUCTION BY MANIPULATION; REMARKS.

(Under the care of Mr. RIVINGTON.)

GEORGE W—, aged twelve, was admitted on March 23rd, 1883. He had been running, and suddenly slipped and fell, his left leg shooting forwards and outwards. He felt something give way at his left hip-joint, and was in great pain for a few minutes. He was unable to rise or walk, and was brought to the hospital in a cab.

On examination, the left leg was found to be one and a half to two inches shorter than the other. It was adducted, flexed, and rotated inwards, the lower part of the left femur passing over the lower third of the right femur, and the toes resting on his right instep. There was very little mobility; the trochanter was elevated, and the head of the bone could be felt some little distance behind the acetabulum and below the dorsum ilii. Mr. Rivington was sent for, and the lad was placed under an anæsthetic. The senior dresser was asked to reduce the displacement. The thigh was flexed on the abdomen, adducted, and brought down without effect on the displacement. It was then flexed, slightly abducted, rotated outwards, and extended, care being taken not to carry these movements too far, when the head of the bone at once slipped into the acetabulum, with an audible snap. A splint was applied to prevent the reproduction of the dislocation, and was retained for a fortnight. He was kept in bed for a week or two longer, then allowed to get up and was soon discharged cured.

Remarks by Mr. RIVINGTON.—This case illustrates the great facility with which dislocations of the hip are produced when the leg is abducted. Mr. Morris has shown that the direction which the head of the bone will take after escaping from the rent in the lower part of the capsule depends upon what may be termed the secondary postures. If the thigh is flexed and rotated inwards, a backward displacement will result; if extended and rotated outwards, a forward displacement is produced; and if extended without rotation, the displacement will be in the downward direction. What was the exact disposition in the present case was not clear from the description of the patient. It is probable that Mr. Morris's views in regard to the production of dislocations at the hip during abduction will receive strong support from cases occurring at an early period of life. One case of dorsal dislocation in a lad of seven, whose foot slipped backwards and outwards in walking, he has recorded in his paper in Vol. IX. of the *Medico-*

Chirurgical Transactions; and I find an instance of thyroid displacement related by Mr. Russell in the *British Medical Journal* for Nov. 2nd, 1878, as occurring to a lad of fourteen. The youth, W. B—, was playing at football and jumped on the back of a playfellow, when they both came to the ground. W. B— alighted on his feet, but they slid asunder, and the dislocation downwards was produced. The case further shows the ease with which properly directed manipulation will reduce an ordinary dislocation in which the capsule is freely torn below. The great point to attend to in reducing sciatic and thyroid displacements is not to carry the manipulations too far in any direction, as these forms of dislocation are readily convertible into each other. Bigelow recommends the conversion of the obturator into the dorsal displacement, which is easy of reduction. This conversion occurred in Mr. Russell's case involuntarily, and in a case of my own, reported in *THE LANCET*, in 1878, when I was trying to avoid it. The dorsal displacement is much less likely to be transformed into an obturator displacement than the obturator into the dorsal; and I have not seen it occur in any of the cases which have come under my observation.

GLASGOW ROYAL INFIRMARY.

THREE CASES OF DISEASE OF THE STOMACH AND INTESTINES.

(Under the care of Dr. MATTHEW CHARTERIS.)

We are indebted to Dr. James McNish for the following notes:

CASE 1.—John McN—, aged forty-two, a laborer, was admitted on October 2nd, 1882, complaining of pain, with tenderness on pressure, in the epigastrium, and vomiting. The pain was most severe at a point about two inches to the right and one and a half above the umbilicus. The symptoms first appeared three months before admission, and had gradually increased in severity. At first they were those of simple indigestion, heartburn, etc.

On admission the patient was pale and emaciated, but not distinctly cachectic, and his countenance bore an anxious and pinched expression, indicative of abdominal trouble. No tumour or induration could be made out, but there was very considerable tenderness on pressure over the area mentioned above. He vomited frequently after food, and this seemed to some extent to alleviate the pain. The vomited matter consisted of a brownish sour fluid, which the patient said had a very disagreeable taste. The bowels were constipated, never acting without the aid of purgatives or enemata; the appetite was bad; the tongue coated with a thick white fur on the dorsum, but red and glazed at the tip and edges, showing also signs of indentation by the teeth. On exertion the patient suffered considerably from dyspnoea, but on examination the lungs and heart were found to be healthy. On October 10th and 11th he had severe attacks of hæmatemesis, which weakened him a good deal. From this date he gradually sank, and died on October 22nd. The treatment consisted of the use of aperients and enemata to overcome the obstinate constipation, sedatives internally and externally to relieve the pain, and the subcutaneous use of ergotine to arrest the hæmorrhage.

Necropsy, forty-four hours after death.—The smaller curvature of the stomach was found to be firmly adherent to the under surface of the liver; the latter organ being firmly united to the diaphragm, so that it was with difficulty separated from it. At

the point where the stomach was most adherent to the under surface of the liver—viz., immediately to the left of the longitudinal fissure—there was a transverse constriction of the former organ, not sufficient, however, to divide it into two distinct parts. The pyloric end of the stomach was greatly distended, and the cardiac orifice of the œsophagus was approximated to the pylorus, as a result of contraction of the lesser curvature. The explanation of the approximation was that there was a large deep ulcer on the smaller curvature corresponding to the point at which the outer wall of the stomach was adherent to the liver. Close to the left edge of the ulcer there were two small openings, which on examination were found to be the open ends of bloodvessels. The floor of the ulcer was covered with small, soft, elevated nodules, which, on being examined with the microscope, were found to be purely inflammatory in nature, without a trace of malignant disease, being composed of cicatricial tissue and without evidence of recent ulceration.

CASE 2.—Duncan C—, aged forty-three, a brassfounder, was admitted on Dec. 8th, 1882, suffering from obstinate constipation, pain, and tenderness in the epigastric region, with loss of flesh and extreme weakness. According to the statement of the patient (who, it may be mentioned, took large quantities of alcohol, and had done so for years) he had suffered for a considerable time from dyspeptic symptoms, although not severely, and twelve months before admission he commenced to vomit about an hour and a half after food, more especially if he had taken a hearty meal. This occurred almost daily for a time, but latterly he had been able to retain his food for two or three days without vomiting. The food, he said, never seemed to leave the stomach, but accumulated, causing considerable inconvenience from distension and flatulence; and at the end of two or three days he would vomit a large quantity of a dark-brown fluid, which vomiting was followed by relief of the pain. The vomited matter, upon examination, was found to contain sarcinae and torulae in abundance. His previous history as regards health was good, and the only point in the family history which would be of importance in the case was the fact that a sister had died of cancer of the womb.

On admission the patient was found to be weak and emaciated, with a haggard and anxious expression. The abdomen appeared retracted in the hypochondriac and epigastric regions, but below these it was distended and highly tympanitic. On palpation gurgling was felt all over the abdomen, with great tenderness in the epigastric region, more marked at a point midway between the umbilicus and ensiform cartilage. No tumour or induration could, however, be made out. The patient gradually sank and died, after having suffered great agony, on Jan. 16th, 1883.

The treatment consisted of nutritive enemata, eight ounces of beef-tea being exhibited three times daily. To neutralize the acid eructations and prevent fermentative changes in the stomach the hyposulphite of soda was given in fifteen-grain doses thrice daily. To allay the pain, hypodermic injections of morphia were given. During the last fortnight he took a little sago by the mouth, which caused vomiting upon one occasion only.

Necropsy, twenty-four hours after death.—The stomach and intestines were found matted together with recent lymph. The walls of the stomach were greatly thickened, and the organ itself was much distended. At the pylorus, and extending backwards for about an inch and a half, there was a large irregularly shaped ulcer, bridged over at one part by a band of mucous membrane about a

quarter of an inch broad. Close to the valve there was great thickening of the walls of the stomach, so that the orifice was almost closed. On microscopic examination of a section, taken from a tumour at the orifice of the pylorus so as to include a portion of the duodenum, there were found evidences of recent inflammation. The tumour seemed to be composed almost entirely of muscular tissue, the fascioli of which were separated by collections of round cells in some parts, and in others by cells closely resembling those met with in myxomata. The inner surface of the tumour was lined by an irregular layer of tissue formed of spindle cells and large stellate cells embedded in a very abundant homogeneous matrix. This tissue seemed to have replaced the mucous membrane, as only at one or two points was there any evidence of an epithelial layer, and it is a point worthy of note, that in the tumour itself, even at its thickest part, where it measured fifteen millimetres, there was no trace of epithelial cells.

CASE 3.—Wm. B., aged forty-seven, a tailor, was admitted on Oct. 14th, 1882, complaining of pain in the whole abdomen, more severe, however, in the left iliac and supra-iliac regions. The commencement of his illness dated twelve months back, when he became constipated, dyspeptic, and experienced pain in the abdomen. These symptoms gradually increased in severity.

On admission he was found to be emaciated and anæmic, with poor appetite, constipated bowels, and a constant gnawing pain in the abdomen, increased to some extent on pressure and movement. The abdomen latterly became markedly distended and tympanitic. During the last five weeks of his life the patient vomited frequently, the vomited matter being of the nature of coffee grounds, but without sarcine and torulae. He only took small quantities of milk and beef-tea. To allay the sickness iced lemonade was given. During the last three weeks of the illness he had no passage from the bowels except of flatus. To relieve the obstinate constipation, castor oil, croton oil, and two turpentine enemata were used in succession, but without effect. A remarkable circumstance in the case is that for the last fortnight the patient was free from pain.

Death took place on Nov. 4th, 1882.

Necropsy, sixty-one hours after death.—At the upper part of the sigmoid flexure the bowel was found to be completely occluded by a large cancerous mass, which protruded into the neighboring part of the bowel. On opening the bowel a fungating mass was found about the size of a small orange. The growth itself was narrower at the base than at the parts beyond, so that the part of the tumour away from the bowel overlapped the adherent portion. The bowel below the tumour was contracted, while that above it was distended. The liver weighed fifty-eight ounces, and was studded with secondary cancerous nodules. On a microscopic examination of the tumour being made, it was found to present the characters of soft cancer. The stroma was very small in amount, while the epithelial cells were unusually abundant.

ST. VINCENT'S HOSPITAL, DUBLIN.

TWO CASES OF ACUTE RHEUMATISM RAPIDLY CURED BY LARGE AND FREQUENTLY REPEATED DOSES OF SALICIN.

(Under the care of Dr. QUINLAN.)

For the report of the following cases we are indebted to Mr. Kenna, resident surgeon.

CASE 1.—Joseph G., aged twenty-three, single, a grocer's assistant, of delicate appearance, ad-

mitted on April 10th, stated that about two years ago he had an attack of rheumatic fever, not so severe as the present, for which he was under treatment for three weeks.

On admission he had been ailing for three days, and his wrist, shoulder, ankle, and knee-joints were red, swollen, painful and immovable. His tongue was yellowish-white; there was slight acid diaphoresis. Pulse strong, bounding, 98; temperature 100° F. The bowels were confined. There were no cardiac complications. He was ordered forty grains of salicin in milk every hour, beginning at noon. At 8 p.m. the pain in the affected joints was much reduced; there was free acid perspiration. As he had not slept for the last three nights, he was ordered fifteen grains of hydrate of chloral, with thirty grains of bromide of potassium. To continue the salicin every hour if not sleeping.

April 11th, 9.30 a.m.: Patient had slept from 10 p.m. till 6 a.m. this morning. Had taken five doses of salicin since his last visit. No pain in any of the joints. Temperature 100.2° F.; pulse 98. To continue the forty grains of salicin every hour.—12th: Perspiration ceased. No pain in joints. Pulse 82; temperature 98.4° F. Slept well without anodyne. To continue the salicin (forty grains) every second hour.—13th: Slept well during the night. Pulse 78; temperature 98.4° F. The bowels were moved naturally.—14th: Limbs free from pain, and can move the joint freely. Skin natural; tongue clean. Pulse 74; temperature 98.4° F. Beginning to feel hungry. To continue the salicin every fourth hour.—15th: Convalescent. Pulse and temperature normal. To continue the same dose of salicin three times a day. Full diet.

This patient will probably be up and walking about in three or four days; and back at his work in eight or ten.

CASE 2.—Catherine C., aged forty-two, married, a strong, well-nourished woman, was admitted on February 23rd. She had been ill for four days. The tongue was white; skin dry; pulse 120; temperature 101.4° F. Both knees, along with left hand and wrist were swollen, hot, painful, and immovable. Ordered thirty grains of salicin every hour, beginning at 11 a.m. This was to be continued until the evening visit; but it was ordered that, if the temperature did not diminish by the third dose, the quantity was to be increased to forty grains. At 5.30 p.m. the temperature was down 100° F., and the pain was nearly gone. To continue the thirty grains of salicin every second hour. As she slept pretty well during the night this could not be done regularly. The quantity, however, was given.—24th: Much better; pulse 94; temperature 99.2°. All pain gone. To continue the salicin every second hour.—25th: All fever gone; pulse and temperature normal. Joints still swollen, but quite movable and painless; appetite returning. The salicin to be taken every fourth hour.—26th: Convalescent. The articular swelling reducing. Ordered salicin (thirty grains) three times a day. Full diet.

March 2nd: Up in the afternoon. The salicin twice a day.—7th: Quite recovered. To continue the salicin once a day for the purpose of preventing relapse.

Remarks by Dr. QUINLAN.—These two cases are offered in the hope that they may aid in promoting the treatment of acute rheumatism by large and frequently repeated doses of salicin, increased boldly until their action beats down the temperature, lowers the pulse, and reduces articular pain. It cannot be too often impressed that the practice of giving salicin in small and distant doses (say fifteen grains every third hour) is simply useless, and too often only serves to give time for cardiac

complication. The essential difference between salicin, the natural product of the willow root, and salicylic acid, the artificial phenol derivative, is that while the latter too often sickens even in moderate doses, you can give almost any quantity of the former. For instance, in the case of the woman C—, it was suggested to me, in March last, that the thirty or forty grain doses of salicin might not be quite safe, and I accordingly determined to try what was the largest dose that could be given. At this time this woman was taking thirty grains of salicin once a day to prevent relapse; and I directed that this quantity should be increased by five grains daily until further orders. This was done, and consequently on Saturday, March 24th, she took eighty grains of salicin at one dose. As this quantity was beyond anything I have seen required in the very worst cases of rheumatic fever, I did not think it necessary to increase it, but simply repeated it on the 25th, 26th, and 27th, without any inconvenience to this patient, who had been detained in hospital for this inquiry much longer than the case required. I have since seen a statement by Korczynsky (Przegl. Ad. Lekarsk., 9, 13) that, as an anti-pyretic, salicin can be given to adults in doses of from six to ten grammes (90 to 150 grains). I do not doubt that this could safely be done, but will hardly be necessary. The forty-grain doses every hour will be found sufficient, and it is likely that in 150-grain doses much of the drug would pass off from the bowels with little, if any, physiological action. Salicin in very large doses is most easily taken by stirring it into a hock glass of milk, which the patient rapidly swallows before it has time to settle down from its suspension. It may also be taken in wafer paper, or even in water, but in this case the bitter flavor is felt. It should always be taken on an empty stomach; after food it often occasions nausea and tinnitus. Its value in acute rheumatism cannot be over estimated, and should the physician get hold of the case early he will be able to conquer it before there is time for cardiac complication, so apt to leave enduring mischief behind it. Salicin is very cheap, its retail price being under one shilling per ounce, and it can be extracted from the bark and green shoots of the willow (at present to be had in any quantity) by a simple process given in Cooley's Cyclopædia, vol. ii., p. 1447. A drop of solution of salicin placed under the micro-polariscope exhibits, with the aid of the selenite stage, a very beautiful display of kaleidoscopic colors, and is thus distinguished from quinine salts, for the adulteration of which it was, up to a few years ago, principally produced. Finally, when the rheumatic sufferer convalesces the salicin should not be dropped too suddenly. For a week it should be given in full doses morning and evening, and for a fortnight once daily; otherwise a relapse may supervene. A notable feature in the salicin treatment is its tonic effect in promoting a steady and rapid recovery of strength and vigor during convalescence.

Walsham descriptive of a rare form of Malformation of the Shoulder-girdle, presumably the persistence of a supra-scapula analogous to the condition met with in the skate, being the second recorded instance of the deformity. The first example had been recorded by the same observers in a paper read before the Society three years ago.

The following is an abstract of the paper on the second Case of Malformation of the Left Shoulder-girdle, with remarks on the probable nature of the Deformity, by Mr. Alfred Willett and Mr. W. J. Walsham. In the 63rd volume of the Transactions is a paper by the authors on "The Dissection of a Specimen of Congenital Malformation of the Bony Thorax, Spinal Column, and Left Scapular Arch, removed from the body of a woman, thirty-two years old, with remarks on the probable nature of the Deformities." The malformation of the shoulder-girdle consisted of a triangular bridge of bone stretching between the spinal column and the scapula. The present paper is founded on a similar malformation in a child eight years old, from whom the bridge-like piece of bone was removed by Mr. Willett, the child making a good recovery. The portion of bone removed was of an irregular triangular form, with a truncated apex. It had an osseous attachment to the spines of the seventh cervical and first dorsal vertebrae, and was connected by a layer of cartilage to the base of the scapula. It measures one inch and three-eighths in length, and one inch and a quarter at its widest part. It was covered by periosteum, and muscular fibres were inserted into it. The malformation is evidently similar to that in the former specimen, but differs in that the union of the bridge of bone to the scapula in the first case was osseous, in the present case cartilaginous—a difference which the authors believe throws additional light on the nature of the deformity. They regard it, in both specimens, as an over-development of the epiphysis which normally exists along the posterior border of the scapula, and consequently as the homologue of the supra-scapular bone of the lower vertebrata. The points that they think favor such a view are—1. The apparent continuity in the first specimen of the bridge of bone with the supra-scapular epiphysis, of which it appears to be an outgrowth. 2. Its cartilaginous attachment in the second specimen to the scapula (central piece). 3. The absence of analogy between these cases and exostoses, and the impossibility of explaining how, if they were exostoses from a vertebra, they could have become secondarily attached to the scapula. 4. The insertion of certain muscles into them, showing that the abnormality occurred at a very early period of development. 5. The abnormal condition, in the first specimen, of the scapula itself, and the presence of concomitant malformation of evident congenital origin. The intimate osseous union of the bridge of bone to the spine might suggest its being a so-called spinal exostosis. It differs from such, however, in that it is not covered with cartilage except where united to the scapula, in its flattened condition, in its growth in only one direction, and in its broad base of attachment to the scapula. The union to both the spine and scapula, moreover, can be better explained on the assumption of its being a supra-scapula. That an overgrowth of the epiphysis may occur is shown by specimens in the museums of the Royal College of Surgeons and St. Bartholomew's Hospital. The epiphysis which normally exists in man at the base of the scapula presents a much higher grade of development in some of the lower animals; in some it remains throughout life as a distinct bone—the supra-scapula, which in some even (the thornback skate) is united to the spine. As the

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Case of Malformation of the Left Shoulder-Girdle.

THE ordinary meeting of this Society was held on March 13th, Professor J. Marshall, F.R.S., President, in the chair. The evening was occupied by the reading of a paper by Messrs. Willett and

supra-scapular epiphysis in man is admitted by all to be the homologue of the supra-scapular bone of animals, it follows that if the bridge of bone is an overgrowth of the epiphysis it must also be the homologue of the supra-scapular bone. That this epiphysis in man may actually present an abnormal backward development is shown by the specimens referred to. It is advancing, therefore, but one step further to compare the bridge of bone in one specimen to the distinct supra-scapula of the frog, and but one step further still to conceive it united to the spine, as in the skate. On this theory the abnormality may be regarded not as a mere overgrowth of the scapula, but as having existed in its present form, though of course unossified, from the time of the differentiation of the cartilaginous shoulder-girdle from the mesoblast, and therefore as having had an attachment to the spine from the earliest period of its development. Considering the similarity of the primitive cartilaginous shoulder-girdle in all early vertebrates, it would not seem that such a grave departure from normal development was required to produce the abnormality. Analogous processes are not wanting in the human body, as, for instance, the overgrowth of the transverse processes of the seventh cervical vertebra into a cervical rib. If by a forward extension the transverse process, the homologue of a rib, may, as in birds, be developed into an actual rib, why may not the scapula epiphysis, the homologue of the supra-scapula, be developed by a similar but backward extension into an actual supra-scapular epiphysis, as in reptiles and fish? Given a cartilaginous union between the scapula and the spine there is no difficulty in explaining how the ossific centres in the spinous process and supra-scapula would meet and become fused, any more than in the analogous process of the union of the epiphysis and diaphysis in an ordinary long bone. The probabilities of the malformation having existed from a very early period of development are strengthened by the following facts:—1st. The attachment of the muscles into the bridge of bone. 2nd. The rudimentary condition of the scapula itself in the first specimen. 3rd. The concomitant malformations of the spine, ribs, and clavicle, which were shown in the former paper to have occurred at a very early period of the development of the embryo.—At the close of the paper the child was exhibited to the Fellows by Mr. Willett, and it was seen that the scapula had regained its natural mobility.

The President, in inviting discussion upon the paper, drew attention to the interesting fact of two examples of this hitherto unrecorded deformity having occurred to the authors within a few years. The question of its origin, whether it was a reversion to a type present in the lower vertebrates, or whether it was an aberrant osseous formation between the spine and the scapula in the position occupied by muscles, was important, and the evidence adduced favored the former view.—Mr. Howes said that modern inquiry pointed to the direct descent of mammals from the amphibia, and he referred to the resemblance between the shoulder-girdle of echidna and that of the amphibia in illustration of this; the cervical ribs in that animal also persisting during life. Recent embryological researches had shown that the limb girdle is developed from the limb itself, so that any attachment of the former to the spine must be secondary. In the skate the ossified supra-scapular bone is fixed to the unossified spine, which is strengthened by a vertebral plate at this place. He alluded to many developmental affinities between amphibia and mammalia, as in the hyoid arch, the Eustachian cartilage, the mandible (which Professor Parker has lately found in the fetal mole and in the

platypus to be composed of splint-like portions as in the lizards), and the parisphenoid—an amphibian structure, of which a relic has been found by Professor Parker in the creeping lemur. Such facts supported the author's view of the abnormality they described being the homologue of the supra-scapula. Its fusion with the spinal column depended probably upon the necessity of its affording sufficiently firm attachment for the neck muscles.—Professor Thane assented generally to the authors' conclusions in that in each of the instances it was an example of a greatly developed supra-scapula. The dissection of the former specimen showed that it was not an instance of ossification in muscles passing between the spine and shoulder-girdle. Indeed, the similarity to the supra-scapula of the frog was very striking. That the structure should ossify earlier than the epiphysis usually does was not surprising, for when a part ordinarily small and vestigial is increased in size its developmental processes are hastened, as seen in the caracoid. Its union with the spine was more difficult to explain; and the cartilaginous connection with the scapula made it almost impossible to believe that it was primarily developed from the spinal column. Atavism was a natural explanation for its occurrence; and certainly in many mammals the supra-scapula is very well developed, and cartilaginous wholly or in part; but he doubted whether its connection with the spine could be so explained. This united condition in the skate was doubtless related to the great development of its upper limbs; and, moreover, the fact which Mr. Howes had pointed out as to the shoulder-girdle being developed from the limb, and separated by the muscle-plates from the vertebral column, rendered the explanation of this union the main difficulty to be explained.—Professor Curnow agreed with Professor Thane that the difficulty lay not in its connection with the scapula, but with the spine, and the parallelism to the skate increased the difficulty. Was there any evidence of hereditary transmission of the malformation?—[The Hon. Secretary (Mr. B. Hill) read a letter from Professor Milnes Marshall, expressing his regret at being absent, and his inability to agree with the authors' morphological conclusions, partly on grounds of theoretical improbability, as regarded the skate-like type of shoulder-girdle, and partly from the fact that in both recorded instances the malformation was on one side only. The accompanying deformities in the first case would tell against the authors' theory, unless it could be shown that these malformations were of the nature of reversions to an ancestral type. The cases might be explained by pathology rather than by morphology.]—The President was also struck by the unilateral character of the malformation, and that in both cases it was on the left side. The structure of the bony plate, however, showed it to have been formed in cartilage, and not by ossification of fibrous or muscular tissue. It seemed more likely that the fusion with the spinal column was due to attrition and pressure rather than referable to a morphological condition of the lower animals.—Mr. Willett, in reply, said that Mr. Howes' remarks strongly corroborated the view of reversion affording the best explanation of the condition. The great difficulty which had been raised seemed to be cleared away by Mr. Howes' statement, that the ossification must grow from without inwards, which excluded the idea of the structure being spinal in origin. Its connection with the spine might fairly be explained by contact and attrition. He was unable to give any facts as to heredity; the child was the only one, and the mother died early. As to its unilateral disposition, the small number of cases observed

deprived that objection of much weight. He regretted Professor Milnes Marshall's absence, as he might have explained why he regarded the condition pathological rather than morphological. In conclusion, Mr. Willett expressed his great obligation to Mr. Walsham for the labor he had bestowed on the paper.—Mr. Walsham claimed Professor Milnes Marshall and Professor Flower as supporting the possibility of a supra-scapula element being found. Analogous instances of reversion are often one-sided. In the first case, the concomitant malformations lent great support to the view they maintained, and Professor Parker, when he saw that specimen, at once recognized its similarity to the shoulder-girdle of the skate.

On Cases described as "Acute Rickets" (combination of Rickets and Scurvy).—Subperiosteal Hæmorrhage, probably Scorbutic, of three Long Bones in a Rickety Infant.

The ordinary meeting of this Society was held on March 27th, Mr. W. S. Savory, F.R.S., Vice-President, in the chair. A very exhaustive paper, communicated by Dr. Thomas Barlow, upon the subject of infantile scurvy and its association with rickets was read in abstract, and was followed by a paper relating an example of the disease by Mr. Page. Dr. Hale White's paper on a case of scurvy with retinal hæmorrhages and dilatation of the heart, read at a former meeting, was also read in abstract, time not permitting of its discussion on the previous occasion.

The following is an abstract of the paper on Cases described as Acute Rickets (combination of Rickets and Scurvy), by Dr. Thomas Barlow. The paper is a contribution to the study of a disease occurring in young children, of which several cases have been recorded in recent German and English medical literature, but of which, with one exception, no account of the morbid anatomy has hitherto been given. The writer first narrated a typical case, then gave an analysis of the principal symptoms observed in the recorded cases and in other cases of his own, then the results of some post-mortem examinations, and finally discussed the etiology and affinities of the disease. The typical case was given in full detail. The boy, aged fifteen months, was of a pale, sallow complexion, fat, but flabby. His rectal temperature was 101°, there was no nervous or visceral disease except that the liver was larger than normal. He was continually moaning, and when approached and touched screamed violently. The dominant symptoms were in the limbs, the right wrist was dropped, and the left thigh continually drawn up; the ribs were beaded, but there was no grooving of the thorax; the left thigh and leg were tightly swollen, assuming a cylindrical shape; the epiphyses of the knees were enlarged, and there was a tendency to knock-knee. There was profuse sweating about the head. The boy was a first child, born slightly before term, and seemed vigorous for the first six weeks, during which time he had his mother's milk, but since its failing he had been deprived of fresh food, his diet consisting of the various infant foods of Nestle, Robb, etc. The child sat up well, and stood with assistance at thirteen months old, but five weeks ago he ceased to do either, the left leg and ankle being swollen, and the child shrieking if approached. The child was taken to a well-known bonesetter, who said that one of the bones of the spine was out, and a presumed operation to set it right was performed, but as no explanation was given of the swollen wrist, dropped right hand, and condition of left thigh, further opinion was taken. The child was

obviously the subject of moderate rickets, and the opinion was formed that under the periosteum of the left femur and tibia there was an effusion of blood, and that the extreme tenseness of the limb was due to blood extravasation in the deeper muscular layers with the serum filtered into the more superficial parts of the limb, and the view was held that the boy was suffering from the supervention of scurvy on rickets, though with no sponginess of the gums. The treatment suggested was to surround the whole of the left lower limb and the right leg with wet compresses, which had been thoroughly wrung out, surrounded with dry clothes closely applied. A complete change in diet was made: to the juice of raw beef sweetened a little, cow's milk, strained gruel, barley water, and orange juice. It was ordered that the boy's crib should be placed near the fire, and the window opened wide for free play of fresh air. A great change occurred during the treatment. He was quieter and took his fresh food greedily, had healthy evacuations, and the tension of the left lower limb was less. The improvement was progressive. The urine became clear and free from albumen, and from excess of phosphates. The swellings of the wrist and lower limbs subsided, and at the end of a fortnight he made slight efforts to raise himself and move his limbs about. At the end of a month gentle shampooing with oil, and douches of tepid and then cold water, were commenced. No change was made in diet except substitution of beef-tea for raw meat juice, and a small piece of underdone meat in muslin to suck. His medicine was one teaspoonful, and then two teaspoonfuls, of cod-liver oil daily, and an occasional powder of rhubarb and soda. Within eight weeks he got on his knees, and could stand with a little support. He was of a ruddy color, and his skin and muscles felt firm. The author then gave an analysis of the principal symptoms in thirty cases, of which nineteen have been published (principally in Germany), the majority under the name of "acute rickets," and one under that of "infantile scurvy." The first English case was under the care of Mr. Thomas Smith at the Hospital for Sick Children, described under the provisional title of "hæmorrhagic periostitis." Other cases had been described by Dr. Gee, as "osteal or periosteal cachexia," and two by Dr. Cheadle, in which spongy gums were a marked feature, for which and other reasons Dr. Cheadle held them to be a combination of rickets and scurvy. The ten cases of the author led him to substantially the same conclusion. The author then gave an analysis of the important symptoms, the post-mortem appearances, the etiology and affinities of the disease with the ordinary form of rickets, congenital syphilis, etc. The evidence shows the ordinary form of rickets to be present in a considerable number of the cases, though in some the symptoms were very slight. It shows also that there is no affinity with acute periostitis, hæmophilia, or purpura. The parallelism of the disease with scurvy was shown both on anatomical and clinical grounds, and after giving a summary of the diet adopted in the recorded cases, the author came to the conclusion that the characteristic features of the so-called acute rickets are really due to "scurvy."

The next paper read was upon Subperiosteal Hæmorrhage, probably Scorbutic, of three Long Bones in a Rickety Infant, by Mr. Herbert W. Page. The author recorded the case of an infant, aged nine months, extremely wasted, pale and ill, who was sent to him by Dr. Taylor, of Willesden, and who presented enormous enlargement of the shafts of the left femur and tibia, and of the upper third of the right tibia also. The swelling

had been coming on and gradually increasing for about a month. The neighboring joints were not affected, and there was no superficial sign of inflammation. Beading of the ribs and rickety enlargement of one radius led to the belief that the condition was in some way due to rickets, and this supposition was also based on the fact that the child had from birth been fed for three weeks on Swiss milk, and after that almost entirely on Nestle's and Savory's foods. There was no history of syphilis, and in the absence of general fluctuation no certain diagnosis was made. A trocar and cannula passed at one point in the thigh, where there was doubtful fluctuation, gave exit to a few drops of sanguineous fluid, the bone being found bare. Incisions were therefore made through the periosteum of both thigh and leg, and large blood-clots, which had to be broken up with the finger before any part of them could be removed, were found lying around the shafts, the periosteum being stripped up therefrom throughout their entire lengths. Being now properly fed, the child, whose recovery had seemed well-nigh hopeless, began at once to improve, the blood-clots were gradually expelled, there was little or no suppuration, the wounds healed, and when seen three months afterwards the affected bones had resumed their normal size, and the periosteum its natural position in contact with the shafts. There is no hæmorrhagic diathesis in the family. The author referred to the difficulties in diagnosis presented by this case, especially in the absence of fluctuation, which was doubtless due to blood-clot being tightly packed between periosteum and bone. He is now inclined to regard the disease as scorbutic rather than rickety, and the hæmorrhage as the more essential element of the pathological condition than inflammation of the periosteum. The child had been reared on scurvy diet. Periostitis is almost unknown, even in the worst cases of rickets. There was no sign of inflammation either in the neighboring joints or in the skin; and it is, moreover, noteworthy that both periosteum and bones have survived the attack. Such could hardly have been the issue of an acute hæmorrhagic periostitis, even though the hæmorrhage, as a local bloodletting, might have conduced to the safety of the periosteum. He referred to other cases, of which, indeed, there is only one definite example on record in support of this doctrine. A case was recorded by Mr. Thomas Smith in vol. xxvii. of the Pathological Society's Transactions as "Hæmorrhagic Periostitis of the Shafts of several Long Bones with separation of Epiphyses," where, after death, the shafts were found surrounded by blood-clots underneath the periosteum, and in which there were numerous hæmorrhages in the muscles also, with a large hæmorrhage in one lung, hæmorrhages, in fact, like those ordinarily seen in scurvy. In one of three cases recorded by Dr. Cheadle of "Scurvy Supervening on Rickets in Young Children," in addition to bleeding gums and other usual signs of scurvy, there were "hard swellings deeply seated in the flesh of each thigh, and the shafts of the long bones felt enlarged and swollen." The author had little doubt that in that case also the enlargement was due to subperiosteal hæmorrhage. The child had been fed on a scurvy diet, and the state of the gums very clearly told what unnatural agents had been at work. In his own case the diet was a distinctly scurvy diet, lacking every kind of fresh food, and he trusted that the record of it may lead to a surer diagnosis and better treatment in other cases where the absence of swollen and bleeding gums deprives us of an all-important clue to the nature of the malady.

Dr. Stephen Mackenzie believed that the valu-

able papers that had been read would go far to remove the difficulties which beset the subject. He referred to two cases of the kind under Mr. Waren Tay's care, of which he had made the post-mortem examinations. One was an infant about four months old, who had been brought up on artificial food and London milk. There were extensive subperiosteal hæmorrhages around several of the long bones and the ribs; and also extravasations in the gums at the site of the non-erupted teeth, a condition differing from scorbutic sponginess, but not uncommon in these cases. In another case he had seen extravasation into the orbit, and beneath the skin of the arm. The second case he had examined post mortem was marked during life by a swelling over the lower end of the femur, which had been noticed for two months. The infant was eight months old, and the limb was helpless. The condition was thought to be syphilitic, and Mr. Tay prescribed grain doses of iodide of potassium. After two doses had been given, some ecchymosis appeared about the orbit, but no further purpuric manifestations, although the iodide was continued. Other swellings appeared on the limbs, and the child became marasmic and died. The periosteum was detached from the ribs by hæmorrhage, and the same condition occurred to several of the long bones. Hæmorrhages also occurred in the lungs, intestines, and kidneys, and the case was complicated with recent peritoneal tuberculosis. These cases, then, lent support to the views advanced by the authors of the papers. Dr. Mackenzie laid stress on the fact that purpura was not a disease *per se*, but dependent on various conditions. Referring to Dr. Hale White's case, he mentioned that for some years past he had sought for retinal hæmorrhages in cases of scurvy at the Greenwich Hospital, but had never met with them except in that one case. He attributed this to the fact, insisted on by the author, that the occurrence of retinal hæmorrhages is determined by a certain degree of anæmia. His own experience went to show that retinal hæmorrhages are not met with unless the corpuscular richness falls below 50 per cent., and that no matter what the disease producing the anæmia is. He had found such hæmorrhages in cases of hæmatemesis, where the blood standard reached this low level; and in idiopathic progressive anæmia the corpuscular richness is much less than this.—Mr. Macnamara remarked that in the tropics retinal hæmorrhages were not uncommon in scorbutic disease. He had often found them in natives who, after repeated attacks of intermittent fever, became scorbutic; and especially in scorbutic dysentery, where the ulceration of intestine is secondary to hæmorrhage in the submucous tissue. He had no doubt as to the scorbutic nature of Dr. Barlow's cases, and thought it remarkable that in no case did periostitis ensue on the subperiosteal hæmorrhage. He suggested whether some of the cases of acute suppurative periostitis, or acute necrosis of children, might not be secondary to the breaking down of clots found as described. Speaking of the relation between syphilis and rickets, he had no doubt that the state of malnutrition upon which rickets depended might be brought about by inherited syphilis. It might be quite correct, then, to ascribe some of these changes to syphilis as one of the factors to which rickets and the scorbutic element were superadded.

Mr. R. W. Parker thought it remarkable that so few cases should be recorded if the condition depended so much upon improper diet and hygiene, to which so large a number of children in London and elsewhere were subjected. For although young people do seem to enjoy an immunity from scurvy, yet the disease is very rife in the Russian

foundling hospitals. Most writers regard the bone lesions and periosteal lesions as late manifestations of scurvy and secondary to profound cachexia; but in the cases related that evening these lesions seem to have been sometimes observed in children otherwise robust, and the development of the lesions to have been remarkably rapid. Nor did the cases exhibit the putrescence so common in scurvy, and the condition of the blood was not that usually described in this disease, for it coagulated firmly. He had made post-mortem examinations on three cases of "acute rickets," in which the bones were greatly softened, but there was no scorbutic appearances.—Mr. J. H. Morgan remembered Mr. T. Smith's case, with which Dr. Barlow's cases were identical. The extremely vascular condition of the medulla of the shaft and the epiphysis in that case suggested changes in the vessels of the medulla itself, and might explain the occurrence in that case of fracture of the femur at a point below the epiphysis. He thought the evidence of survy was satisfactory, and it was interesting that in all the cases the scurvy was superadded to a rickety condition. The absence of symmetry in the distribution of the lesions was a point of distinction from the bone changes of congenital syphilis. Dr. Drewitt said that all agreed as to milk being antiscorbutic, and pointed out that in London there must be thousands of children fed on condensed milk alone, without suffering from scurvy. He suggested that ships should, in addition to lime juice, be also well supplied with condensed milk.—Mr. Savory thought that Mr. Page's case showed that acute periostitis alone would not suffice to produce necrosis, for in that case the whole of the shaft of the bone was detached from the periosteum by hæmorrhage; yet the bone retained its vitality. This seemed conclusive evidence in support of the view he and others held that in cases of suppurative periostitis followed by necrosis there was osteitis as well.—Dr. Barlow, in reply, said that he had frequently observed in these cases small ecchymoses on the gums on the sites of the growing teeth. One case had also ecchymosis of the eyelids, and a temporary partial ptosis. He had also seen the hæmorrhage around the ribs, a point observed by Poupert in the seventeenth century. The visceral hæmorrhages observed by Dr. Mackenzie were important additions, and in Mr. Smith's case there was a small hæmorrhage in the lung. Tuberculosis not infrequently developed in marasmic children. He quite concurred that the term "purpura" should not be held to denote a distinct disease, and remarked that the subjects of purpura suffered occasionally from temporary swelling and tenderness in the legs, suggestive of deep-seated extravasation. He would not like to say that these subperiosteal hæmorrhages never passed on to suppuration, but he had not yet seen any evidence of suppuration. In one case a small fluctuating point appeared above an epiphysis, which he attributed (from the conditions found in other cases post mortem) to accumulation of serum in the more superficial parts of the limb. In a case, which, however, hardly seemed one of this class, there was partial suppuration. Although the shaft of the bone is detached by the hæmorrhage, it is probably nourished through the epiphysis. He agreed that syphilis might be regarded as one of the factors producing rickets; but there was no evidence of syphilis producing hæmorrhage. He admitted the force of Mr. Parker's argument as to the paucity of such cases, notwithstanding the prevalence of the supposed etiological conditions, but believed that minor manifestations of scurvy were far more common in civil life than was admitted. Dr. Cheadle believes that many

cases of stomatitis in children are due to scurvy, and they certainly soon get well on antiscorbutic treatment. Many of these cases may be overlooked, being regarded as rickets, the extreme tenderness and great feverishness of the children being obstacles in the way of thorough examination. Young people do suffer from scurvy, as the experience of the Russian hospital, mentioned by Mr. Parker, showed. Aching in the limbs is given by writers on scurvy as one of the earliest symptoms; and the blood is by no means invariably altered in appearance. Although London children are often brought up on a diet capable of inducing rickets—e.g., bread and butter—they are also largely fed upon potatoes, which are antiscorbutic. In the paper he had mentioned that some of the children had an extreme aversion to meat and vegetables, and such facts may serve to explain why in one family one child will suffer from scurvy and others from rickets. The difficulties were not greater than in the adult, and in some the element of idiosyncrasy must be borne in mind, some people escaping scurvy although placed under precisely the same conditions as those who suffer. The great vascularity of the shaft and medulla referred to by Mr. Morgan is present in well-marked rickets, and he rather attributed the occurrence of fracture below the epiphysis to the fact that the structure of the bone is less compact there, and more brittle, so that when the periosteum became detached, and the bone was left unsupported, it gave way at this spot on slight movement. Syphilitic lesions were symmetrical, but so occasionally were these under consideration. The main points of distinction from syphilitic lesions lay in the age of the subject and in the fact that none of the children were fed at the breast. Dr. Black used to treat his cases of scurvy at the *Dreadnought* on milk alone, and there was no doubt as to its antiscorbutic properties; but condensed milk—valuable as it is—certainly does not protect from scurvy. Fresh food was requisite.—Mr. Page said that his paper was mainly of interest as affording confirmation of the points advanced so fully by Dr. Barlow. No doubt his case would have got well had he adopted the measures followed by Dr. Barlow; but he was urgently pressed to relieve the child, and great relief was given by the incisions. He fully agreed with Mr. Savory that the necrosis so often seen with acute periostitis was due to inflammation of the bone itself; and the vitality of the bone in his case was tolerably conclusive that the condition was not one of hæmorrhagic periostitis. The fact of the blood coagulating was not fatal to the scorbutic theory, for the same happened in well-marked cases of scurvy. It was difficult to say why in some children improper nourishment should lead to rickets and in others to scurvy; but in his case the rickets was not marked, and the child had been most improperly fed from its birth up.—Dr. Hale White said that since his paper was read he had found that Dr. Buzzard, in his article in "Reynold's System of Medicine," mentions the fact of cardiac dilatation in scurvy, although he does not ascribe any symptoms to it such as those observed in his (Dr. White's) case.

Nævus of Rectum.—Recurrent Cancer.

The ordinary meeting of this Society was held on April 10th, Mr. J. Marshall, President, in the chair. The following gentlemen were elected Fellows of the Society:—Mr. H. Royes Bell, Mr. D. W. Buxton, Mr. W. Edmunds, Mr. V. Horsley, Mr. E. Land, Dr. Angel Money, Dr. C. D. F. Phillips, Dr. T. M. Wilkinson, and Dr. W. E. R. Wood. Neither of the papers read afforded much scope for discus-

sion, as one was an account of an almost unique case, and the other was a combination of pathological speculation and accepted surgical doctrine.

Mr. E. T. Barker contributed a paper on a case of Nævus of the Rectum in the Adult, proving Fatal from Hæmorrhage. This case was offered for special consideration on the following grounds: 1. On account of its rarity; no similar case being known to the author after careful search. 2. On account of the gravity of the condition in this special instance, in which, in a particularly strong and healthy adult, slow death from bleeding was the result. All the symptoms usually met with in those dying from loss of blood appear to have been present here. Beyond these there were few special symptoms noticed as dependent on the condition. The patient, whose earliest symptom was an attack of diarrhoea accompanied by great loss of blood, usually suffered from constipation, and was obliged to strain much during defecation. Sometimes, however, he had intervals of diarrhoea, always with great loss of blood, and felt no pain and lost no flesh, and there was no particular discharge from the rectum except during the attacks of bleeding. 3. From the fact that a diagnosis of the condition was made by inspection of the rectum with a strong light. This was thrown up the bowel by a forehead mirror from a powerful lamp, and through a large vaginal speculum, which could always be introduced under chloroform. By this inspection the mucous membrane of the bowel was seen to be marked by smooth longitudinal folds, mottled with a peculiar purplish tint. On these purplish folds were three shallow ulcers whence blood flowed freely. The patient gradually sank, in spite of various remedies, and died from loss of blood. Post mortem, the wall of the rectum was found to be much thickened in the lower four inches and a half of its length by nævoid growth in its walls, on the rugæ of which were the three shallow ulcers before described. The body in other respects was healthy and well developed, but almost free from blood.—Mr. Howard Marsh referred to the case of a girl, aged ten, lately under his care in the Children's Hospital. Since the age of two she had suffered from repeated, and sometimes severe, hæmorrhages from the bowels. Under chloroform and with the aid of a speculum, a nævoid growth was seen in the lower part of the rectum completely surrounding the bowel. This was treated by several applications of Paquin's cautery, which relieved the symptoms but did not cure the growth.—Mr. Stanley Boyd had seen Mr. Barker's case on his first attendance at the hospital. On examining the rectum he found it full of blood, and did not detect the ulcers subsequently noticed. When he passed a speculum he was unable to pass anything larger than a No. 2 rectal bougie into the sigmoid flexure, and on withdrawing this fetid blood and a little feces came down into the speculum; he therefore had diagnosed the case as one of cancer of the sigmoid flexure. Microscopically the growth was a cavernous nævus involving both the mucous and submucous tissue.—Mr. Marshall remarked upon the great rarity of such a case. He thought it would have been very hazardous to have treated it with the actual cautery; the man's sudden death prevented any radical measures being tried while the patient was in the hospital.—Mr. Barker drew attention to the fact that immediately after death the body exhaled a horribly fetid smell like that described in cases of scurvy with great anæmia.

Mr. Harrison Cripps contributed a paper on some points connected with Local Recurrence of Malignant Disease, of which the following is an abstract:—He commenced by criticising the view commonly expressed that local recurrence takes

place in the cicatrix of the wound, and pointed out that it is rather in the skin and subcutaneous tissue adjacent to the cicatrix that the occurrence is often observed. A paper published by the author in the Pathological Society's Transactions of 1881 was referred to, in which microscopic evidence was produced, illustrating the view that, as regards malignant disease of the rectum, whether found in the mucous or in the submucous coat of the bowel, it was originally formed of cells derived from Lieberkühn's follicles. A theory founded upon these specimens was also suggested that the formation of leucocytes was one of the normal functions of the intestinal epithelium. Two cases were narrated in which recurrence of malignant disease undoubtedly first showed itself by cancerous nodules originating in the deeper layer of the cutaneous epithelium by the side of the cicatrix—that is to say, in a part of the skin that has not been removed at the time of operating. After referring to the views of Brodie and other surgeons as to the desirability of removing the entire mammary gland, notwithstanding that the cancer may involve only a small portion, the author advocated that the same principle should be applied to the superjacent skin. The theory upon which the surgeon advocates the removal of the whole gland tissue is that, notwithstanding a great portion of it appears sound, the epithelial lining of the ducts and acini are in reality already infected, and only require time for cancerous growth to become manifest; the epithelium within the gland being in direct continuity with that covering, and the superjacent skin being originally derived from it by involution. Thus the cutaneous epithelial cells lying over the gland are as liable to be implicated as those within it. The author, of course, recognized that it is the universal practice of surgeons when operating for mammary cancer freely to remove any skin that appears to be implicated, but he suggested that even in cases where the skin is soft and supple possibly longer immunity from recurrence might be obtained by its wide and free removal than by being satisfied with a mere elliptical portion involving the nipple.—Mr. Alban Doran referred to Rindfleisch's view of the origin of red corpuscles from the nuclei of myeloid cells, and said this was homologous with Mr. Cripps's theory of the origin of leucocytes.—Dr. Creighton said that scar tissue was in cases specially prone to become cancerous. But recurrent nodules were often found widely removed from the original tumour. In all such cases that he had examined he had not found the tumour continuous with the rete mucosum.—Mr. Butlin reminded the Society that Mr. Charles Moore had long ago advocated the wide removal of cancerous growths, and more recently Dr. S. W. Gross, of Philadelphia, and Mr. Banks, of Liverpool, had carried out this practice with far better results than surgeons had usually obtained in the treatment of this disease. Recurrence depended upon portions of affected or infected tissue being left behind at the time of operation. He could not quite follow Mr. Cripps in his more speculative views as to the development of leucocytes and cancer.—Mr. Marshall asked for actual demonstration of the correctness of Mr. Cripps's views of the relation of intestinal epithelium to leucocytes. He had never imagined that cancer really originated in scar tissue, but rather in its immediate vicinity, and that scar tissue was a very favorable soil for it to grow in. All surgeons were now agreed that the more freely cancers were removed the better; and he referred to the opinion of the late Mr. Clover, who had witnessed very many operations, as corroborative of this view. In the works of Dr. John Brown, of Norwich, a description of an opera-

tion for the removal of the entire breast and all the covering skin is given, and is stated to be the best treatment for cancer of that organ.—Mr. Cripps replied that having raised, and, he thought, demonstrated, his pathological views before the Pathological Society he had not thought it right to repeat that demonstration there. Only by the cells themselves being carried away from the primary disease could such a fact as the secondary formation of adenoid cancer in the liver be explained. He was not aware of the work of Gross and Banks alluded to by Mr. Butlin; but he thought it was important to call attention to the necessity of removing cancerous tumours more freely.

Mr. Stanley Boyd showed microscopical sections of Mr. Barker's case of Rectal Nævus of the Liver, and of a Nævus from the Forehead.

The Society then adjourned.

MEDICAL SOCIETY OF LONDON.

President's Address.—Poisoning by Citrate of Caffeine.—Diffusion of Medicinal Agents in the Atmosphere.

At the meeting on March 12th, the chair was taken by the newly elected president, Sir Joseph Fayrer, who gave a brief opening address. After thanking the Fellows for the honor conferred upon him, and referring to the variety and value of the work done by the Society, and the satisfactory condition in which it was at present, he alluded to the new extension of the buildings, the accomplishment of which had been aided by the liberal manner in which a former President, whose munificence has made his name familiar as a household word, had come forward to their help, and he trusted that restored health would one day permit them to meet Sir Erasmus Wilson in the rooms which owe so much to his liberality. Sir Joseph then spoke of the catholic aims of the Society, and of the work done in the past year, paying a warm tribute to the Lettsomian Lecturer, Dr. Sansom. Among the subjects especially demanding attention was that of the causal relations of minute organisms to disease, of which they had already had contributions from Drs. Whipham and Heneage Gibbs as regards tuberculosis, about which much still remains to be determined. The probability that many other diseases depend on micro-organisms adds greatly to the necessity for continued observation and the true interpretation of observed facts. The subject of antiseptic surgery and its relation to the germ theory still afforded field for inquiry. The subjects of parasitic diseases, of the etiology of fevers, of tropical diseases, the value of alcohol, the histogenesis of cancer, were indicated as matters which were still open questions for debate, and the address concluded with an exhortation to the Fellows to contribute by their communications to the scientific and practical advancement of medical knowledge.

Dr. Routh read notes of a case of Poisoning by Citrate of Caffeine. The drug had been prescribed in drachm doses three times a day for the relief of severe headache in a man under treatment for debility. Bishop's effervescent preparation was intended, but the pure drug was sent. Fifty minutes after taking one powder he complained of burning sensation in the throat, of giddiness; there was vomiting and purging with pain in the belly. He then became almost paralyzed, and was affected with tremors, but his intellect was clear. Dr. Routh found him an hour later collapsed; pulse about 120. Ipecacuanha was given as an emetic, but failing to act, some animal charcoal, with nitrite of amyl and ether, was given. Vomiting

subsequently took place, and ammonia, alcohol, and nitro-glycerine were given. For some hours he remained much depressed, and did not rally completely till 1.30 a.m. next day, or nine hours after taking the caffeine. Nitro-glycerine in one-minim doses was given every two hours, with digitalis, and in about three days he recovered to his former state.—The President did not know of any similar case in man. Experiments had shown that the citrate of caffeine stimulated involuntary muscles. In rodents it was only slowly fatal. It resembled theine and the alkaloid of coca and Paraguay tea in increasing the power of muscular effort.—Dr. Thorowgood had found the drug useful in cases of asthma. In a severe case he treated two years ago a threatened attack of asthma passed off after one dose (one grain) of the citrate of caffeine had been taken, but extreme faintness speedily set in. Later Dr. Thorowgood found that the attacks were due to cardiac disease, and the patient died eventually in syncope, so that the former syncopal attack was probably not due to the caffeine. He had seen no evidence of the alleged tetanizing effects on the heart of this alkaloid.—Dr. Gilbert Smith would have preferred a less depressing emetic than ipecacuanha in such a case. He had given citrate of caffeine in cases of cardiac and renal disease, and in asthma, for which it was very useful. Caution was necessary in cardiac cases, for he had known severe collapse follow even small doses.—The President alluded to the value of strong coffee in opium poisoning, and the superiority of coffee to alcohol as a stimulant. Was caffeine, which is closely allied to quinine in having very little carbon, concerned in this action of coffee? Did Dr. Routh observe whether the paralysis passed into a tetanic condition as seen in animals?—Dr. Routh was aware of the experiments referred to and others in which theine was used. There were no convulsions, but only marked muscular tremors; and there was paralysis, but no tetanus. He feared to give sulphate of zinc or copper.

Dr. R. Lee read a paper on the Diffusion of Medicinal Agents in the Atmosphere. He remarked that the principles on which antiseptic surgery was founded might be extended to the treatment of pulmonary diseases, provided that the difference between diffusion in a vapor and a fluid was kept in view. In the volatilization of any antiseptic or medicinal agent it is necessary that the water with which it is mixed should be evaporated, and that no practical use resulted from simply mixing the substance with hot water and inhaling the steam. Dr. Lee stated that the rate of volatilization of any substance when boiled with water depends on its own boiling-point, its specific gravity and readiness to mix with water. In the case of the oil of the eucalyptus globulus, by mixing alcohol with it the rate of evaporation could be controlled, for though its boiling-point was 320°, its specific gravity was less than water, and it volatilized when mixed with it much more rapidly than the water. Carbolic acid has the singular property of volatilizing in exactly the same proportion as the water with which it is mixed, and thus it is the most suitable for all antiseptic methods of treatment.—Dr. Cullimore spoke of the value of sending patients to places where the air is naturally charged with certain emanations. In Iceland freedom from phthisis might be due to the sulphur in the air.—Dr. Dawtrey Drewitt asked Dr. Lee if he was quite sure that acetic acid is not volatilized when mixed with boiling water.—The President pointed to the fact that the air of London was permeated by sulphurous acid.—Dr. Lee, in reply, pointed out that burning was not volatilization, but destruction.

Foreign Body in the Bladder.—Endemic Hæmoptysis and Distoma Ringeri.

At the meeting of this Society on March 19th, Sir Joseph Fayrer, President, in the chair, Mr. Hugh Smith related a case of Foreign Body in the Male Bladder, in which Bigelow's operation was performed. A Suffolk farmer, thirty-nine years of age, was admitted into King's College Hospital on Dec. 11th, 1882, with symptoms of stone in the bladder. On Dec. 16th lithotripsy was performed; the calculus was easily friable, but it choked the blades of the lithotrite. Bigelow's apparatus was used, but it did not answer well at first. The lithotrite was reintroduced, and a piece of straw a little more than three inches in length was removed from the bladder. Bigelow's apparatus was again used, and several fragments were washed out. A few days later Mr. Henry Smith removed another piece of straw, two inches and a half long, with a light scoop lithotrite. Several large fragments of stone passed during micturition, some of them showing a distinct groove into which the foreign body fitted. Mr. W. Rose extracted some fair-sized fragments of calculus during Mr. Smith's absence, and shortly afterwards the patient was discharged well. In answer to questions, the patient said that he had passed a stalk of green grass down the urethra one day last summer, because he was suffering from retention of urine. He removed, as he thought, the whole of the grass passed; but soon afterwards he noticed a pricking sensation in the bladder, and observed that his water looked like porter. Had Mr. Henry Smith known the above history before operating, he would have taken other means to remove the foreign body. A light scoop lithotrite would have been used instead of a large and powerful crushing instrument. Bigelow's apparatus would not have been employed owing to the probability of the eye of the catheter becoming blocked, as it undoubtedly was, by the tough ligulate of the foreign body.

Mr. Pearce Gould exhibited one of Bigelow's latest Evacuators, and explained the several improvements introduced into it. He also showed the photograph of a stone weighing 1380 grains which had been removed by lithotripsy at one single sitting by Professor Bigelow. He suggested that if Mr. Henry Smith had used one of the modern patterns of lithotrite he would not have had so much trouble by the clogging of the instrument.—The President was reminded of a case of stricture, where the patient, in withdrawing a gum elastic catheter, which he had learnt to pass himself, left half of it behind. Sir Joseph failed to extract it, but a year later he removed by lithotomy a large phosphate stone, which developed around the broken catheter. In India stone is remarkably prevalent, but in those days lithotripsy was hardly known. Once when operating for stone, on putting his finger into the bladder, it was pricked, and on withdrawing it, a large needle was found transfixing the stone. He was unable to say how the needle entered the man's bladder.

Dr. Manson read a paper on *Distoma Ringeri* and Endemic Hæmoptysis.—Dr. Cobbold said that when the parasite was sent to him for identification he at once recognized it as a genuine lung fluke and thus confirmed Dr. Manson's previous surmise. He described it in the *Quekett Club's Transactions* as *Distoma Ringeri*. The parasite reminded him of the *D. compactum*, which he, many years ago, discovered in the lungs of an Indian ichneumon. The position of the suckers and the form and branching of the vitellaria at once pointed to its true nature. It resembled also the *D. Rudolphi* discovered by the celebrated Austrian

traveller in the lungs of the Brazilian otter, and the more recently discovered *D. Westerni* described by Dr. Hebert in the *Achiv für Mikroskop. Anat.*, vol. xix. In most of these animals the flukes are encysted in pairs, generally lying immediately beneath the pleura, and as we descend the scale of vertebrate hosts, the flukes lose the more or less characteristic oval or oblong figure, becoming more or less attenuated, as in *D. Bossi* and *D. cylindricum*. (Dr. Cobbold exhibited the specimen of *D. Ringeri*, and also lung flukes from the ichneumon, frog, and snake.) He thought Dr. Manson had done excellent work in pointing out the parallelism subsisting between endemic hæmaturia and endemic hæmoptysis. The subject was of great importance in relation to tropical disease, and he hoped that the remedies employed would be efficacious, although, judging from the position in which the mature worms occurred in the lungs of animals, he feared they could not be reached by inhalations. In reference to the ciliated embryos, it was interesting to notice, that while in *D. Ringeri* it took at least a month to rear the actively swimming larvæ, in *Bilharzia* the rearing could be accomplished in from two to six minutes if the water was slightly warmed. Parasitic lung disease was extremely common in animals from nematode worms, which proved more fatal to their hosts than did the flukes. He congratulated Dr. Manson on the results of his opening investigation.—Dr. S. Mackenzie thanked Dr. Manson for his researches and arduous labor carried on under great difficulties. He thought that cases of endemic hæmoptysis might probably be met with in this country.—The President quite agreed with the author and with Dr. Cobbold on the importance of these parasitic diseases. There were now several forms of flukes found in man. He appreciated the author's remarks about the geographical distribution of this disease, but thought this parasite would be found in other places.—Dr. Manson briefly replied.

Alpine Winter Health Resorts.

A meeting of this Society was held on April 2nd, Sir Joseph Fayrer, President, in the chair.

Dr. Symes Thompson read a paper on Alpine Winter Health resorts. He showed first that the value of Alpine stations in winter was not limited to patients suffering from chest disease; next, that those likely to gain from mountain treatment might safely undertake the journey even in mid-winter; and that for overworked professional men needing a change a winter trip to the Engadine was as enjoyable, and often more beneficial, than a summer tour. The number of cloudless (average 64) and windless (average 112) days is the marked feature of the climate. After taking a survey of other meteorological questions, many of which are undetermined, he pointed out the classes of cases most suitable for the mountains. A patient ought to be able to keep up his circulation by active exercise, susceptibility to chilblains being a contra-indication, also a tendency to irritable throat, which the dry atmosphere often increases. In chlorosis benefit is not so marked as might be expected, and the air is too exciting for hysterical patients. Those prone to congestion and nervous headaches, rheumatism, neuralgia, and to jaundice and liver affections, are apt to suffer on exposure to cold. Constipation is common, and piles troublesome; chronic skin affections do not improve as a rule. Teeth rapidly deteriorate, and it is important that before going to the Alps patients should visit their dentist. Cases of bronchitis, whether acute, subacute, or chronic, should not be sent, but limited and localized lung consolidations

—the result of pneumonia or pleurisy—are among the more favorable cases, the hardened portions of lung becoming pervious and the surrounding healthy lung expanding. In bronchiectasis gradual improvement may be looked for. Spasmodic asthma is generally relieved in winter, as in summer; more so, indeed, for the weather is more steady and reliable in winter. Cases of bronchial asthma are suitable only when there is residual thickening. Cardiac cases do badly. In phthisis the grounds for selection are based less on the stage and character of the disease than on the constitutional state. The fact that the lung disease is so extensive as to lead to dyspnoea, increased at the high altitude, is no barrier; some of these cases improving greatly. If the disease is of limited area, surrounded by healthy lung, the prospect is favorable, whether signs of consolidation, of softening, or excavation exist. If the local evil is of pneumonic origin the prognosis is good, but if due to inherited tubercular disease, even though bacilli are present in the sputa, at least temporary gain may be looked for. Hemorrhagic cases are most favorable. Hemoptysis is not directly induced by the rarefied air, but the resulting exhilaration tempts to over-exertion. Sanguine, excitable patients need increased vigilance against incautious exertion or exposure, while those of a lymphatic temperament must be urged to overcome their disinclination for out-door exercise. A week or two may do much in cases of mental overstrain, but for chronic lung disease at least one month, and perhaps two or three months, may be needed to secure permanent arrest. During a recent visit to St. Moritz and Davos, Dr. Symes Thompson examined a large number of cases. He noticed most marked improvement in the aspect of the patients, many with advanced disease looking and acting as if well, muscular development improved, chest circumference increased, though not to a large extent. Briefly to epitomize the cases there were: four of mental overstrain, all markedly benefited; two of anæmia, one much better, the other not improved; three of cardiac disease, in one case of aortic regurgitation and one of weak heart with mitral disease, the ill effect of the climate was marked, in one of aortic regurgitation no effect noticed; of five cases of asthma all improved greatly; of the phthisical cases, six in the first stage, five improved, one not benefited; of fourteen cases in the second stage, eleven improved, two stationary, and one died; of fourteen cases in the third stage, nine improved, two stationary, and three have died. He expressed his conviction that it would be hard to find elsewhere a series of cases of arrested phthisis comparable to those seen at Davos and St. Moritz in January last.—Dr. C. T. Williams had been originally opposed to this treatment of lung disease, but had come to see its value, which had been so much insisted on by Dr. H. Weber. He would like to know the ground for Dr. Thompson's assertion that the dryness of the air at Davos and St. Moritz was greater than at Egypt. The feature of Davos is the great heat of the sun, and the intense cold in the shade and night. Caution was necessary in having windows open at night, as the temperature may fall to -2° F., and he had seen harm done by the practice. He was confirmed in his opinion that the climate increases the tendency to pyrexia. More suitable cases were sent to Davos now than formerly. Patients gained weight, appetite, vigor, and in power of resisting cold. The effect on the lungs and chest walls from hypertrophy of the healthy lung was most marked; the change is gradual, but it occurs in every case, even in the bedridden, and therefore quite apart from increased muscular development. He found the journey to Davos in

winter to be severe and trying, and the open sledging was a great tax for weakly patients. He advised his patients to go in October, and to move when the snow melts, halting on their way home at Thusis and Berne.—Dr. De H. Hall mentioned that a patient suffering from pleurisy after typhoid fever had spent two winters at Davos, and had improved very much indeed. He came down too rapidly from Davos, and went to the Lakes, thereby retarding his cure. It was a great advantage to be able to get home earlier from Davos than from the Riviera. He asked for information as to the effect of such climate upon cases of fistulous empyema.—Dr. C. Wise had had experience of cold climates in Canada, and had lately spent winters in Davos. His experience was that a sleigh drive of over ten miles on a cold day was too much for delicate people, even ever so well wrapped up. Swiss trains are overheated, but those between Basle and Calais are not sufficiently heated. The ventilation at these high altitudes is imperfect, and he had found it impossible to sleep with his window open at night. The cold at St. Moritz was but little greater than at Davos. Wiesen was less intensely cold. It was well for patients to leave before the snow melts on account of the winds. Natives die from pneumonia attributable to the sudden chills and changes in mode of life. From his observations he had found the absolute amount of moisture in the air was less at high altitudes than in Egypt, and in any of these places than occasionally in Australia.—Dr. Cullimore said the climate was not suitable for asthma or heart affections. Only when lung disease is limited is residence at Davos good, and where hereditary tendency and hectic were absent. Nervous diseases do badly, and it is dangerous for patients with degenerate arteries. He thought that for consumptives mountain resorts were bad, and the rage for sending patients to them would soon pass away.—The President said too much importance had been attached to altitude; it was pure air that is of most value. For many years he resorted to altitudes of 6,000 or 7,000 feet, and did not experience the remarkable effects attributed to altitude. People had gone to 14,000 or 20,000 feet without suffering from such effects. The dryness of the air has the greatest effect. The winds of India are intensely dry, and also those blowing over the Red Sea. In India, hill climates are of immense benefit to many classes of patients.—Dr. Symes Thompson said that the difference between day and night temperature was small. Cases of hypochondriasis and brain disease do not improve; they are troubled with sleeplessness. The electrical condition of the air is very remarkable. Asthma is very much benefited at Davos.

PATHOLOGICAL SOCIETY OF LONDON.

Cancer of Stomach and Subcutaneous Tissue.—Lymphatic Cyst.—Tumour of Skull and Bladder.—Rheumatic Nodules.—Acute Gastritis.—Diffuse Lipoma.—Acute Yellow Atrophy of the Liver.—Vesical Calculus.

THE ordinary meeting of this Society was held on March 20th, Mr. J. W. Hulke, F.R.S., President, in the chair.

Dr. Coupland read the report of the Morbid Growths Committee on Dr. Sharkey's specimen of Syphilitic Disease of the Capsule of the Liver, in which Dr. Sharkey's description was confirmed.

Dr. Finlay showed specimens from a case of Epithelioma of Stomach with widely diffused Secondary Growths. The patient from whom the

specimen was obtained was admitted into the Middlesex Hospital, under the care of Dr. Cayley, on Sept. 24th, 1882. Six weeks before admission he had complained of aching pains in the back and epigastrium, and about the same time a small swelling appeared to the right of the umbilicus. This gradually increased in size and became tender, and was soon followed by the appearance of other similar tumours, varying in size from a pea to a horse-chestnut, on various parts of the body. He had had occasional hæmorrhage from the bowels, and was habitually constipated. He had never vomited blood, but had recently suffered from occasional attacks of retching. He was anæmic and emaciated, but with the exception of the subcutaneous nodules nothing abnormal could be detected about him; in particular no evidence of any internal tumour was obtained. One of the nodules, cut out during life, was found on microscopic examination to consist of alveoli, lined with cells resembling columnar epithelium. The patient died after being about five weeks in the hospital, the nodules having increased in number and size. A week before death he had vomited all his food, but this was never a prominent feature of the case. The post-mortem examination, which was made by Dr. Fowler, thirty-seven hours after death, revealed a growth in the posterior wall of the stomach, occupying an area of about $3\frac{1}{2}$ in. by 3 in. and extending downwards from the point of entrance of the œsophagus. There were widely spread secondary deposits in the mesentery, diaphragm, retro-peritoneal and bronchial glands, liver, right lung, and left suprarenal capsule, as well as in the subcutaneous tissues. Under the microscope the new growth was found to present in all the different parts a structure consisting chiefly of oval, circular, or horseshoe-shaped alveoli, lined with cylindrical epithelium, imbedded in a stroma of fibrous tissue. The type of columnar cells was most distinct in the growth in the stomach, the fibrous tissue most abundant in the subcutaneous nodules. The stomach was held to be the primary seat of the disease, and the blood to have been the agent in the dissemination of the cancerous infection to the remoter structures.—Mr. Hulke never remembered any instance of such a number of secondary epithelial nodules as in this case; and it was quite remarkable to find these nodules in a tissue so far removed from epithelial tissue in its nature as is subcutaneous tissue.—Dr. Conpland referred to a case of cancer of the sigmoid flexure with a secondary nodule at the umbilicus. From the structure of the nodule excised during life, Dr. Cayley surmised that the primary growth was in the alimentary canal; this greatly added to the practical interest of Dr. Finlay's case.

Mr. A. E. Barker showed a Lymphatic Cyst. A child was in the University College Hospital under Mr. Marshall, suffering from what was diagnosed as nævoid lipoma of the thigh. The thigh was amputated at the hip-joint, and the child died in a few hours. At the autopsy a small cyst with a thin wall was found in contact with the wall of the bladder, the surface irregular, contents thin and serous; another, much larger, was found below the right kidney, just beneath the peritoneum. The sac was loculated with smooth lining. Another was found in the scrotum, extending beneath the penis, from right to left. All three cysts were in one line. Mr. Barker tried to inject blue fluid into them from the lymphatics of the testicle, and from the bladder, but failed. He considered them all to be dilated lymphatic spaces. The cysts were on the same side as the nævoid growth of the vessels.

Mr. Barker showed a specimen of Prolapse of

the Uterus, causing obstruction to the ureters. The bladder was drawn down with the uterus and lay between the thighs. The ureters and pelvis of kidney on both sides were dilated; there were signs of old interstitial nephritis in the form of punctate depressions on the surface of the kidney. There was no trace of inflammation spreading up from the kidney, but the changes seemed to be all due simply and solely to the obstruction of flow of urine into the bladder.

Mr. Clutton showed specimens from a case of Tumour of the Skull and the Bladder in a man aged sixty-two, who was first seen in September, 1877, with a swelling over and fixed to the left parietal bone, soft in the centre, with an infiltrating indurated margin. This was opened in October, and a large aperture in the skull was then found. He died in May, 1878, sinking under the profuse discharge from this ulcer and hectic. He suffered severely from neuralgia, but had no paralytic symptoms, nor any bladder symptoms. At the autopsy a hole three inches across was found in the skull, and an ulcer in the scalp, five by four inches. The skin around was infiltrated with new growth, and the margin of bone was spongy and in part dead. The exposed dura mater was thick and rough, and in its centre was an aperture the size of a florin, and beneath this the brain showed signs of commencing hernia. A tumour the size of an orange was found to occupy the left side of the body of the bladder, both inside and outside; its margin well defined. No other new growths were found. Microscopic examination of the tumour of the head showed in the main an alveolar structure, large and small groups of large cells, with distinct nuclei and nucleoli, with interalveolar small round and spindle cells. In places the large cells were scattered irregularly, in others bundles of spindle-cells were seen. This Mr. Clutton considered to be an alveolar sarcoma. The bladder tumour was of quite different structure, composed of round and oval cells like those found in sarcoma. In places there was a faint indication of an alveolar network, but the cells were not grouped together, nor in any other way did they resemble the large cells of the other tumour. Mr. Clutton said that the difference in the structure of the two tumours rendered the interpretation of the case difficult, but he thought it possible that the bladder tumour was a secondary development of that on the head.—Mr. Butlin thought that the skull tumour was an ordinary epithelium of the skull, and he believed that in the bladder was the primary growth. He hoped the case would be referred to the Morbid Growths Committee.—Dr. Thin suggested that the nodules in the skin should be examined, as there had been several cases of tumours springing from the deeper parts of the skin, depressing the bone and growing into the diploë. He thought the skull tumour was like rodent ulcer.—Mr. Roger Williams suggested that the two tumours were independent. The naked-eye characters of the bladder tumour were not those of epithelioma. Bladder tumours might not produce any symptoms unless they interfere with the ureter or the urethra, or were ulcerated. He thought the tumour in the bladder was a round-celled sarcoma.—Mr. Hulke said that tumours of the head might perforate the skull without producing any symptoms.—Mr. Clutton had carefully examined many sections of the specimen, and upon that he came to the conclusion that it was a sarcoma.

Dr. Angel Money showed microscopic sections of a Rheumatic Subcutaneous Nodule. The patient was a female, aged ten years, who had had scarlet fever, followed by rheumatism three years previously, from which time cardiac disease proba-

bly dated. She had had frequent attacks of rheumatism and some choreic movements. There was a history of rheumatic fever in the father, and one of chorea in a sister. There were signs of great hypertrophy of the heart; the rheumatic nodules had been noted by the patient for some time, possibly months; they were found in the right and left elbows and on the right patella. The clinical history was of a fluctuating sort, dyspnoea and oedema coming and going without much apparent reason; the patient died rather unexpectedly. At the autopsy the heart was found to be enlarged and dilated, the pericardium universally but not firmly adherent. Some nodules about the size of a millet seed were to be felt in the wall of the right ventricle. There were some slight valvular changes. The liver, spleen, and kidneys showed some of the usual changes, probably secondary to the cardiac mischief. Sections from a nodule on the back of the right elbow were interpreted to consist of fibro-cartilaginous tissue. A section of a nodule from the pericardium looked something like connective tissue from a tendon of a mouse's tail. There were the signs of a chronic diffuse peri and myo-carditis.

Dr. Cavafy showed a heart and some casts, and microscopic specimens of Rheumatic Nodules. The patient was a boy aged seventeen, who had suffered once from acute rheumatism, ever since which he had dyspnoea and palpitation, and he died from heart disease. The rheumatic nodules—sixteen in all—were found over hands, elbows, and patella. They were symmetrical and varied in size from half a pea to a hazel nut, skin over them healthy; they only ached occasionally and slightly; they were not tender. They were slightly movable over the bones, and freely so under the skin. The smaller ones were harder and firmer than the larger. There was found post mortem advanced heart disease, with mitral obstruction and regurgitation, and great dilatation and hypertrophy. A ring of minute rough vegetations was found on the auricular side of the mitral valve. The aortic valves were similarly diseased. Two nodules from the elbow were examined, they appeared to be attached to the triceps. A small one consisted of young actively growing fibrous tissue cells, and much intercellular tissue. A larger one had a much looser texture, though consisting undoubtedly of fibrous tissue; strands of fibres were separated widely by oedema and a cellular infiltration. Numerous curious figures were also seen, giving a fenestrated appearance; the meshes were square in shape, ladder-like; he thought that there was an infiltration of fibrine which coagulated and gave this appearance, for material in the blood-vessels and in these meshes stained in the same way. Both nodules were very vascular, and the small arteries were enormously thickened in the inner coat, so as to obliterate the lumen of some of the vessels. In the larger nodule thickened arteries were also seen, but most of the vessels showed only proliferation of the endothelium.

Dr. DREWETT showed a boy, aged seven, with Rheumatic Nodules; the nodules had recently come out. These nodules occurred most generally over subcutaneous bones where they are most exposed to pressure and friction from clothes, and in this he thought they were homologous in origin to valvular vegetations. These nodules apparently always accompanied heart disease. He thought they were important in diagnosis, prognosis, and treatment.—Dr. Payne drew attention to the fact that very similar nodules to these are found in chronic rheumatoid arthritis; he had often met with them, and had seen them disappear. Last year he had a woman with chronic rheumatoid arthritis, who, two years before, had

shown these nodules, but when last seen they had quite disappeared. He had seen them in cases of symmetrical enlargement and stiffness of the wrist, elbow, and radio-ulnar joints. He asked whether these nodules occurred otherwise than in the neighborhood of chronically diseased joints, and whether they were not the result of changes similar to those going on inside the joint?—Mr. Parker had examined nodules from four cases of this disease. None of them were so highly organized as Dr. Cavafy's. In one of Dr. Barlow's cases the vessels were not thickened so much. In all of his cases the nodules consisted of very vascular, coarse, white, fibrous tissue. The nodules developed and disappeared suddenly and involved the tissue specially affected by rheumatism. His last case was in a girl, aged eleven, with severe chorea, and a nodule developed on the tip of each spinous process just when her choreic symptoms became notably worse, and he asked whether this was to be considered as a relapse of rheumatism.—Dr. Stephen Mackenzie remarked that similar changes of the intima were seen in other inflammatory affections of bloodvessels, as in pyæmia and scarlet fever.—Dr. Mahomed asked if the skin ever inflamed over these nodules. He had a patient who had many large nodules, and several of them were covered with red skin; some of them were softened—indeed, they looked like gummata. In a man with severe osteo-arthritis there were many nodules, but they were larger than those he had seen in children with a history of rheumatism.—Mr. Eve referred to a case of xanthelasma nodosum, brought forward by Dr. Gilbert Smith, in which the structure was like that of these nodules.—Mr. Hutchinson had several times seen these nodules inflamed, at least in chronic rheumatic arthritis, and some in cases of gout.

Mr. Herbert Page showed a Stomach after Gastrostomy performed last month. The stomach was opened on the fifth day; no bad symptom came on till the twenty-second day, when the patient had a violent attack of vomiting; fever came on, and the patient died in collapse next morning. There was a parenchymatous inflammation of the stomach, which, he thought, was started by the wound in the stomach walls.—Mr. Silcock, who made the autopsy, said that the coats of the stomach were generally thickened, most so at the fundus. It was of a dead-white color, with effusion under the peritoneum. On section milky fluid exuded. The rugæ were quite obliterated. In the peritoneum was a quantity of buttery lymph, but no plastic lymph. Thirty-one cases of this disease had been collected; the majority had arisen in acute fevers; others in cases of acute alcoholic poisoning; some had arisen from injury to the stomach. He suggested that in this case it originated from digestion of the margin of the mucous membrane at the opening in the stomach. The fluid in the stomach was crammed with micrococci.

Mr. Hutchinson showed a Fatty Tumour of the Neck of a man. Large masses developed quite symmetrically in the neck. The case was exactly like that recorded by Mr. Morratt Baker. Symmetrical masses of fat also were present under the jaw, and in both forearms. He had also symmetrical hypertrophy of the parotid gland, and tumours of the parotid. On cutting down on to the neck he found the mass was not encapsuled, but adherent to the skin; it was, indeed, hypertrophy of the subcutaneous fat. The mass removed consisted of very firm fat. He also showed two photographs of a man with a similar affection of the parotid gland and proptosis.

Dr. Cayley showed a specimen of Acute Yellow Atrophy of the Liver with clear limitation of the atrophied part. The atrophied portion showed no

liver tissue at all. The symptoms were those common in acute yellow atrophy.

Mr. George Lawson exhibited a Stone which he had removed from a man aged forty-eight at the Middlesex Hospital by lithotomy on March 10th. When the patient was examined, the stone was felt to be very hard and large, and Mr. Lawson thought that lithotomy afforded a better prospect of success than a Bigelow's operation. When removed, the stone was found to measure two inches and a half in length, two inches in width, and one inch and a half in depth. It weighed four ounces all but sixty grains. Its surface was nearly smooth, of a yellowish-white color, and when washed was inodorous. On making a section of the stone about a drachm of a reddish-brown stinking ammoniacal fluid escaped. The nucleus of the stone was a mulberry calculus, very rugged in outline and measuring seven-eighths of an inch in each of its two principal diameters. The bed in which this calculus lay was too large for it, so that there was a free space around it, and this space was filled up with the reddish-brown fluid. Mr. Lawson thought that the explanation of the manner in which this collection of ammoniacal fluid was incarcerated within the stone was the following:—At the period of the stone's growth, when the mulberry calculus was free in the bladder, there had been cystitis, and the interstices between the nodules had become filled up with mucus, and mucus mingled with ammoniacal urine. The irregularities of the stone being thus obliterated, it presented a tolerably smooth surface, upon which the salts of the urine were deposited in concentric laminae, as seen in the specimen. A quantity of ammoniacal and tenacious matter was thus pent-up within the stone, and this undergoing decomposition and becoming stained with the color of the oxalate of lime calculus with which it was in contact, produced the reddish-brown ammoniacal fluid which escaped when the section of the stone was made. The patient had done well.

Discussion on Diabetes.

The ordinary meeting of the above Society was held on April 3rd, Mr. J. W. Hulke, F.R.S., President, in the chair. The discussion on diabetes was opened by Dr. S. Wilks, and joined in by Dr. Ralfe, Dr. Finlay, Dr. Hale White, and Dr. Stephen Mackenzie. To a large extent their speeches were negative rather than positive, and the only theory advanced was one by Dr. Ralfe, that diabetic coma is caused by the production of aceto-acetic acid in the blood. The honorary secretary showed for Dr. Hamilton an excellent specimen of lipæmia. The discussion was adjourned till May 1st.

Mr. Hulke prefaced the discussion by remarking that although certain morbid changes had been observed in cases of diabetes, he did not know whether these were peculiar to diabetes, and if so, how far they were causal. He hoped that the discussion would be limited to diabetes mellitus, and that cases of polyuria, and of that form of saccharine diabetes which occurred in elderly persons, and lasted oftentimes for years without producing any ill effects, would not be considered along with the cases of the severe and acute form of the disease.—Dr. S. Wilks had no new facts to advance, but yet he considered that this subject was one well suited for discussion. He thought that all the anatomical changes found in diabetes were results of some ulterior factor, but it was the part of this Society to record all such anatomical facts. He well remembered Dr. Bernard's original experiments on the artificial production of glycosuria; but so far as his own experience went, he had not found any changes in the fourth ventricle in pa-

tients who had died from diabetes. He referred also to Dr. Ogle's statements in reference to the spinal cord, and suggested that some facts in relation to the sympathetic centres might be discovered if carefully sought for. Also, he was interested to know how the liver was changed. Whether it was enlarged merely or altered in structure in any way. The pancreas, too, had been stated to be affected; the stomach and kidneys also deserved notice. The kidneys had an increased function thrown upon them, and it was interesting to know whether this was always attended with true hypertrophy. The skin had been said to be altered. He remembered seeing a patient bled, and the whole surface of the blood was covered with fat; and this point had recently come up afresh. His impression was very strong that twenty years ago he should have said that diabetic patients died from phthisis; whereas now he would say they died from coma, and it would be interesting to know whether there was any change in this matter and what the facts really were. He asked, too, whether, when diabetics died from lung disease, that disease was special in its nature or ordinary tubercular phthisis.—Dr. Ralfe said he would limit his remarks to the question of acetonæmia. He distinguished between two forms of diabetic coma, to the latter, by far the rarer of the two, he thought the term acetonæmia should alone be applied. He regarded it, however, purely as an accident in the course of the disease, and not at all as a natural sequence. After describing the characteristic symptoms of this condition, he drew a parallel between acute diabetic coma or acetonæmia and those of acute yellow atrophy and phosphorus poisoning. The sudden, sharp epigastric pain, accompanied with gastric disturbance, often with vomiting, the vomit sometimes containing blood; the peculiar dyspnoea, which had been likened to the panting of an animal in which both vagi had been cut; the stage of short, noisy delirium followed almost suddenly by deep coma; the fall in temperature as the nervous symptoms developed; the irregular pulse finally becoming intensely rapid as the coma deepened—are all symptoms common to acetonæmia and to acute yellow atrophy and phosphorus poisoning. He doubted whether acetone was ever found free in the blood, though there was no doubt of its existence in diabetic urine. He believed, however, that the blood contained some body that yielded acetone readily on decomposition. This body some had supposed was ethyl-diacetate, but more recent investigations had shown that it was probably aceto-acetic acid. If this was ultimately proved, then we might offer an explanation (1) of the highly acid condition of urine so frequently associated with diabetes; (2) the lactescens condition of blood, since acetic acid will give a milky appearance when agitated with a dilute and slightly alkaline mixture of fatty matter at 100° F.; (3) the intense fatty degeneration so noticeable in cases of acute diabetic coma; since it was well known that the injection of acids into the blood of animals leads to increase of the fatty matter in the blood, and of fatty infiltration in the tissues and organs. Dr. Ralfe here again pointed out the parallelism between acetonæmia and acute yellow atrophy and phosphorus poisoning, and alluded to a case quoted by Professor Gamgee of acute diabetic coma with lipæmic condition of blood, in which the liver was the seat of intense fatty infiltration similar to that observed in cases of poisoning by phosphorus. He thought there was no ground for doubting the presence of aceto-acetic acid—given glucose in the blood—since it was one of the many products of alcoholic fermentation. In conclusion, he thought we might be warranted in regarding this acute form of diabetic coma as due to a

toxic agent; that this agent was of an acid nature; that it was formed from the alcoholic fermentation of the glucose in the blood; that in small quantities it was present in all cases of diabetes, giving to the urine the highly acid reaction so characteristic of the disease; that occasionally and on rare occasions it is sometimes formed to an excessive extent, or its excretion is interfered with, in which case it gives rise to symptoms closely parallel with those observed in acute yellow atrophy, etc. Dr. Ralfe thought that if it could be shown that acute diabetic coma depended on a toxic condition, and was not due to any sudden nervous lesion, then the treatment should be directed towards altering the percentage composition of the blood with relation to the toxic agent, which he thought would be best effected by transfusion, either with blood, or even simple water, or a dilute saline solution, whilst endeavors should be made to rouse the patient and promote full action of the skin, which he thought could be attained by use of the cold pack, etc. Dr. Ralfe then demonstrated the presence of acetone in diabetic urine with ferric chloride and with the iodoform reactions, and described briefly how acetone could be quantitatively estimated in a given quantity of urine.

Dr. Finlay showed microscopic sections of lung, kidney, liver, brain, and spinal cord from a case of diabetes which he had had under his care a few months ago in the Middlesex Hospital. The patient died comatose on the second day after admission. The history of diabetes was of only a month's duration; the urine contained 5 per cent. of sugar. On the morning of the second day after admission he complained of difficulty of breathing, and became restless and somewhat delirious. When seen at 2 P.M. his breathing was labored and stridulous; and he was in a semi-unconscious state with a dry and brown tongue, but no sour smell in the breath. Percussion resonance over the chest was normal, and the breath sounds merely harsh. He sank into a comatose condition, and died at 7.15 P.M., about ten hours after the graver symptoms set in. At the post-mortem examination, which was made by Dr. Fowler, the muscles were found to be of a dark-red color, the mesenteric glands slightly enlarged, the lungs engorged and friable, and the pancreas the seat of a small hæmorrhage. The liver appeared normal, weighing 52½ ounces; the spleen was small and pale, and the kidneys were normal with the exception of slightly adherent capsules. The pia mater was injected; the brain substance was firm, and appeared in every respect normal to the naked eye, as were also the cord and its membranes. The blood shaken up with ether yielded no fat, and microscopically examined appeared perfectly normal. With regard to the specimens shown, taking the organs in order, the lung tissue was seen to be normal, in particular no fat embolisms being present. Although there were a few rounded bodies which stained black with osmic acid, these were in the alveoli, not in the vessels, and were probably fattily degenerated epithelium cells. The kidney showed granular degeneration of the secreting epithelium and some hyaline casts in the tubules. The liver cells were granular and ill defined. No dilatation of capillaries was observed. As to the nervous centres, sections from the pons and medulla showed to some extent the eribriform appearance described by Dr. Dickinson, but the excavations were small, and not common to all the arteries. Some of these were taken to be the result of the manipulation of the sections in cutting and mounting; and as to the rest, it might fairly be questioned whether they were not more likely to be the consequence than the cause of the disease. There was nothing noteworthy in the con-

dition of the cord, the central canal appearing natural. In the record of the case there seemed nothing to suggest an essential pathology, and he thought it would be unsafe to do so until we had a much larger store of post-mortem records, with microscopic examinations of all the viscera, which might be concerned in the causation of the disease. His colleague, Dr. Coupland, and himself had searched the post-mortem records of the Middlesex Hospital over a period of thirty-two years, and had found particulars of twenty cases of diabetes, of which a tabular statement and summary were given. In the course of this reference was made to the interesting fact that a well-marked case of lipæmia was observed in 1859 by the late Dr. C. Coote, Assistant-Physician to the Middlesex Hospital, who made it the basis of an elaborate paper, reviewing the whole subject, in *THE LANCET*, in 1860.—Dr. Hale White criticised in detail that theory for the pathology of diabetes which refers it to the existence of vacuolation in the nervous centres. In the first place, he showed that out of twenty-three post-mortem examinations at Guy's on diabetic subjects no changes in the nervous centres were detected. He exhibited microscopical sections of the nervous centres from some of them, together with the entire brain, in which it was evident that the only appearance that could in any way be called vacuolation was due to the falling out of vessels from their spaces. Sections of a healthy brain showing this false vacuolation were shown. Specimens of the true vacuolated, or "Gruyère cheese," condition, were brought forward, and in all of them it was pointed out that in the subjects from which they were taken there was no sugar in the urine; for these two reasons it was inferred that the pathology of diabetes was not to be found in any such condition of brain, which, if it did cause diabetes, would surely sometimes affect other centres, such as those of the seventh or ninth nerves, an unknown complication of diabetes. Dr. Hale White next treated of the relation of glycosuria to insanity, and gave full tables of the condition of the urine in 124 cases of insanity which he tested at Bethlem with Dr. Savage, and at the Surrey County Asylum with Dr. Paddison, and out of these only 2.56 per cent. contained sugar. This statement was contrasted with that of Dr. Dickinson, who gave the percentage at 16.65, and it was suggested that probably this difference was due to the fact that the latter had mistaken some cases in which there was abundant uric acid for glycosuric ones. Finally, it was shown that it was not a fact, as has been stated, that children with tubercle are liable to glycosuria. For these reasons Dr. White was not disposed to agree with any theory that had been put forward to connect the disease with described morbid conditions of brain.

Dr. Stephen Mackenzie divided his remarks into three divisions:—(1) An analysis of a number of fatal cases; (2) the naked-eye appearances in the body after death; and, (3) the microscopic appearances in the cases examined. 1. The fatal cases in the London Hospital during eight years and a half numbered thirty-seven. Of these, nineteen were due to coma; in seven of which no disease was found after death; in three there were no signs of pulmonary or other visceral changes during life; in one pulmonary disease existed during life; in four there were signs of recent pneumonia or phthisis; and in four old pneumonia or phthisis existed (in the twelve last-mentioned cases no necropsy was made). The remaining eighteen cases were as follows:—There was cerebral hæmorrhage in one; cerebral meningitis, coma, in one; cerebral tumour in one; spinal cord disease and phthisis in one; stricture of urethra, suppurative nephritis,

and coma in one; scrofulous nephritis and phthisis in one; pneumonic phthisis in nine; scirrhus of pancreas, sudden collapse, in one; gangrene of foot, death rather sudden, in one; dermoid ovarian cyst, calcified mesenteric glands (supposed to have helped herself to codela), in one. Some remarks were then made as to the changes found in relation to cause or effect. In twenty out of thirty-seven cases there were pneumonic or phthisical changes. It was pointed out that the phthisical changes were found in two organs only, the lungs and the kidneys, organs which were placed under peculiar circumstances in this disease. The occurrence of coma in association with diabetes was next discussed, it being pointed out that it was the determining cause of death in nineteen of thirty-seven cases, excluding all cases in which an explanation, other than diabetes, would account for its occurrence. It was pointed out that the coma in the cases in which pulmonary disease was present differed in no essential way from that in pure cases. As regards its production, the various assigned causes were reviewed. In three cases of pure coma, five of coma with pulmonary disease, and ten miscellaneous cases of diabetes, examination of sections stained with osmic acid showed no fat embolisms, and no fat in the bloodvessels. The pink or laky character of the blood described by some observers was not noticed in these cases, the blood being either natural in appearance or dark, sometimes thick, sometimes fluid. An acetone odor during life, or after death, had not been observed in any of the cases. He therefore concluded that whilst fat embolisms and acetonæmia might account for the coma in some cases, they were too inconstant to serve for a general explanation. At the same time, he thought that its sudden onset, peculiar features, and absence of characteristic lesion after death, pointed to some poison developing in the body; if not acetone, possibly something of an allied nature. 2. Naked-eye appearances: He knew of none pathognomonic, but some were frequent. He had not seen the cribriform condition of the nervous centres described by Dr. Dickinson. The most frequent, besides the emaciation and phthisis, was a slimy homogeneous condition of the liver and spleen. The kidneys were usually large and often congested. The pancreas had only been found diseased in two cases: once scirrhus, once cretaceous. 3. Microscopic appearances: In fourteen cases, in which the nervous system was examined, no changes were found. In six cases slight peri-vascular and periganglionic dilatations were found, but in none to the degree described by Dr. Dickinson. He was doubtful how far they were due to a mode of preservation. Hyaline degeneration of some of the vessels was present in some cases, and miliary aneurisms of the retina in one. In the lungs the changes were chiefly of a necrotic pneumonia. In one case only giant cells were found. Four cases had been examined for bacilli, but none were found in any of these. In six cases intra-alveolar hæmorrhagic extravasations were found; these were all cases of coma, and their occurrence was no doubt due to this cause. In the kidneys the most remarkable changes were a hyaline degeneration of the intima of the small arteries, and a peculiar skeleton-like condition of the epithelium of the collecting tubes. In the spleen a hyaline degeneration of the arteries was found in all the cases (five) examined. The liver showed signs of fatty degeneration in only one of eleven examined, a point of importance in connection with fatty embolism. In the other cases there was atrophy of the liver cells. The pancreas was examined in four cases, but nothing of importance was found. The heart showed signs of wasting and degenera-

(5)

tion. The morbid anatomy of these cases, therefore, was of a barren character, throwing no light on the pathology of diabetes. The changes found must be regarded rather as the consequence of diabetes than as explaining its occurrence.

Microscopic specimens of organs of patients dying with Diabetes were shown by Dr. Finlay, Dr. Stephen Mackenzie, Dr. Seymour Taylor, Dr. Hale White, and Mr. Victor Horsley.

CLINICAL SOCIETY OF LONDON.

Traumatic Gangrene.—Tetanus.

THE ordinary meeting of the Clinical Society was held on March 30th, Dr. Andrew Clark, President, in the chair. The subjects raised by the papers were traumatic gangrene and tetanus. Several cases bearing upon the pathology of tetanus were related.

Mr. Howard Marsh read the Report of the Subcommittee appointed to report on Mr. Shuter's case of Sub-periosteal Amputation of the Hip-joint. The Committee had not evidence enough to enable them to state that there was any new formation of bone in the stump. There was, however, independent movement in the stump itself. The method employed was of advantage from (1) avoidance of hæmorrhage, and (2) the firm attachment of muscles to the periosteum.

Mr. R. W. Parker read a case of Contused Wound of the Thigh and Leg in a Child; Gangrene of Limb; Death. A female child, aged fourteen months, was admitted into the East London Hospital for Children having sustained an extensive wound of the left leg twenty-four hours previously. The wheel of a heavy dray had caught the outer border of the limb and torn off a large crescentic flap of integument; the front of the knee-joint was exposed but not opened. An attempt was made to clear off the mud, with which it was plentifully covered, and so establish an aseptic condition, after which antiseptic dressings were applied. The child appeared to be doing well for about thirty-six hours, after which she became drowsy and restless, and some livid patches and oedema appeared on the foot. Twenty-four hours later these symptoms had become more pronounced, and on the following morning extensive gangrene of the limb had supervened. She died. The author sought the opinion of the members of the Society (1) on the treatment he had adopted and (2) as to the cause of the gangrene. He felt that amputation in the upper third of the thigh, the only alternative, was a severe operation for such an infant; while the suppuration and granulation of such a wound, unless they ran an aseptic course, would almost certainly have proved fatal. As regards the gangrene, no injury to the vessels could be discovered as a cause. Could the action of the carbolic acid have produced such a result?—Mr. Herbert Page referred to a similar case under his own care. A child eighteen months old, caught his arm in a gate. The limb was cold, and next day it was obviously dead to above the elbow, with acute inflammation running up the arm. The child was very ill. Mr. Page at once amputated at the shoulder-joint, and the child quickly recovered. There was fracture of the humerus and olecranon. The brachial artery was plugged in two places opposite a rupture of the two inner coats just above the elbow. He thought that amputation was the proper course, for there was acute inflammation spreading from the gangrenous part. It was advisable not to wait for a line of demarcation. In dry gangrene in old people such a line of demarcation might be waited for.—Mr. Cripps agreed that

it was impossible to lay down a hard-and-fast line as to the proper treatment of cases of traumatic gangrene. In some cases in which the blood-supply was entirely cut off amputation might be postponed; others were cases of spreading gangrene, of which he detailed two examples. One was that of a man with fracture of the arm and wound of the leg, and with dyspnoea. Next day the fingers were blue and swollen. This condition spread up to the elbow. The constitutional state became very grave; the pulse was small and rapid. The arm was amputated at the shoulder-joint, and the vein was seen to be occluded with a clot. Next day the leg began to show signs of gangrene in the foot, then in the leg and thigh, and the man died. At the autopsy the femoral artery was found pervious, and the vein was filled with a clot. The heart was fatty; old pleuritic and pericardial adhesions and fracture of seven ribs were also found; his circulation was feeble before the accident, and then that came to add to the difficulty of the circulation, and so caused stasis and gangrene. In such a case amputation would not have been of any use. The other case was that of a man who injured his hand. Three or four days later the hand swelled very much, and became very painful; the whole forearm was swollen; the fingers were black, the back of the hand bright red, and the pain was extreme. Temperature 104° . After twenty-four hours the arm was amputated at the shoulder-joint, and immediately there was most marked relief. At the end of the fourth day, however, he had a severe rigor, and in forty-eight hours he died of gangrene spreading from the stump. In such a case the gangrene was due to some very acute local pyemic condition, and life might be spared by very early amputation high above the part affected. Mr. C. Heath thought that Mr. Parker acted rightly in not amputating the thigh in his patient. The gangrene was the result of the original injury, not the spreading form. He thought harm was done by lowering the temperature of patients already weakened by playing the spray upon them for some long time. Recently he amputated at the hip-joint the limb of a young girl; she died in twenty-four hours, and he thought that her death was largely due to the amount of carbolic acid absorbed. Her kidneys ceased to act, and did not throw off the carbolic acid by the urine. He thought that an oily dressing to keep up the temperature of the part would have done better for Mr. Parker's patient.—Mr. Parker said that the wound seemed to be so superficial that he was surprised that gangrene ensued. His case was not quite parallel to Mr. Page's. He most feared long septic inflammation, and that was why he used the spray and other aseptic precautions.

Mr. W. Spencer Watson reported a case of Tetanus. A well-nourished boy, aged eight, came under treatment eleven days after receiving a small lacerated wound on the dorsum of the foot. Four days before admission symptoms of tetanus commenced, and on admission the convulsions occurred about once every half hour. At first the temperature was 101° , but afterwards was very little above the normal, being 99.4° ; but the pulse and respiration were much accelerated. The temperature on the second day was 100.2° , and continued at that height till the fourth day, when it went up to 103.2° . He died the same evening. He was treated by the administration of chloral, with occasional morphia injections and rather free purgation. A mustard plaster was applied to the spine. During the third day a severe spasm terminated by sudden cessation of breathing, but artificial respiration succeeded in restoring him. He died in a similar spasm ten hours afterwards. The post mortem

examination showed that the membranes of the brain and cord were intensely congested, but the substance of both appeared healthy. Microscopic sections of the cord gave chiefly negative results. The only appearances that seemed abnormal were the presence of slight vacuities in the grey matter surrounding the vessels and the multipolar cells. It was thought, however, that these spaces were due to the method of preparation of the sections. There was no exudation either in the spaces or in any part of the cord examined, except in some sections of the dorsal region, which presented colloid bodies here and there, such as those described by Dr. Ross. Sections of the peroneal nerve exhibited changes, probably due to inflammation, chiefly affecting the sheath and neuroglia. The questions raised by the case were:—1. Would the performance of neurotomy or amputation at an early stage of the case have given the patient a better chance of recovery? 2. Was the treatment by chloral and morphia the best adapted to the circumstances of the case? 3. Was the case an argument of any value as showing that the microscopic appearances of the cord are sufficient to demonstrate the essential tetanic condition? or are we justified in assuming that at present the microscope fails to give any reliable information?

Mr. Howard Marsh read a paper on a case of Tetanus following laceration of the toes, and lasting forty-two days; Syme's amputation; recovery. Alfred M—, aged eight, was knocked down on September 9th by a tramcar, which passed over his left foot, severely crushing the three inner toes. On September 12th he came into St. Bartholomew's Hospital with the toes gangrenous. On September 23rd tetanus set in, and in the next twenty-four hours rapidly increased in severity, and was attended by frequent and urgent spasms. Syme's amputation was performed in the afternoon of the 24th with the effect that the spasms were both less frequent and less violent. Tetanus, however, continued severe for the next thirty-five days, and then gradually subsided, to cease entirely on the forty-second day. The wound healed slowly, but without complication. It was all but closed at the end of a month after the amputation. Treatment consisted in the administration of an abundant fluid diet, the frequent use of nutritive enemata, and the employment of enemata of chloral and bromide of potassium, and of the hypodermic injection of morphia. The chloral and bromide injections did little, if any, good. But morphia always relieved the spasms and procured rest, though only for short periods. On many days upwards of two grains were injected, as much as five-twelfths being injected at a time. The author remarked that the case was rare not only as an instance of recovery from severe traumatic tetanus, but also on account of the prolonged period (forty-two days) over which the disease extended. Though many authorities were opposed to amputation, he resorted to it in this instance because the operation was not a large one, because the foot was already in part gangrenous, and because amputation afforded the surest means of removing peripheral irritation—a principal indication in the treatment of tetanus. He did not resort to nerve division, as this might fail to check irritation, and he did not know which of the several nerves ought to be divided. In the present instance morphia was the only drug that seemed useful, and though employed in such large doses it produced no unfavorable effect.

Mr. Parker showed a preparation of the Posterior Tibial Nerve from a case of Tetanus. The patient had a gunshot wound of one leg; the wound was thought to be superficial; for a while he got on well, but tetanus came on. Mr. Hutch-

inson stretched the great sciatic nerve, but the man died. The posterior tibial nerve and vessels were found glued together with dense inflammatory matter, and four or five shots were found in the sheath of the nerve. He related another case of a pistol shot in the thigh; tetanus came on. The wound was then explored, and a wad with a portion of cloth was found buried in the soft tissues. A third case was a wound of the leg with a pitchfork; the musculo-cutaneous nerve was here found kinked and stretched; this man also died. He also referred to a fourth case of tetanus in a boy wounded just below the tubercle of the tibia where no local lesions could be found after death. He had seen two cases of tetanus neonatorum without any local lesions or bad hygienic surroundings. This form of tetanus had been known to occur epidemically in hot climates and in states of bad hygiene. He showed microscopic sections of the nerve of the first case, in which the nerve fibrils were found to be widely separated by inflammatory material.

Dr. Dickinson remarked that there was much to favor the view of tetanus being a blood disease, as traumatic tetanus generally occurred when there was an open wound, and after a period of incubation. But no doubt the irritation was conveyed by the nerves and exerted its influence through the nervous system. He had often observed coagulation of the nerves of the part, and in all cases there was hyperæmia of the spinal cord, which was the result of the nervous irritation and not the essential part of the disease. In many cases, too, there was pathological extravasation in the cord, especially on the side opposite to the wounded part. Often there were obvious lesions in the cord, amounting even to tearing in the anterior cornua. He had seen by far the best results of treatment from Calabar bean; especially in two cases—one of them traumatic and very severe. The relation of the injection of the drug and the recession of the spasm was most marked. Chloral had been the next most successful remedy in his hands. Neurotomy was generally performed too late; after the irritation had been carried up to the cord.—Mr. Barwell related a case of a gentleman with trismus and opisthotonos, and a good deal of pain in the right leg where there was a little lump, pressing upon which caused spasm of opisthotonos and left pleurosthotonos. He cut down on the lump and removed a long piece of carpet needle, and as he did this the man had another tetanic spasm; after this he had two more slight spasms, and then got quite well. His temperature before the operations was 102°, the pulse being over 120. In this case there was no open wound. Probably the needle had perforated the nerve. It had originally entered the sole of the foot and had travelled up to the leg.—Mr. Butlin thought it was impossible to discuss the value of any method of treatment in all cases of tetanus while the pathology of the disease was unknown. Some cases began with local symptoms, which after a time became general; and then local operations were useful. As an instance of this, he mentioned a case of injury to the lower limb in which the part was drawn up, a weight was put on, then clonic spasms were seen at first in the limb only; and it was not till forty-eight hours later that the spasms spread to the face and other parts, and death ensued. The popliteal nerve was found surrounded by inflammatory effusion; in such a case as that local treatment—stretching or division of the nerve, or amputation—should be performed before the symptoms spread from the part first injured.—Mr. Howard Marsh said that Calabar bean had been often found unavailing, while chloral had been more

generally useful. Cases had recovered very rapidly after amputation, even when tetanus had been well established. Until the pathology of the disease was cleared up we had nothing to do but to go on recording individual cases as they occur, with their treatment.

A case of Osteitis Deformans was shown in the ante-room by Mr. Howard Marsh.

Removal of Pin from Larynx by Internal Operation.—Scarlatiniform Rash in Enteric Fever.—Scoliosis.—Tabetic Arthropathy.

The ordinary meeting of this Society was held on April 13th, Dr. Andrew Clark, President, in the chair. Four papers were read. Mr. Barker showed a man on whom he had performed subperiosteal amputation at the hip-point, and Mr. Clutton showed a case of cure of spina bifida.

Dr. Felix Semon related a case of Removal by Internal Operation of a Pin from the Larynx of a boy, in which it had been impacted thirteen months, and had caused fixation of the left crico-arytenoid articulation. A boy aged thirteen had in his mouth one day in November, 1881, a pin, which slipped headforemost into the larynx. The symptoms were not at first urgent, but subsequently became severe. Free intervals varied with more or less acute inflammatory exacerbations, manifested by pain, inability to swallow solids, spasmodic cough, and finally even attacks of dyspnoea. It had been supposed all the time that the pin had been impacted in the pharynx and gullet, as its point was felt by Mr. Sydney Jones, under whose care the boy was admitted to St. Thomas's Hospital, on the left side of the pharynx, about the level of the cricoid cartilage, on digital exploration; but laryngoscopic examination revealed that it was far by far the greater part of its length impacted in the larynx, and that only its point, having from within perforated the left ary-epiglottic ligament close to the base of the left arytenoid cartilage, appeared in the oesophagus. The laryngoscope further showed that there was considerable thickening of all the tissues in the upper left of the larynx, that the left arytenoid cartilage was apparently ankylosed, and remained with the left vocal cord immovable in the position of phonation during inspiration. Yet there was neither constant dyspnoea nor impairment of voice. Mr. Jones kindly transferred the case to Dr. Semon, who, after preliminary removal of the greatly enlarged tonsils, and after a few days' practice with laryngeal probes, to accustom the patient to the introduction of instruments, succeeded in seizing, under the guidance of the laryngeal mirror, the projected point of the pin with serrated laryngeal forceps and pulling the pin through the tissues. Great force had to be used in the act of extraction, but the operation was almost painless and bloodless. The pin was found to measure an inch and a quarter in length. No reaction followed, and the boy was dismissed cured from St. Thomas's Hospital five days after the operation. When seen again on April 13th, it was ascertained that the mobility of the left half of the larynx had considerably improved. Amongst the points of interest in the case, Dr. Semon mentioned especially (1) the rarity of successful removal of foreign bodies from the larynx by internal operation after so long an impaction and without previous tracheotomy; (2) the corroboration which this case lent to his former statement concerning the actual occurrence of a non-suppurative, adhesive form of laryngeal perichondritis; (3) the mechanical impairment of the function of the crico-arytenoid joint; and (4) the remarkable absence of all subjective signs, respiratory as well

as phonatory, in spite of the complete immobility of the left half of the larynx and its diagnostic importance. The boy and two other patients suffering from ankylosis of the crico-arytenoid articulation were shown to the Society.

Dr. Whipple related the particulars of two cases lately under his care in St. George's Hospital in which an Eruption resembling that of Scarlatina occurred. The first was in a cabman, aged thirty-six, who had been addicted to drink, but who for twelve months previously to his admission had been a teetotaler. The fever symptoms had commenced fourteen days before, but the bowels had been regular and the motions natural. On admission the man complained of sorethroat and headache, and had a bright erythematous eruption on the trunk, legs, and arms. The right tonsil was much swollen. His tongue was thickly coated, his pulse 128, and his temperature nearly 105°. Next day the eruption was more marked on the arms and legs, and had extended to the feet. On the third day after admission the patient became very restless and delirious, and the bowels, which had been up to this date obstinately constipated, were opened freely by a purge. The diarrhoea thus set up, though somewhat moderated towards the last, continued more or less up to the time of the man's death—i.e., four days after his admission. No typhoid eruption was present. At the autopsy extensive ulceration of Peyer's patches was found. The second case was that of a child, aged four, who was received into hospital on Oct. 6th, 1882. He had already suffered from scarlatina, measles, and whooping-cough. Feverish symptoms manifested themselves on the day before his admission, and when he came under observation his temperature was 104.2°, pulse 120. His tongue was red at the tip and edges, and the papillae protruded from a central white coat. On the day after his admission a red eruption was noticed on the child's legs, and he was therefore isolated. Next day the erythema had greatly extended and was very brilliant, the tonsils were red and swollen. The bowels were constipated. On October 10th (four days after admission) the eruption had faded considerably. The bowels remained inactive and a purge of Karlsbad salt was administered, which acted freely. On the 11th the red eruption had disappeared. On the 13th the temperature reached 105°, and the pulse 132: the child was delirious and had fits of screaming. The bowels acted once after castor oil, the motion being partly formed, and of a clay color. On October 17th characteristic spots of enteric fever appeared, but there was not now nor at any time any desquamation. From this date the symptoms were clearly those of enteric fever, and the child died on the nineteenth day after admission. The post-mortem examination revealed extensive ulceration of Peyer's patches and great swelling of the mesenteric glands. Mr. John Harley, in *Med. Chir. Trans.*, vol. lv., gives twenty-eight cases in which scarlatina was accompanied by swelling of Peyer's patches, but in only two of which ulceration was found, and also a second series of six cases in which scarlatina preceded enteric fever, and further narrates three cases of "mixed scarlet and enteric fever." He also quotes two similar cases recorded by M. Forget. Dr. Murchison says that in many cases of enteric fever the characteristic eruption is preceded by a delicate scarlet rash, and adds that "this is not peculiar to enteric fever, but occurs in other forms of pyrexia." Sir W. Jenner, speaking of a red rash in enteric fever, says that the disease was mistaken for scarlatina. Dr. Whipple stated that he had lately seen a case of variola which was preceded by erythema of the abdomen and thighs. The question was, Were these really cases of

double poisoning, of mixed scarlet and enteric fevers? The absence of desquamation and the fact that an erythematous eruption is not uncommon in variola, pyæmia, and other forms of pyrexia, led to the conclusion that they were really instances of enteric fever preceded by erythema, and not mixed cases of scarlatina and enteric fever. The lungs were intensely congested. Death was due entirely to the enteric fever in both cases.

Dr. Mahomed was quite familiar with a roseolous rash in the early stage of typhoid fever. He had seen it several times. A case was brought to the Fever Hospital with a certificate of scarlet fever. She was in the scarlet fever ward from five to six days, and she then had a very severe attack of scarlet fever. While in the ward she had pyrexia and diarrhoea. She died, and at the autopsy she showed all the signs of advanced typhoid fever. Recently he saw cases of the same kind. One was a patient under Dr. Taylor's care in the third week of typhoid fever, with a rash exactly like that of scarlatina. The rash was not followed by a marked desquamation. He thought there were four rashes in typhoid fever, roseola, rose spots, taches blénâtres, and miliaria. He had not seen a similar erythematous rash in any case of typhus fever.

Dr. Cavafy thought the paper raised the question of the occurrence of roseolous rashes quite apart from scarlatina as from drugs, or after slight surgical operations, in the puerperal condition—uterine erythema, and in connection with menstruation. It would be useful to discover some band of connection between all these conditions. This he thought must be some irritation of the nervous system leading to paralysis of the vaso-motor nerves. He asked whether it was possible to diagnose these cases from true scarlatina. He referred to a case taking salicylate of soda who had sore-throat, and a bright punctate rash with circumscribed erythematous patches which became herpetic vesicles; desquamation was very free. Desquamation must not decide the question, for this might occur also in the quinine eruption. He thought the question of diagnosis was at times impossible without further information.—Dr. Andrew Clark said he was sure that the nervous system was operative in causing erythematous eruptions. Thus, in baring the chest of a nervous patient for examination, an erythema frequently occurs, which is often followed by desquamation. He was familiar with erythema occurring in the course of typhoid fever, and always in anomalous cases, in which the nervous system was much affected.—Mr. Broadbent was only familiar with the delicate roseolar rash, described by Murchison as occurring in typhoid fever, which could not be confused with scarlatina. He had no doubt of the concurrence of typhoid fever and scarlatina. He thought Dr. Whipple's second case was one of scarlatina, immediately preceding enteric. He referred to the case of a man with loss of general nerve tone, in whom, whenever he stripped, an intense erythema spread over the whole chest, abdomen, and back, fading in patches, and associated with taches cérébrales and fibrillar contraction.—Dr. Clark added, that some indications of the nervous erythema or doctor's rash may remain for thirty-six hours.—Mr. H. Page said erythema was seen at the onset of acute rheumatism, and at the commencement of variola. He also mentioned a case of intense scarlatiniform rash preceding chicken-pox; and he agreed with Dr. Cavafy in ascribing it to a nervous origin.—Dr. Whipple thought that Dr. Cavafy had raised the chief difficulty in these cases in reference to the question of isolation. He had, perhaps, laid too much stress on the point of desquamation, but it was remarkable that in the

boy there was no desquamation in nineteen days after an intense erythema.

Mr. Bernard Roth showed a case of Lateral Curvature of the Spine, illustrating its Treatment without the Use of Mechanical Supports. The following is a summary of the paper:—(1) The importance of noticing osseous deformity, if any, of the spine and ribs, and whether the patient can be at once restored to the normal position, and if not, to what extent. (2) If even slight osseous deformity be present complete cure is impossible. (3) Even severe cases of lateral curvature often have no osseous deformity, and can be at once temporarily restored to a normal position. (4) A patient with confirmed curvature, with or without osseous deformity, is so habituated to the vicious position that his attempts to improve the spine increase the deformity, unless instructed by the surgeon. (5) Exercises of the spinal muscles with or without resistance by the surgeon while the patient is in the improved position are absolutely necessary. (6) Good positions should be assumed at all times, especially in sitting, by means of suitable chairs. (7) Moderate walking is beneficial. (8) Lying prone or supine is not curative, as the spinal muscles are not strengthened by it. (9) All spinal supports, where the patient can by an effort maintain an improved position of the spine, even for a few seconds, are injurious or useless. (10) Swinging by the head does not strengthen the spinal muscles. (11) By avoiding all vicious positions, by good ones being shown and maintained, and suitably prescribed exercises carefully practiced, better and quicker results are obtained than by any other treatment hitherto proposed. Mr. Roth illustrated his remarks by reference to the case of a female student at the London Academy of Music, aged eighteen, who consulted him on March 4th, 1882. Up to four years ago she was strong and well, then, without any apparent cause, she began to stoop and have backaches. Becoming gradually worse a surgeon examined the spine, and finding curvature ordered the patient to lie down for two hours daily. At the end of a year, as the patient became worse, an ordinary steel support with arm crutches was ordered. This had been worn for two years when she consulted Mr. Roth, the patient having become more deformed and suffering more. On examination the patient presented confirmed lateral curvature, the whole spine being convex to the left, the right scapula more than two inches below the left, with considerable exaggeration of the cervico-dorsal antero-posterior convexity, causing poking of the head, flat chest anteriorly, and undue prominence of the abdomen. There was slight permanent rotation to the left of the lumbar vertebra, and slight increase of the convexity of the left ribs posteriorly. She could be placed in an almost normal position, and maintain it by a great effort for a few seconds. The spinal support was ordered to be left off completely, and a few simple exercises shown. On Dec. 8th he found the state of the spine unaltered from the first visit. Mr. Roth maintained that no instrument yet invented can put or keep a patient in the improved position shown in the three photographs exhibited. On Dec. 23rd the patient began daily treatment. On Jan. 13th she passed the whole day without backache for the first time for two years, and on January 16th the dressmaker had to widen her dress five inches across the chest. On examining the back, the habitual position was found decidedly less deformed than on Dec. 20th. Her appetite was much better, especially at breakfast. Since Jan. 20th the patient has been practicing a prescription of which the "keynote" is a position with the right arm directed upwards, the left arm outwards, while the spine is rotated to the

right and slightly flexed laterally to the left. The patient has continued to improve up to the present time, and there was reason to expect a practical cure at the end of three months' treatment. Measurements of the arcs of the different curves in a case of lateral curvature the author thought very misleading if a note be not also taken of the improvement which can be effected by the patient's voluntary effort properly directed by the surgeon. Lastly, rough-and-ready gymnastic treatment, such as advising a patient to swing on a trapeze with one hand higher than the other, or to use a skipping-rope, is not to be compared in efficiency with systematic localized exercises (medical gymnastics), while the patient is placed in the improved position. The latter continued, with attention to the avoidance of all injurious positions during the day, constitute the most successful and rapid treatment of lateral spinal curvature.

Mr. Herbert Page related a case of Tabetic Arthropathy in which the Tarsal Bones of both Feet were involved. This case was originally shown in the museum for living specimens at the International Medical Congress. The patient was a man, aged thirty, who, in October, 1880, began to have swelling of his right leg and ankle. The foot gradually increased in size, and when first seen in February, 1881, there was great enlargement in the region of the tarsal bones, which were freely movable on one another in any direction. A month later, broken corns appeared on the sole, with an ulcer on the big toe. These sores were absolutely painless; as, indeed, was manipulation of his foot; a circumstance which led to the discovery that the patient was the subject of *tabes dorsalis*, the knee-jerk being absent, and the pupils presenting the "Argyll-Robertson phenomenon." There was no ataxia in gait. While under observation the left foot became affected in a similar way to the right, very rapidly and without pain. Four years previously he had severe lightning pains down the limbs, and two years before he had an illness called "nervous debility," of which the most noticeable feature was profuse vomiting every day for nine months; which began and ended quite suddenly without known cause as to its origin or its termination—a true gastric crisis. Attacks of a similar kind have occurred since the patient has been under the author's observation, and each of them has begun with a severe rigor, and been marked by the passage of large quantities of blood in the urine, associated at the same time, with profuse vomiting, diarrhoea, and increased lightning pains. The patient has now been free from these attacks for some months, and the swelling of the feet has subsided. The feet, however, are strangely deformed, owing to an alteration in the relative position of the affected bones. The other symptoms of *tabes dorsalis* remain the same, but there is still no ataxia. Only one instance of this particular form of arthropathy had been seen by M. Charcot. Though rare, it had, however, many features in common with the arthropathies affecting the larger joints. One foot of his patient would in all probability have been removed—so bad was it—had not the cause of the affection been accidentally revealed by the symptoms. The arthropathy has subsided, however, and left a useful, though deformed, limb. The occurrence of attacks of paroxysmal hæmaturia was a striking feature in this case, and the association thereof with the other symptoms of a crisis seemed to indicate that it was not less a symptom of the disease than the vomiting, the diarrhoea, and the joint affections. The history may suggest a new line of observation, and inquiry in the study of these cases of paroxysmal hæmaturia or hæmaturinuria.—Dr. Althaus protested against the expression "tabetic;" the ad-

jective should be "tabid;" it was important to be correct in a term which was likely to be much used.—Dr. Buzzard said the case was very interesting from many points of view, one of which was the occurrence of attacks of paroxysmal hæmaturia. He had never met with any similar case. But might it not happen that cases of so-called paroxysmal hæmaturia were really cases of *tabes dorsalis*, in which this one symptom masked all the others? He was also interested in the association of gastric crisis with this arthritic condition. This association he had observed in a large number of cases. He referred to one of these cases lately recorded in our columns, in which there was a healed perforating ulcer of the foot. He had lately met with another form of trophic disorder, an ecchymosis under the big toe-nail without any injury, leading to shedding of the nail.—Dr. Mahomed said he had under his care a patient with locomotor ataxy who had polyuria, he had been passing 106 ounces per diem, specific gravity 1004; this was evidence of renal neurosis.—Mr. Page said he had recently read a thesis on spontaneous fall of toe-nails, and changes in their shape occurring in "tabid" cases. "Nephritic crisis" had been applied to attacks of extreme colicky pains in the kidney in a case of locomotor ataxy, associated with entire suppression of urine with great albuminuria, between the attacks. It was easy to see that from the attacks of hæmaturia coming on with a rigor the true nature of such a case might be entirely overlooked, and its origin attributed to cold.

OBSTETRICAL SOCIETY OF LONDON.

A MEETING of the above Society was held on March 8th, Dr. H. Gervis, President, in the chair.

Cast of Female Bladder.—Dr. Aveling exhibited this specimen. The patient suffered from retention of urine for four days after delivery. This was relieved by the catheter, and the bladder was subsequently washed out. Three weeks after delivery the cast exhibited, which was formed by exfoliation of the vesical mucous membrane, was passed. Fifteen months afterwards the patient still suffered from incontinence of urine; but, except for this and a recto-vaginal fistula, was well.—Mr. Hopkins Walters had seen a similar case, due to retention, which had lasted four days, from retroversion of the gravid uterus. The cast was passed the sixth day after relief of the retention. The patient recovered without further vesical trouble.

Fibroma of Ovary.—Dr. John Williams exhibited a solid ovarian tumour removed by him. It was pear-shaped, about three inches in diameter at its thickest part, and consisted of white fibrous tissue, with areas of mucoid degeneration and in the centre extensive calcareous change.—The President remarked on the rarity of such tumours.

Tumours removed by Abdominal Section.—Dr. Bantock showed a dermoid ovarian cyst, a specimen of double hydro-salpinx, and five uterine fibroids, which he had removed by abdominal section. In three of the cases the tumours, weighing upwards of 7 lb., 4 lb., and 2 lb., respectively, were removed on account of pain, there not being much hæmorrhage. In one, on account of hæmorrhage, he removed the ovaries. This was followed by metrorrhagia lasting four weeks, and, at first, diminution in the size of the tumour. Three months after operation the uterus had regained its former size; the hæmorrhage recurred, and gradually increased, and therefore he removed the tumour, which weighed 3 lb., and presented cystiform degeneration. In the remaining case the ovaries had been

removed about a year previously by another surgeon, but this had been followed by increase in the hæmorrhage and no diminution in the size of the tumour. He (Dr. Bantock) therefore removed it. In cases such as these he thought oophorectomy could not come into competition with hysterectomy, for cystiform degeneration of uterine fibroids was as surely fatal as ovarian cystoma. He could not concur in the opinion that hysterectomy should only be done when oophorectomy had been tried and had failed. He did not think much was gained by ligation of the uterine arteries; the collateral circulation was too efficient. He had now performed twenty-two hysterectomies, of which twenty had recovered, in none of which had "full antiseptic precautions" been used.—Mr. Knowsley Thornton thought Dr. Bantock's cases illustrated the value of oophorectomy. Removal of the uterine appendages had in each case been only imperfectly accomplished, and this accounted for the persistence of hæmorrhage. Moreover, the tumours were undergoing atrophy, the cyst formation being part of the degenerative process. He had seen these patients when hysterectomy was performed, and their condition of health seemed to him so good that without further information he did not understand the reason for the operations. He thought that the condition of patients was not so good after hysterectomy as after oophorectomy; after the former there was a possibility of a permanent fistula, or of a ventral hernia.—Dr. Savage said the condition of Dr. Bantock's patients was such as to justify the operation. The mortality was one in eleven, not greater than that of ovariectomy. Battey's operation he thought detestable.—Mr. Doran thought long series of after-histories were needed before the profession could judge between the two operations.—Dr. Routh thought oophorectomy (except as a *pis aller*) a shameful, and often useless, operation, unsexing the patient, and failing to cure. He thought evidence was required in support of Mr. Thornton's assertion that the operations were imperfectly done. The atrophy of the tumours might be due as much to the age of the patients as to the oophorectomy. The ill-health of the patients was such as to justify the operations in Dr. Bantock's cases.—Dr. Wynn Williams had sent two of Dr. Bantock's patients to him, and thought the operation was thoroughly justified in each.—Dr. Bantock said the amount of hæmorrhage was such as to make the patients hopeless invalids, and he thought this justified the operation. Examination of the specimens showed that the ovaries had been thoroughly removed.

Uterine Polypi.—Dr. Wynn Williams exhibited two polypi, one fibroid, the other of mucous, intermixed with fibrous tissue. The specimen in the second case was referred to a committee for examination and report.

The President then delivered an address, for which a vote of thanks was moved by Dr. R. Barnes, and seconded by Dr. Graily Hewitt.

Turning in cases of Contracted Brim.—A short paper on this subject by Dr. Burchell was read. The author described a class of cases in which after several easy deliveries, the birth of later children became difficult. Out of 8,000 deliveries he had met with forty-five such cases. He attributed the progressive difficulty of labour to deposit of bone on the sacral promontory. In these cases attempts at forceps delivery often failed, and then perforation was resorted to. He believed they were better treated by turning. Out of forty-five cases so delivered by him, he had saved the children in thirty-eight. He thought this practice was new when he first adopted it, and that still its advantages were insufficiently recognized.—Dr. Robert Barnes had largely practiced turning in

cases of minor degrees of contraction of the pelvic brim, and formerly placed it between the forceps and craniotomy. He now thought there were few cases in which Tarnier's forceps were not superior. Dr. Champney's said increasing difficulty of successive labours was accounted for by increasing size of the children, and diminished power in the mother. Progressive diminution in the size of the pelvis had never been verified by measurement. Either forceps or turning, if applied to all children, would show a large percentage of success, although not really beneficial.

A meeting of this Society was held on April 4th, Dr. Gervis, President, in the chair.

Knotting of Umbilical Cord.—Dr. Godson exhibited a four months' fetus with placenta, showing a knot in the umbilical cord, with atrophy of the cord on either side of it, leading, he believed, to the death of the fetus.

Dermoid Cyst.—Dr. Edis exhibited a dermoid cyst removed by him. It was so extensively adherent that it was difficult to determine whence it had sprung. Both ovaries and broad ligaments were removed with it. The patient recovered.

Hernia of a Uterine Fibro-Myoma.—Mr. Knowsley Thornton exhibited a uterine fibro-myomatous tumour weighing 11½ lb., removed by him. The abdomen had been opened some years previously, but the operator, finding the tumour uterine, closed the wound. A hernia of the tumour resulted; it became adherent, ulcerated, and bled. Mr. Thornton removed it with the uterine appendages. The tumour was of the soft kind, and, he thought, might have been cured by removal of the uterine appendages; but it was impossible to close the wound without removing the uterus. He believed the case unique. The patient was doing well.

Axis-traction Vulsellum Forceps.—Dr. Robert Barnes showed a sessile submucous fibro-myoma and a new axis-traction vulsellum forceps which he had devised and used for its removal. By this instrument the tumour was dragged within reach without undue or misdirected force, and room was left for manipulation in front. He thought this application of the principle of Tarnier's forceps would prove of great value.—Dr. Aveling had invented and published forceps of the form permitting axis-traction ten years before Tarnier's forceps of the same form was made known.—Dr. Heywood Smith suggested that his forceps would be better if the blades were made separable.

Cyst and Tumour of Placenta.—Mr. Mark (for Dr. John Williams) exhibited a Placenta having on its fetal aspect a cyst the size of a Tangerine orange, at the base of which was a tumour, apparently fibrous, the size of an almond.

On the "Pressure of the Femora" and its influence on the Shape of the Pelvis.—This paper, by Dr. Champneys, was then read. After a brief review of the history of pelvic literature, special mention was made of the study of the fetal pelvis by Fehling, which showed that many characters previously supposed to be the result of the operation of mechanical influences after birth were really congenital and antecedent in date to the operation of such influences. The same applied to the rickety fetal pelvis. It followed from this that the scope of mechanical influences as hitherto accepted had to be reconsidered. In considering the influence of the "pressure of the femora" fallacies were pointed out, and all possible sources for this pressure were reviewed. These included: 1. Passive resistances (a) bones, (b) ligaments, (c) couples. 2. Active operations: (a) action of muscles. These were in turn scrutinized, and the

conclusion reached that "the action of the muscles joining the femur and the pelvis is a true cause of the 'inward pressure of the femora,' and is aided by the muscles favoring inversion of the foot." A corollary followed, "that use of the lower limbs will increase the inward 'pressure of the femora.'" In unsymmetrical pelvis, and pelvis in which the acetabula are within the line of the body-weight, other consequences followed. These were illustrated by three figures. The phrase "increased pressure on the overweighted side" was shown to include many different factors.

Dr. Robert Barnes suggested that one factor in producing flattening of the rickety fetal pelvis might be pressure from the attitude of the fetus with the thighs doubled up.—Dr. Matthews Duncan agreed with the paper in the main. Dr. Champneys had given a valuable sketch of the history of the subject, and his special study of the action of femora as a result of body-weight and muscular force made the paper a great contribution to pelvic literature. He (Dr. Duncan) would not give muscular action a paramount position, and for that still vindicated the great force of body-weight.—Dr. Aveling drew attention to a pelvis in the Society's museum, the shape of which was normal, although congenital dislocation of the hip was present.—Mr. Doran thought muscular action in the fetus was a force too slight and intermittent to be capable of altering the shape of cartilaginous bones.—Dr. Champneys agreed that gravity was the most powerful of the forces acting on the pelvis. Although the action of mechanics might have been pressed too far, it was impossible, in the face of the malacosteon pelvis, to upset it. He did not think that the fetal attitude was capable of flattening the fetal pelvis, for the fetus floated in fluid, and therefore was not exposed to any inequality of pressure, and its attitude was not for it one of constraint.

Case of Labour with Atresia Vaginae.—This paper, by Dr. Fancourt Barnes, was then read. The patient was aged twenty-one, pregnant for the first time. The vagina was represented by a cul-de-sac, about one and a half inches deep, at the bottom of which was a pinhole aperture, the orifice of a canal of no larger dimensions leading into the uterus. This canal traversed about two inches of tissue before reaching the uterine cavity. The patient was anesthetized, the canal stretched with a Priestley's dilator, then incised on each side with Simpson's metrotome, and still further enlarged by laceration with the finger. Delivery was then accomplished with Barnes's forceps, it being found impracticable to apply Tarnier's. The operation lasted an hour, and was performed under carbolic spray. Mother and child did well.

The report of the committee upon the specimen shown by Dr. Wynn Williams at the last meeting was read; it was to the effect that the tumour was a submucous fibroid.

HARVEIAN SOCIETY OF LONDON.

At the meeting of this Society, held on March 15th, the President (Dr. E. Symes Thompson) in the chair, Mr. Pepper showed with Mr. Howard Hayward a patient whose upper jaw he had excised. He was admitted into St. Mary's Hospital with a soft, painful, and rapidly increasing enlargement of the left upper jaw. This was at first thought to be due to suppurative within the antrum; but an exploratory incision elicited the fact that the swelling was caused by some solid or semi-solid growth, so it was decided to remove

the upper jaw. This was done by the usual method, the arch of the soft palate being left entire by means of a horizontal incision in front of that structure, the hard palate having been previously divided down the middle line. As the growth involved the floor of the orbit, and reached over to the opposite side through the septum nasi, the removal of bone was necessarily extensive, and the operation proportionately formidable; the patient recovered, nevertheless, without an unfavorable symptom. The growth was of a sarcomatous nature, with round and spindle cells intermixed. On her departure from the hospital the patient was almost toothless and speechless and much disfigured; but since that time an apparatus has been devised for her by Mr. Howard Hayward, which had wonderfully improved her appearance, her articulation, and her masticatory powers. Mr. Howard Hayward exhibited the plate which had effected such an improvement in this patient, and also plaster casts he had taken of the case, showing the very large cavity left from the operation.—Mr. Gant congratulated the authors on the success of their case.

Mr. Malcolm Morris then exhibited some cases of Lupus. The first was a typical case of lupus erythematosus of seven and a half years' standing. The feature of interest in the case was that since the treatment of free scarification of its margins had been adopted, there had been no further extension of the disease. The next was a case of lupus erythematosus of twenty years' duration; the disease had attacked both arms and legs before the case came under the author's observation. The third case was in a boy aged fifteen. The disease, which existed on both sides of the face and on one arm, commenced as a small red spot, which gradually spread, leaving atrophy of the skin in the centre of the patch, while round the margin was a curious raising of the surrounding skin, which seemed to be of a warty nature. A remarkable feature of the case was that the warty margin of the patches varied with the season of the year, being well marked in the spring and summer, but almost disappearing in the autumn and winter. There was a long line of the eruption on the left arm. The boy had five years ago been under the care of Mr. Hutchinson, who had made drawings of his condition. These were shown to the meeting, and Mr. Malcolm Morris pointed out that since then there had been no extension of the disease. Mr. Hutchinson had called it lupus marginatus, while other observers considered it to be ichthyosis.—Dr. Stephen Mackenzie could not accept the third case as one of lupus, he thought it was of a papillary nature and of nervous origin. It was not in his opinion connected with the lymphatics, and there was no destructive lesion, as in lupus.—Mr. Pepper thought it remarkable that if the disease were of neurotic origin there should be an absence of neuralgic pains, and pointed out its irregular distribution on the face as against that theory.

Dr. William Ewart exhibited a girl, aged eight, who had been for the space of one month the subject of severe convulsive attacks, presenting some of the features of Hystero-epilepsy. There was no hereditary history of insanity, epilepsy, or hysteria. The exciting cause appeared to have been a fright, but a predisposing influence was also noted in the shape of a recent attack of diphtheria. A strongly hysterical element was traceable throughout the case. The admission of the patient into the Belgrave Hospital for Children was followed by rapid improvement. Moral management and the administration of bromide of potassium were the chief methods of treatment resorted to in this instance.

EPIDEMIOLOGICAL SOCIETY.

A MEETING of this Society was held on March 7th, Dr. George Buchanan, F.R.S., President, in the chair.

Surgeon-General Murray read a paper on the Delhi or Oriental Sore. He stated that this disease had attracted little attention in India previous to 1857-58, at which time the palace and city of Delhi were occupied by European and native troops. The military cantonment had previously been situated two miles outside the city walls, and this disease was rare amongst the troops, although cases were occasionally heard of there, and at Mooltan, and Lahore. After 1858 it was brought prominently to notice, as the troops in garrison at Delhi were attacked with great severity; from 40 to 70 per cent. were admitted into hospital suffering from the sore, whilst nearly half the regiments had slight sores, which were treated out of hospital. The disease was very tedious and troublesome, though only in two or three instances fatal. When severe or situated on a joint, it rendered the men unfit for duty. In 1865 the Government of India appointed a Commission to investigate the disease, to trace out its origin, and to point out a remedy. The author was President of this Commission, and he thus had an opportunity of accurate observation of the disease. It appears on exposed parts of the body; at first as a small pimple, like an irritated mosquito bite, and remains in this state for several days or weeks, sometimes even for months. It then slowly increases and a thin fluid escapes from the top, which dries and forms a circular scab, gradually increasing in size and thickness. When this scab is removed an indolent ulcer is exposed, with undermined edges and lobulated granulations in the centre, in healthy subjects like raspberries, but paler and more blue in cachectic cases. These ulcers when very broad show signs of cicatrizing from the centre; in all there remains a depressed cicatrix after healing. This is the natural course of the disease, which may last from six months to two or more years, when uncomplicated with leprosy, secondary syphilis, miasmatic fever, or a cachectic state of the body produced by other diseases or famine. When such diseases exist they are aggravated and rendered more fatal. The Delhi sore appears identical with the "yaws" of the West Indies, "parange" of Ceylon, and the "bouton" of the eastern and southern shores of the Mediterranean. At Delhi, Mooltan, and Lahore the disease is endemic, and confined to residents within the city walls. The Commission at Delhi, after patient investigation, formed the opinion that the Delhi sore is a cutaneous disease, of parasitic origin, and that the foul water of the city wells was the habitat of this parasite. The water of all these wells was excessively impure. In some, according to analysis at this time, the water contained from 45,375 to 123,200 grains of organic matter per gallon. This germ, or parasite, finds entrance to the body during bathing or washing through an opening in the cuticle caused by any abrasion of the skin, and the most frequent channel is probably the surface of an irritated mosquito bite, as the ordinary situation of the sores is on an exposed part of the person, as the face, hands, and arms, while the hairy scalp escapes. The germ, once introduced, develops in the cutis vera, exciting inflammation in the surrounding parts, and the sore results. Attempts were made to detect the germ microscopically, but in vain. Since then Dr. Flemming and others have supposed they have discovered it; but, as Drs. Lewis and Cunningham, after careful examination, failed to see it, implicit confidence cannot be placed in less experienced

observers. To determine the contagious nature of the disease six natives were inoculated from a dry crust; but no disease followed. They were then inoculated from a fresh sore, and twenty-three out of twenty-four punctures showed irritation, like that from vaccination, on the third day, which gradually extended till the sixth and tenth days, when remedies were applied to check the disease in four men, leaving it to take its course in the other two cases. The treatment recommended by the Commission was to avoid using impure water, or, if this be impossible, to boil the water before using it, and to have all wells cleared out every year. The local treatment of the sore is directed to destroy the vitality of the germ by the application of the actual cautery in the earliest stage, and potential cautery—potassa fusa or nitric acid, and carbolic acid or mercury in more advanced stages; following the destruction of the specific disease by simple dressing, and washing with diluted carbolic acid. In the discussion which followed, the President, Sir Joseph Fayrer, Surgeon-General Manifold, Dr. Scriven, Dr. Ewart, and Mr. Long took part.

A meeting of the above Society was held on April 4th, Surgeon-General John Murray, M.D., in the chair.

Dr. G. B. Longstaff read a paper on Phthisis, Bronchitis, and Pneumonia: Are they Epidemic Diseases? The following is an abstract:—The author explained that his object was to examine the Registrar-General's returns in such a way as would make clear their bearing on the solution of the question propounded. As in previous papers, relating to summer diarrhoea and the diseases allied to erysipelas respectively, he exhibited diagrams graphically representing the death-rates for England and Wales from the diseases in question, and certain others in various ways allied to them, during a period of twenty-five years; also showing the same death-rates in London for thirty-three years, compared with a curve expressing the number of cold days in each winter. Many other curves had been pointed out by the author, but only a few had proved useful for the purpose in hand. One diagram showed that the death-rate curve of phthisis deviates but very little from a straight line, resembling in this respect those for cancer, apoplexy, paralysis, convulsions, and fractures. The curves of tubercular meningitis (hydrocephalus), and to a lesser degree tabes mesenterica, resembled the phthisis curve. The phthisis death-rate had fallen 20 per cent. during the last twenty years. The bronchitis curve exhibited considerable fluctuations, but on the average it had risen 81 per cent. during twenty years. Pneumonia gave a curve closely resembling that of bronchitis in many respects, but the average mortality had fallen 20 per cent. The total mortality from all diseases of the respiratory organs, together with phthisis, showed an increase of 5 per cent., indicating that probably many deaths formerly returned as due to phthisis or pneumonia were now classed with bronchitis. Pleurisy appeared to be more allied to rheumatism than to respiratory diseases. From the curves relating to London deaths, it appeared that bronchitis and pneumonia corresponded with the coldness of the winters, but not so closely as might have been expected. Phthisis was but little affected. Curves derived from Messrs. Buchan and Mitchell's paper on the Influence of Weather on Mortality, showing the average weekly fluctuations of the death-rates from various causes in London during thirty years, strongly confirmed the author's conclusions, with the single exception of tabes mesenterica, which gives an entirely different curve from that

of phthisis. In another diagram were exhibited the week-to-week fluctuations of the deaths from bronchitis and pneumonia during the last five winters in London, and their relation to cold; also the same for phthisis during two of the winters. This diagram showed clearly that the pneumonia death curve had a general correspondence with the bronchitis death curve; but it differed in two particulars—viz., the fluctuations were much less, and while it rose in the autumn as rapidly, it fell in the spring more gradually. In the spring of 1879 there was a prolonged high mortality from both bronchitis and pneumonia out of proportion to the severity of the cold; and during the whole winter 1878-9 the two curves of bronchitis and pneumonia corresponded less closely than in the others. The effect of two hard winters upon the phthisis mortality was shown to be remarkably slight. It was noted that for every 1,000 females who died of pneumonia not less than 1,460 males died, whereas in the case of bronchitis the numbers were 1,000 females to 1,104 males, and in the case of phthisis 1,000 females to 1,046 males. Bronchitis caused nearly three times as many deaths in proportion to population in Lancashire as in Gloucester. The mortality was also very high in metropolitan Surrey and Middlesex, West Yorkshire, Warwick, and Monmouth. It was very low in Cornwall, Sussex, Norfolk, extra-metropolitan Surrey, Cambridge, and Gloucester. Pneumonia was most fatal in Lancashire, Monmouth, South Wales, West Yorkshire, Stafford, and metropolitan Middlesex and Surrey; least in Sussex, Wilts, Hants, Bucks, Oxford, North Yorkshire, and Westmoreland. In eight registration counties pneumonia was found to be comparatively much more fatal than bronchitis—viz., South Wales, Gloucester, Rutland, extra-metropolitan Surrey, Bedford, Cornwall, Monmouth, and Cambridge. In ten registration counties bronchitis was found to be relatively more fatal than pneumonia—viz., North Yorkshire, Warwick, Wilts, metropolitan Surrey, Cumberland, Nottingham, Westmoreland, Cheshire, Somerset, and Oxford. The author's main conclusions were: 1. That the mortality statistics of England and Wales did not give any evidence in favor of the view that phthisis is communicable, but they showed, on the other hand, that weather had very little influence on the phthisis death-rate. 2. That while bronchitis and pneumonia were both greatly influenced by meteorological conditions, it was difficult to explain by those conditions alone all the phenomena. 3. That common catarrh was a communicable disease, and that it was probable that very many cases of bronchitis and pneumonia might be looked upon as complications of that or some similar disease of mild character when uncomplicated. 4. That the different incidence of bronchitis and pneumonia on the two sexes pointed to some difference in the causation of the two diseases. 5. That there would appear to be some common factor in the causation of phthisis and tubercular meningitis.

In the discussion which followed Surgeon-General Murray, Dr. Thorne Thorne, Dr. Heron, Dr. Mahomed, Brigade Surgeon Scriven, and Mr. Shirley Murphy took part. Surgeon-Major J. B. White read some comments on the subject by Surgeon-General De Renzy, and added some observations of his own.

—At a meeting of the City Commissioners of Sewers in London, recently, it was stated that the pollution of the Thames by sewage was destroying the passenger traffic on the river and greatly injuring the trade in general of the port of London.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

THE usual monthly meeting of the West London Medico-Chirurgical Society was held on February 2nd, the chair being taken by Dr. Hart Vinen, the President of the Society.

Dr. Hood read a paper on *Dyspepsia*. He maintained that the more our experience of the natural history of disease increases the more we must accustom ourselves to the fact that dyspepsia should be looked upon as symptomatic rather than generic. He drew especial attention to those cases of stomach lesion in which dyspepsia plays such an important part as a symptom, and suggested that in many cases of so-called simple dyspepsia there was a definite lesion of stomach coat. He held that the carefully compiled category of symptoms incidental to ulceration of the stomach suggests that its diagnosis is easy, the very opposite of that being clinically the case. Statistics proved that ulceration of the stomach was of very frequent occurrence, but beyond question the symptoms of ulceration varied very greatly. Although hæmorrhage was a symptom of the utmost moment, it was not judicious to wait for the presence of blood before inferring the existence of ulceration. All writers on the stomach treated ulcer as a chronic disease, but none of them advised such treatment as would be adopted in regard to an ulcer occurring on the surface of the body. In treating assumed ulcer he thought it imperative that the patient be kept in a recumbent posture in order that the stomach walls might be in a state of rest. Where there was much enlargement of the stomach, he generally used a counter-irritant, and he freely prescribed the various preparations of opium in those cases where there was no doubt that the dyspepsia did not arise from hepatic engorgement, as he found that it not only stimulated the bowels, but also made the patient less intolerant of restraint. Such treatment in the early stages of dyspepsia was sure to result well. Where the presence of ulceration was well marked, such treatment should be resorted to as would be insisted on if the ulcer occurred on the surface of the body. He mentioned the case of a lady in whom this method of treatment was productive of the best results.—Dr. Daniel said that three or four years ago he attended a gentleman who had contracted indigestion. He gave calomel and colocynth. But the symptoms increased, the patient became very emaciated, vomited largely, and at last was unable to keep food on his stomach. The blood could be traced in the vomit. Dr. Gull was called in, and inferred that there was ulceration. He continued to get weaker, and became at last a mere skeleton. Enemata of nutritive liquids were given, but eventually he died of exhaustion. There was no post-mortem.—Dr. Schacht suggested that, in addition to rest, he regarded an enema every other day as important. Constipation was an awkward symptom, and the enema by relieving the stomach allowed the opium to do its work.—Dr. Campbell Pope said that he overcame constipation with bismuth in conjunction with belladonna.—Dr. Orton said that he knew of a practitioner who had symptoms of ulceration for thirty-five years, and who at last collapsed from vomiting. The post-mortem revealed ulcers in all stages.—Dr. Hood, in reply, suggested that marked dyspepsia required the most careful examination, for early diagnosis was very difficult. The ulcers were really boils of the stomach, resulting in choked glands. He was strongly of opinion that dyspepsia demanded rigorous treatment.

Mr. C. B. Kestley briefly mentioned a case of Re-

fracture after bony union of a fractured patella had been obtained by bony union, and Dr. James Thompson showed examples of the Beaufort artificial limbs, and also explained their peculiarities and advantages.

NORWICH MEDICO-CHIRURGICAL SOCIETY.

At the meeting on March 6th (Dr. E. G. Barnes, President, in the chair), Mr. Williams exhibited a specimen of Dislocation of the Fifth Cervical Vertebra, in which reduction was effected. The rarity of the injury and its possibility being denied by many eminent surgeons were dwelt upon. Reduction was effected by extension being made from the chin and occiput, while counter-extension was made from the shoulders; the reduction was accompanied by a distinct snap or click. Death occurred on the fifth day. At the post-mortem the fifth cervical vertebra was found dislocated without any fracture of either it or the sixth. Careful manipulation showed it was by no means a difficult matter to reduce the bone, but on cessation of extension the displacement again occurred. The position in which the head had been placed, after reduction, on a pillow level with the injured vertebra, was found to be essentially wrong, as it did not prevent the head and upper cervical vertebrae from being carried forwards, reproducing the dislocation.

Mr. Kidd related a case of Popliteal Aneurism treated with Esmarch's Bandage. The bandage was applied tightly from the toes to the lower end of the aneurism, then loosely over the joint, and again tightly as far as the middle of the thigh. The elastic band was then put on, and the bandage taken off. The treatment was continued for two hours, and the sac appeared then to contain semi-solid clot. Signoroni's tourniquet was applied to the apex of Scarpa's triangle, and the band removed. A strong pulsation was then felt in the sac, owing to the tourniquet not being screwed up tight enough; this was immediately stopped. Gangrene of the foot subsequently took place, and Syme's amputation was performed. The flaps sloughed, and amputation below the knee was then done, the progress of the case from that time being satisfactory. Mr. Kidd considered the gangrene of the foot, which was of the dry kind, to be due not to the elastic bandage, but to embolism, a clot being probably washed out of the sac at the time the elastic bandage was removed from the thigh.

Mr. Cadge read notes of a case of Popliteal Aneurism, cured by ligature of the femoral after compression in various forms had failed. In the course of his remarks Mr. Cadge stated that practitioners apart from hospital practice would probably find the ligature the most useful and ready method of treatment if compression did not quickly cure the disease.

Mr. Prangley read a paper on a form of Dyspepsia which he termed "Climacteric." It occurs in women between the ages of forty and fifty. The symptoms are those of great nervous depression, with pain on the top of the head, noises in the ears, hot flushes and chills, with curious sensations in the abdomen. The dyspeptic symptoms are those of præcordial distress, with palpitation, costive bowels, coated tongue, and foul breath. The treatment consists of the administration of bismuth, bicarbonate of potash, and ammonia adding valerian if the nervous symptoms predominate, followed by quinine, strychnia, and the dilute nitro-hydrochloric acid.

MIDLAND MEDICAL SOCIETY.

The ordinary meeting of this Society was held on March 7th in the Medical Institute, Birmingham, Dr. Malins, President, in the chair.

Mr. Wm. Thomas showed a child with Talipes Equino-varus, which was being successfully treated by means of manipulation and the application of plaster-of-Paris cases.

Mr. Jordan Lloyd showed for Mr. West a Kidney which the latter had removed through a Lumbar Wound four days previously. The patient, a boy, aged fifteen, received an abdominal injury in November last; this was followed by hæmaturia, the development of a lumbar tumour, pus in the urine, and pyrexia. In December the aspirator drew off 55 oz. of purulent fluid from the kidney; this was repeated a week later and followed up by a lumbar incision and the insertion of a drainage-tube. Eighty ounces daily of purulent ammoniacal fluid were passed through the tube. As the patient was rapidly emaciating, nephrectomy was performed. The kidney measured 8 inches in length, 4 inches in breadth, and 3 inches in thickness, and weighed 16 ounces.—Mr. Lloyd also exhibited the Tibia and Fibula removed by amputation from a boy, aged nine years. The specimen showed acute osteitis involving the lower epiphysis of the tibia, the upper end of the tibial shaft being similarly affected. There were no inflamed tissues between these points, but, by extension, there was pus in both the ankle and knee-joints. After removal of the limb at the lower third of the thigh, convalescence was rapid.

Mr. Messiter (Dudley) exhibited a male adult on whom he had successfully ligatured the left Common Carotid Artery to arrest Hæmorrhage from the Tonsil. The history indicated a swelling of the left tonsil, ulceration, and two attacks of copious bleeding. On the second occasion Mr. Messiter tied the main artery, and a rapid convalescence followed. It was thought that the ascending pharyngeal artery was the probable source of the hæmorrhage.

Dr. Suckling showed a living case of Myxœdema. The patient was a woman, aged thirty-five, who had been ill for ten years, the first symptoms being drawing speech and puffy eyes. The face is now edematous-looking, but does not pit on pressure; the skin is translucent, with a pinkish tinge on each cheek; solid œdema of each eyelid; the tongue, large and pale moves slowly; general integument is dry and rough; hands swollen; lower extremities look swollen, but do not pit; speech slow and words are sturred; locomotion slow, but no loss of coördination; urine pale, of a low specific gravity, no albumen, seventy ounces passed daily; muscular contractions with electricity much below normal; this Dr. Suckling attributed to the bad conducting power of the skin, due to its dry condition and probable infiltration with mucin.

Mr. Messiter (Dudley) read a paper on Trephining in Cases of Injury to the Skull, and gave details of five instances in which this operation had been performed by himself and his colleagues at the Guest Hospital, Dudley. He was of opinion that to trephine early in many cases of cranial injury was, with the aid of Listerism, of the utmost importance and a practice to be commended.

Dr. A. H. Carter read a paper on Certain Variations of the Pulse in Diseases of the Heart, in the course of which he discussed the diagnostic, prognostic, and therapeutic aspects of undue frequency, irregularity, and intermission of the pulse in their relation to different cardiac lesions.

The ordinary meeting of the Midland Medical Society was held on March 21st in the Medical Institute, Birmingham, Dr. Malins, President, in the chair.

Mr. Priestley Smith exhibited a patient suffering from greatly impaired Vision. The periphery of the visual field was of normal extent. The central area was nearly blind, as demonstrated by charts taken with the perimeter. The optic discs were pale, the retinal arteries small. The man had symptoms suggestive of locomotor ataxy; he had also been a heavy smoker for many years. The central amblyopia pointed rather to the effects of tobacco than to atrophy from spinal disorder, but it appeared that there was a progressive atrophy going on, such as accompanies locomotor ataxy. It was suggested that the atrophic process had affected the central fibres first because they were already damaged by tobacco.

Mr. Jordan Lloyd showed two Hernial Sacs removed for the Radical Cure of Inguinal Hernia. One patient, aged fifty, died on the twelfth day of pneumonia; no peritonitis. The second, a child aged two years, had made a good recovery.—Mr. Lloyd also showed a Tumour as large as a hen's egg, which he had removed from the bladder of a man, aged thirty-four. Symptoms had existed for twelve months. The patient was progressing favorably.

Dr. Barling exhibited an adult patient who by a fall had torn the ligamentous union of an old fractured patella. By a longitudinal incision over the bone the fragments had been laid bare, refreshed, and then approximated by a single silver wire suture, which was cut off short and left *in situ*. The operation had been performed seven weeks before, and the fragments were in good position, and in the course of time Dr. Barling hoped that a solid osseous union would take place.

Dr. Leslie Phillips exhibited a Heart weighing thirty ounces, the seat of ulcerative endocarditis on the aortic and mitral valves. The aorta was ulcerated through an inch above the valves; the pericardium contained several ounces of blood, and each pleural cavity half a pint.

Dr. T. Nelson showed a calculus, more than half an inch square, which had been passed by a woman per urethram.

Dr. Simon, in a paper on the Treatment of Ringworm, advocated thorough and vigorous measures so long as a black spot or a stumpy hair remained; and, when necessary, suitable constitutional remedies. For local application in recent cases sulphurous acid and glycerine and carbolic acid pomade were useful. Epilation was also often necessary. For chronic cases oleate of mercury and croton oil, properly applied as directed by Dr. Alder Smith, would generally effect a cure.

Mr. Jordan Lloyd read a paper on a method of Controlling Hæmorrhage in operations at the Hip-joint. After the limb to be operated upon has been emptied of blood, a pad is placed over the external iliac artery, and a double piece of a flat elastic tourniquet applied, so as to pass internal to the tuber ischii across the pelvic ramus, parallel to and above Poupart's ligament, to a point above the iliac crest; the posterior half of the ligature crosses the sciatic notch and over the buttock, to meet its fellow above the crest. The tendency to slip down the limb is prevented by the hand of an assistant embracing the bandage. Mr. Lloyd quoted seven cases, three of which were amputation through the hip-joint, in which this method had been employed with every success. The advantages claimed for this plan are that it is so simple that no special skill is required to apply it, that no injury is done to the abdominal or pelvic contents; that it controls, without stopping, the

hæmorrhage at a point nearer to the seat of operation than does any other plan now in force.

ACADEMY OF MEDICINE IN IRELAND.

MEDICAL SECTION.

A MEETING was held on January 19th, Dr. William Moore, President of the College of Physicians, in the chair.

Living Specimens.

Mr. A. H. Benson exhibited a case of Hard Chancre on the Upper Eyelid; and Dr. J. Magee Finny, a peculiar case of Vesiculo-tubercular Disease of the Skin of eighteen years' standing.

Specimens exhibited by Card.

Dr. A. W. Foot exhibited drawings of Facial Chromidrosis; Dr. H. Kennedy, Urinary Calculus; Dr. C. I. Nixon, Aneurism of Arch of Aorta obliterating Arteria Innominata; Dr. H. C. Tweedy, Heart showing Vegetations on the Mitral and Aortic Valves; and Dr. F. J. B. Quinlan (1), Bacillus of Tubercle in Sputum, and (2), Bacillus of Tubercle in Lung Tissue.

Empyema, with Notes on Antiseptic Fluids and Drainage-tubes

Dr. Richard A. Hayes first read a paper on a case of Empyema treated by the Radical Method, with notes on some antiseptic fluids employed. After some observations, pointing out especially the great danger of producing general anæsthesia in cases of intended operation on large fluid effusions in the thoracic cavities, he mentioned the particulars of the case. A man, aged twenty-two, was the subject of right empyema of eighteen months' standing, with severe hectic and wasting. On his admission to Stevens' Hospital, the pus was thrice removed by aspiration, and the cavity washed out with carbolic solution without effecting a cure. An intercostal incision was then made and a large cannula introduced, the pus draining away into pads of oakum placed over the opening and the cavity washed out daily with antiseptic solution by means of an elastic catheter. The case progressed favorably, with the exception of a few complicating circumstances, and the patient was ultimately discharged and went to the country, a sinus only remaining unhealed. During the treatment of the case the following washes were used:—1 per cent. oil of eucalyptus, 2 grains; 1 ounce, or less than $\frac{1}{2}$ per cent., carbolic acid; 2 per cent. boracic acid; and 1 per cent. salicylic acid. A careful record of the morning and evening temperatures having been kept, the results obtained from the use of the different antiseptics were as follows:—Oil of eucalyptus (1 per cent.), morning temperature 98.8° F.; evening temperature 100.4°. Salicylic acid (1 per cent.), morning temperature 98.3°; evening temperature 99.5°. Boracic acid (2 per cent.), morning temperature 98.2°; evening temperature 99.4°. Carbolic acid ($\frac{1}{2}$ per cent.), morning temperature 97.8°; evening temperature 98.7°. The foregoing temperatures are averages, the periods of observation being carefully selected so as to be free from complicating influences which might affect the fever curve. During the entire of the later stages of the case, carbolic acid wash was used, and the temperatures were uniformly identical with the result of observations in the early stages. The results, therefore, showed a marked advantage as regards the hectic obtained by the use of an exceedingly dilute solution of carbolic acid. That the carbolic acid had this distinct effect was proved by a trial irrigation of pure water, an even temperature of 100° following its use.

Dr. Purser then described a case of Left Empyema. The patient was a ship's steward, aged thirty. The disease was at first latent; but after nine months he was admitted into hospital, when he was tapped, and subsequently a drainage-tube inserted. His condition continued satisfactory for some months, when severe fever supervened, at first of a hectic character, but soon becoming continuous. Death ensued about three weeks from the commencement of the febrile symptoms. The compressed lung was found to contain air, and to have maintained its vesicular structure unimpaired. The cavity of the left pleura was much diminished. There were three wedged-shaped embolic patches in the spleen, which were softened and purulent. There were no other evidences of pyæmia. Professor Purser directed attention to (1) the prolonged latency of the disease, and to the slight distress, notwithstanding the compression of the lung and the displacement of the heart, which beat in the right axilla; (2) the advantages and disadvantages of different kinds of drainage-tubes in facilitating discharge, and preventing putrefaction; (3) the aseptic fever in the sense of Volkmann and Genzmer, from which the patient suffered at intervals, as contrasted with the septic fever from which he died; and (4) the apparently slight injury done to the lung by the prolonged compression from the effusion.—Dr. Bennett called attention to the risk of injecting the pleural cavity at an early stage, when fever and dyspnoea were present. He advocated a local anæsthetic and the use of the spray in the radical treatment of empyema.—Dr. Finny corroborated Dr. Purser's statement as to the entire absence of fetidity of the discharge during the time the patient was under his care, as well as at the post-mortem examination. Three weeks before death, the initial period of the fever, much pain was complained of in the left hypochondrium, and marked the occurrence of the embolic infarctions of the spleen. Fetidity of the pus was not induced by the use of a simple rubber tube unprotected by any antiseptic; and it was a question for consideration if a period did not arise in the course of such cases when antiseptics might with safety be dispensed with.—Dr. C. Nixon advocated tapping in cases of empyema instead of at once employing the radical treatment. He detailed a case in which the latter operation was performed without the spray, and as the fluid next day became fetid he washed out the cavity with good results.—Dr. W. G. Smith disputed Dr. Hayes' conclusions as to the advisability of washing out the pleura with antiseptics, basing his opinion on the ground that the periods of trial by Dr. Hayes were too short, and that fluctuations of temperature in cases of empyema were common.—Mr. Edward Hamilton corroborated Dr. Hayes' view on the advantage of washing out the pleura with carbolic lotion.—Dr. Hayes, in reply, said he was fully cognizant of the danger of using injections, but that the object he had in view was to induce a healthy condition of the pus-secreting pleura, and that the lowering of the temperature in his case was directly due to the use of carbolic acid.—Dr. Purser considered that the only circumstance which justified washing out the pleura was where the discharge was fetid, and continued fetid for some time.

SUBSECTION OF ANATOMY AND PHYSIOLOGY.

The opening meeting of the Subsection of Anatomy and Physiology was held on Feb. 1st, the President of the Section, Dr. Alexander Macalister, F.R.S., occupying the chair.

Exhibition of Specimens.

Dr. D. J. Cunningham exhibited frozen sections

of various parts of the human body. Dr. P. S. Abraham exhibited (1) a specimen illustrative of the occurrence of two Superior Venæ Cavae in the human subject, and (2) sections of certain Tissues in lower animals. Mr. T. F. Knott exhibited (1) section of human Hair-follicles, demonstrating the connection of Henle's and Huxley's sheaths; (2) Frog's Nerve, showing Lautermann's notches; and (3) termination of Nerve in Frog's Muscle, showing Bremer's "End-dolde."

The President's Address.

Dr. Macalister delivered an address on the History of Anatomical Research in Ireland. Beginning with the ancient Irish medical literature of the tenth and fourteenth centuries, whose anatomical knowledge is borrowed from classical sources, he sketched the progress of teaching and of investigation, touching on the researches of Mullen, Molyneux, O'Halloran, in the seventeenth and eighteenth centuries, and those of Macartney, Colles, and their successors in the present century.

The Refractory Period of the Auricle of the Heart.

Dr. Purser gave the results of some new experiments which he had made on local electrical stimulation of the different portions of the frog's heart. It was found that for the sinus, the auricle, and the ventricle, the law held good that each of these parts is insensible or refractory to single induction shocks during its systole, while, if stimulated during its diastole, it responded by an extra contraction, followed, in the case of the sinus, by a contraction of the auricle and ventricle; in that of the auricle by the contraction of the ventricle. Some observations were made on the circumstances which influenced the rapidity with which the contraction of the ventricle follows that of the auricle. Dr. Thornley Stoker called attention to the extreme practical importance of Dr. Purser's results in explaining how the murmur of mitral stenosis may be sometimes pre-systolic and sometimes post-diastolic.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.

At the meeting of this Society on March 1st (Mr. B. Walker, President, in the chair), Dr. Law showed the morbid specimens from a case of Disease of Aortic and Mitral Orifices, where an ossified cystic kidney was found post mortem on the left side. There were no symptoms indicating the condition during life. Dr. Law referred to the rarity of the case, and in answer to a question, remarked that authorities were divided as to whether the kidney was really ossified or simply infiltrated with calcareous plates.—Dr. Law also exhibited a specimen of Cancer of the Pylorus. The cancer was of enormous size, involving quite two-thirds of the pyloric end of the stomach. Dr. Law remarked on the difficulty of diagnosis during life, owing to the absence of symptoms, vomiting being absent for weeks before death, though solid food—e.g., rabbit, was daily partaken of. Hæmorrhage was absent, and pain was, as a rule, slight. The growth had been examined microscopically, and was found to be of well-marked sarcomatous character.

A patient suffering from Charcot's Disease, from Dr. Bartolomé's wards at the General Infirmary, was introduced by Mr. C. Atkin. He was aged forty-seven, and had had for four years lightning pains, ataxic gait, and billous attacks. Last September a well-marked gastric crisis compelled him to keep his bed for several weeks, and on attempting to get up he found that the right knee was swollen, and that he could put no weight on the

limb. On admission into the infirmary the limb was found swollen and helpless, and the tibia and fibula were painlessly dislocated backwards. Mr. Atkin alluded to Volkmann's statement that tabetic arthropathy is really traumatic, and due to the awkward movements of an ataxic patient; and after mentioning the diagnosis between this disease and osseo-arthritis he referred to syphilis as the prime cause, an opinion held by Erb, Gowers, Westphal, Buzzard, and Fournier, though opposed by Leyden and Lancereaux. The bladder symptoms in this case were interesting and peculiar, the urine not flowing readily away through the catheter, but being jerked out by the movements of the diaphragm. The Argyll-Robertson pupil was said to be present, but there was no optic atrophy, the latter condition, according to Dr. Gowers, only occurring in 15 per cent. of ataxics. No case, it was said, with the tripod of symptoms—viz., lightning pains, Westphal's test, and Argyll-Robertson's pupil—had ever been known to recover. The prognosis of the state of the knee was bad, as it came under the class that M. Charcot called "malignant."

Dr. Gwynne read a paper on Infantile Paralysis. After a short historical sketch of the disease, he dwelt upon the pathology of the affection as far as it had been ascertained. He drew a comparison between the symptoms and pathology of this disease with those of progressive muscular atrophy, and suggested the possibility that they were not so closely allied as Charcot endeavored to prove. As regarded the initial fever that ushered in the symptoms, he gave it as his experience that it was rather the exception than the rule. He regarded the etiology of the disease as still very obscure, and thought it probable that many of the cases considered under the common title of infantile paralysis belonged to distinct lesions, and ought to be differentiated. He did not think treatment had much to do with the result; but at the same time thought all the means recommended should be employed, especially dwelling upon the use of galvanism and keeping up artificially the heat of the parts affected. He recommended the galvanic current to be first used, and afterwards, when the limb responded to the faradaic current, that it should also be employed. He generally employed from ten to twelve cells or even more, the positive pole being applied to the spine at or above the seat of supposed lesion and the negative to the limbs after the labial method. The use of injections under the skin of ergotine, strychnine, etc., he had no experience of.

MEDICAL OFFICERS OF HEALTH SOCIETY.

Infectious Disease Hospitals.

At a meeting of this Society, on March 16th, Dr. J. W. Tripe, President, in the chair, a discussion took place on some of the "practical recommendations of the Commissioners appointed to report on hospitals for infectious diseases."—The president said, in opening the discussion, that he believed, from the resolutions already passed at a meeting of the Society, they were all of opinion that the provision of hospital accommodation for persons suffering from infectious diseases should be disconnected from the Poor-law administration, and he should not make any remarks concerning this recommendation. It had been inserted merely to show that, although it was proposed that the Asylums Board, somewhat modified by members elected by the vestries and district boards, should take charge of the sick, it would not be as a part of the Poor-law work. As regards the second re-

commendation, to the effect that the certificate of disease shall be sent to the medical officer of health, who is to satisfy himself that the patient can be isolated at home, and, if not, shall notify the case to the Metropolitan Asylums Board, who will take charge of the patient, he thought a very onerous duty was cast upon the medical officer of health. If he had personally to satisfy himself as to that fact, in a district such as that of Hackney, it would lead to so great a delay in the removal of the patient as to be very injurious to him and would also prevent other necessary work being done; besides which, it might lead to so great a conflict with medical practitioners generally as to bring matters to almost a deadlock. In the event of any legislation on the subject, the meaning of this would have to be more clearly defined. He thought that, as the Metropolitan Asylums Board, as newly constituted, would no longer be connected with the Poor-law authority, and would be bound to provide for all cases, the least complicated method of carrying out the removal of the sick would be for the Board to be required to remove all persons who were certified to them by any registered medical practitioner as suffering from an infectious disease. This would be much better than forwarding the certificate to the medical officer of health, addressed to the offices of the local authority. Of course the notice of disease would have to be forwarded to the local authority, but this duplication of work by the medical practitioner would not be of much moment. Dr. Tripe thought also that the plan would cause less friction with medical practitioners, as the person giving the certificate would be responsible for the correctness of the diagnosis, instead of placing the medical officer of health in the position of a judge on that point. It would also be necessary to have the power of the medical officer of health as to compulsory removal somewhat strictly defined, as he did not think that at present the public would be inclined to place him (the medical officer) in the position of sole judge as to the necessity for this action. As to the third proposal—that if the sick person cannot be isolated by his friends, the medical officer of health will be bound to take all necessary steps for his isolation with power to clear the house of its inmates, and to require the revaccination of all occupants who are not otherwise protected—the President said that if this were done in a few cases, as he considered it might have to be, it would be necessary for the local sanitary authority to provide a kind of house of refuge, where those who were removed could remain until the sick person had recovered. This might be costly in those cases where the breadwinner was attacked, as the family might have to be maintained in the quarantine-house until he died or was sufficiently recovered to be removed. As to the power to require revaccination, there can be no doubt that it should be possessed by the medical officer of health.—The discussion was continued by Dr. Bristowe, Dr. Browning, Dr. Corner, Dr. Dudfield, Mr. Lovett, Dr. Rogers, and Mr. Shirley Murphy.

Editorial.

THE ATTENUATION OF VIRUS.

THE value of the tentative attitude of the scientific mind towards the whole subject of bacterial pathology has been at no time more apparent than at present. There is much contention, especially, in that department which deals with the attenua-

tion of pathogenic bacteria. Toussaint had shown that anthrax blood lost its virulence when treated with carbolic acid or exposed to a temperature of 55° C.; but to Pasteur belongs the great merit of having demonstrated that the bacilli themselves may become changed and attenuated, and, further, that the new functions which they thereby assume are capable of being transmitted. The alleged capability of the spores of certain bacilli to resist the destructive influence of various powerful agencies, although an altogether different and almost perfectly opposed notion to the one with which we are engaged at the present moment, is brought prominently before the mind, because attenuation of virus suggests a practicable way out of a practical difficulty, and at the same time an explanation is afforded which may more or less satisfy the theoretical side of the question. When we speak of the attenuation of a formed micro-organism we mean that such bacilli may become changed in respect of their physiological properties, but not in respect of their apparent morphology; and this is a principle which is fraught with important suggestions for the welfare and progress of hygienic science. It is a generalization supported by innumerable examples that in nature the function precedes the structure. Perhaps from a *a priori* reasoning we should come to the conclusion that the one is coetaneous with the other; but so far as we have yet gone, direct observation has been unable, possibly because of the imperfection of our powers of investigation, to support that notion.

Koch has maintained, in his reply to Pasteur on anthrax vaccination, that, as to attenuation in general, he is unable to find evidence of its occurrence for any other virus than that of anthrax. If we recognize the grand principle of attenuation of virus as resting on a sufficiently firm basis, we are hardly yet in a similar satisfactory position as to the *rationale* by which such modification is brought about. As everyone knows, M. Pasteur seeks the explanation of this pregnant fact in the oxygen of the atmosphere, and the process is an essentially chronic one. Koch does not concur in the hypothesis put forward by Pasteur, but thinks that all the evidence at present adduced goes to show that the real agent is a high temperature. It is also regarded by Koch as probable that chemical influences and various other conditions may have the faculty of attenuating the virus. In this connection some remarkable investigations made by M. Chauveau, and recently published in the *Lyon Médical*, are deserving of interest. The method adopted consisted of two chief stages; the virus used was the blood from cases of charbon. Vessels containing sterilized *bouillon* were inoculated with some fresh anthrax blood containing bacilli. These vessels were then placed in a chamber kept at an even temperature of 42° to 43° C.; just as in the method adopted by Pasteur, but instead of allowing the fluids to remain there for twelve days, they were removed at the end of

about twenty hours, whence they were placed in another hot apparatus kept at a temperature of 47° C. At this temperature the fluids remained for periods varying from one to four hours or more. The process was then finished. The vitality of the virulent agents was not destroyed, but they had been rendered more or less harmless, according to the duration of the exposure to the greater heat to which they had been submitted. The first part of the experiment corresponded to the period of proliferation of the virus. The treatment in the second stove did not alter the external appearance of the cultures. The multiplication of the filaments and rods was suspended, but the formation of rudimentary spores was not prevented—on the contrary, their multiplication seemed to be favored, or if they were not present, they appeared. Chauveau claims that by this method the attenuation may be graduated at will. This was proved by inoculation experiments on guinea-pigs. Animals vaccinated with the fluid which had not been exposed to the higher temperature invariably succumbed in forty-eight hours, with considerable local œdema. Those inoculations with liquid which had been submitted to the heat for one hour invariably produced fatal results, but the time required was longer. And so forth with the remaining experiments. Chauveau has further demonstrated, what Pasteur had already proved, that the attenuated bacilli could be transmitted. In other words, cultivation of the modified micro-organisms through several generations failed to restore the virulent properties. The discovery of the principle of attenuation is a boon to mankind, not only from the possibility of protective vaccination, but also because it would seem to point out the road whereby we may render harmless those agents which seem to be incapable of positive destruction. It is possible that our disinfecting stoves only attenuate, and do not destroy, the dangerous germs.

GERMS IN THE AIR.

THE efforts of Pouchet to demonstrate the number and the nature of the particles which are constantly floating in the air, as well as the proofs afforded by M. Pasteur that various zymotic diseases, as the cholera of fowls, splenic fever, septicæmia, and others, are of a parasitic nature, have been followed up by M. P. Miquel, who has published his researches in the *Annuaire de l'Observatoire de Montsouris*, near Paris, and a good résumé of them appears in the *Revue Scientifique* for March. In his experiments M. Miquel has employed a slight modification of Pouchet's aeroscope, which consists essentially of an inverted funnel, through which the air is drawn by an aspirator, having a slide covered with glycerine or other sticky material, placed opposite its narrow end, the whole being enclosed in an air-tight case. He first endeavored, by making hourly experiments throughout the day for several years, noting at the same

time the concomitant and antecedent meteorological conditions, as the dryness or humidity and the temperature of the air, the influence of the seasons, and the like, to determine the laws which govern the appearance of the spores of various cryptogams in the air. The results he has obtained are: that the number of such spores diminishes in March and rises in April, it increases to a marked extent in May, and attains its maximum in June. It then slowly decreases to October, but is still considerable in November, and the minimum is reached in December. In the locality of the observatory in which the experiments were made, it appears that, speaking generally, a cubic metre of air contains 7,000 spores of fungi in the months of December, January, and February, 12,000 in May, 35,000 in June, 23,000 in August, 14,000 in October, and 8,000 in November. If, however, instead of taking the average of several years, the successive periods of the same year are taken, the same order and regularity are not always preserved. Thus, the number of germs may diminish, notwithstanding that the temperature rises. In such case the effect is masked by that of another factor, the hygrometric condition of the air. This is only in accordance with what is generally admitted—namely, that the development of fungi is in relation with the varying conditions of heat and moisture, but it is remarkable that the influence of moisture differs with the seasons—that is to say, according to the temperature. In summer, for example, dryness lowers the absolute number of spores; in winter or the cold period, on the contrary, the number rises with dryness of the air. Humidity of the atmosphere produces opposite effects at these periods. Storms occurring during fine weather are followed by a great increase in the number of the spores. Heavy rain purifies the air for a very short time only, for it was observed that in from fifteen to eighteen hours after rain the spores became from five to ten times more numerous than before. Particles of mineral dust and many other kinds of microbes in great measure disappear until the evaporation of the moisture has taken place, enabling them to adhere to foliage and to the surface of the soil.

M. Miquel remarks that the employment of aeroscopes by means of which the existence of the germs of fungi which are injurious to the cereals can be demonstrated in any locality might prove of signal service to agriculture by showing their place of origin and enabling them to be destroyed. From a similar point of view the discovery of the existence of the spores of tinea, of diphtheria, or other contagious diseases in the air might serve to explain obscure and inexplicable circumstances connected with their development and extension. It is impossible to suppose that 300,000 spores can be introduced by the act of respiration into our bodies every day without some being of a noxious character.

The number and even the existence of bac-

teria are points much more difficult to determine, since their minute size renders them almost, if not in many instances altogether, invisible, and it is still more difficult to obtain and to cultivate specimens unassociated with other forms. M. Miquel has invented apparatus of various kinds of which drawings are given in the *Revue Scientifique* for the cultivation of bacteria. He finds that at the beginning of storms rain contains a considerable number of bacteria—fifteen, for example, in a cubic centimetre. This number soon diminishes, but at the expiration of two or three moist and rainy days it often contains more bacteria than at first. Now, as the air is at this time very pure, it would appear that the bacteria can live and multiply in storms, or rather perhaps that during storms the air and moisture of the air can charge themselves as they traverse space with a contingent of germs of very variable nature. At Montsouris, 100 rain-bacteria include 28 micrococci, 63 bacilli, and 9 bacteria; and there appear to be about 80 bacteria in a cubic metre of air. The greatest number is present in autumn, the smallest in winter. The distribution of the microbes in Paris indicates that they proceed from the mud of the streets and from the houses. Thus a cubic metre of air contains 28 at the top of the Panthéon, 45 in the Park of Montsouris, and 462 in the Town Hall of the 4th arrondissement. M. Miquel gives a diagram showing the influence of the prevailing wind on the number of microbes. In this the north wind is credited with 124 microbes, the south with 42, the east with 130, the west with 77, the north-east with 152, the south-east with 74, the south-west with 58, and the north-west with 108. The most impure air, therefore, which blows over Paris comes from the hills of La Villette and Belleville. The extraordinary quantity of microbes contained in water, and especially in sewage water, is shown by M. Miquel in another table, in which he gives the numbers contained per litre—first of the vapor condensed from the air, which contains 900; rain-water, which contains 64,000; water of the river Seine at Asnières, 12,800,000; and sewage at Clichy, 80,000,000. And these numbers, he remarks, are minima, and obtained from the current. As soon as the water becomes stagnant the number rises a thousandfold. Investigations such as these reflect great credit on those who undertake them, and deserve to be repeated in every large city.

THE WORK DONE UNDER THE CONTAGIOUS DISEASES ACT.

THE abolition of compulsory examination of women, and of its necessary sequel, compulsory detention, by the recent vote of the House of Commons, is so important from the hygienic point of view that we have summarized the results that have been obtained since the passing of the Contagious Diseases Acts, so that advocates of a voluntary system like Mr. Childers may be under no

misapprehension as to what voluntary efforts must do in order that they may efficiently take the place of the compulsory clauses.

The advantages claimed by the supporters of the Acts are (1) the prevention of disease and the diminution of its severity in the Army and Navy and among the prostitutes in the places to which the Acts apply, and (2) social improvements in the districts under the Acts dependent on their administration. These social improvements are a reduction in the number of brothels and prostitutes, an improvement in the character and conduct, and a large reclamation of prostitutes generally, and of juvenile prostitutes particularly. The deterring influence of the compulsory clauses on young girls tempted to pursue a vicious life must also be taken into consideration. The number of cases per 1,000 of primary venereal sores admitted to hospital from the regiments stationed in the districts under the operation of the Acts has diminished from 91 in 1867 (the year in which the Acts were first applied), to 35 in 1877, and to 40 in 1878, when the Reserves were called out. Even if we exclude the years since 1873, when Lord Cardwell's order stopping the pay of soldiers in hospital with primary venereal disease came into force, we find that the proportion per 1,000 had fallen to 50. If we compare with these results those obtained from all stations which have never been placed under the Acts, we find that, instead of a continuous and regular fall, we have a fluctuating and irregular decrease from 101 in 1867 to 81 in 1873, 68 in 1877, and 88 in 1878. The large increase in the last-mentioned year is especially suggestive and noteworthy; for whilst 5 per 1,000 is the increase attributable to the Reserves in the protected districts, no less than 1 man in every 12—Reserves and regulars—must have contracted the disease in the unprotected districts. We would particularly call the attention of the advocates for repeal to this fact, as shown at page 5 of the Minority Report drawn up by Mr. Stansfeld. The daily saving in the efficient strength of the Army attributed to the operation of the Acts is calculated by Inspector-General Lawson to amount to 258 men in fourteen places under the Acts only—viz., Devonport, Portsmouth, Chatham, Woolwich, Aldershot, Windsor, Shorncliffe, Colchester, Winchester, Dover, Canterbury, Maidstone, Cork, and the Curragh. From the Army Medical Department Report for 1878, we find that 40 per 1,000 were admitted to hospital for primary venereal sores, while 131 per 1,000 were admitted from fourteen stations not under the Acts, although the average strength in the former stations was 55,813 against 20,749 in the latter. The number of registered prostitutes has diminished from 2,650 in 1870 to 1,879 in 1880, and this decrease has been fairly uniform; and the amount of disease checked by compulsory periodical examination—the vital part of the legislation—may be estimated from the following statistics of the ratio of cases of disease per 100 examinations

made by the visiting surgeons, copied from the Report for 1880 of the Assistant Commissioner of the Metropolitan Police:—

1865—76·24 1869—13·90 1873—7·62 1877—7·40
 1866—66·40 1870—8·19 1874—6·97 1878—7·65
 1867—59·20 1871—7·55 1875—6·26 1879—8·05
 1868—39·77 1872—8·40 1876—6·41 1880—8·75

A reduction from 76 per cent. in 1865 to 7 and 8 per cent. during the past ten years is thus shown. The consequences to the health of the community of such a diminution must be so evident to every one, that even though he may be prejudiced against the Acts on other grounds, he will be amazed at the recklessness of the Legislature in vetoing the compulsory clauses, and, by removing the one essential condition on which their benefit depends, practically repealing the Acts. Their value in the prevention of disease is shown, not only by this reduction, but by checking much of the disease that is imported into the districts from places outside the Acts; for in 1877 61·3 and in 1880 66 per cent. of the women who were known to have come into the protected districts from outside places were found to be diseased on their first medical examination. It is in detecting these cases that the compulsory clauses are especially valuable, and we fail to see how any substitute for them can be found. In two years only, 786 diseased prostitutes have been stopped from pursuing their career by being compelled to undergo a medical examination, and surely anyone who is acquainted with the ravages of syphilis, and its remote effects upon, not the individuals only, but their descendants, must see herein an ample justification for restraining the civil liberty of the subject. We shall refer to the social improvements due to the administration of the Acts in another article.

WHITE LEAD POISONING.

STRINGENT measures must be adopted to stop the wholesale poisoning caused by neglect, or the inadequate enforcement, of precautionary measures among the workers in white-lead manufactories. The matter is assuming very grave proportions, and there is little doubt but that the evil is greatly on the increase. We have before us a copy of communications addressed to the Secretary of State, joined to a report by Her Majesty's Chief Inspector of Factories, upon the subject, and which has been presented to both Houses of Parliament. These communications reveal a state of affairs that is simply appalling. In one metropolitan union alone we learn that in twelve months no less than thirty cases had been admitted into the workhouse infirmary suffering from white-lead poisoning. When we reflect that this only represents a small proportion of cases—chiefly those disabled by the disease, and who have received more or less permanent injury from the effects of the poison, and does not include the acute cases which are treated at the hospitals and dispensaries of the district—

(6)

the extent to which the injurious action of lead on the operatives engaged in its manufacture can be imagined. We have already dealt fully with this subject, and have expressed our opinion that a complete remedy is the carrying out in a most stringent manner the precautionary measures which have been shown again and again to be a sufficient protection against the introduction of lead into the system. The Commission we appointed in 1874, to inquire into the influence that certain chemical manufactures had on the health of the operatives engaged, found that the proportion of cases at the various manufactories varied considerably. In those where rules were framed and the provisions contained in them insisted on, the cases of plumbism were infrequent, limited generally to acute cases among new hands, who were not acquainted with the dangers of their occupation and had not learned to appreciate the value of the protective measures enjoined. In some of the best managed factories our Commissioners found workpeople who had been twelve, fifteen or eighteen years continuously working in white lead without exhibiting a trace of deposit on their gums, and who had never suffered in the slightest degree from plumbism. What can be effected in one or two establishments may be done in all. It is only a question of expense, and the choice is whether the cost falls on the manufacturer in providing the necessary appliances and machinery for the adoption of preventive measures, or on the ratepayer for the maintenance of the poor wretches paralyzed from the effects of this deadly trade. If the manufacturer were made responsible for the maintenance and expenses of treatment of all cases of plumbism originating in his workshop, we should speedily find the disease diminishing.

Reviews and Notices of Books.

The Voyage of H.M.S. "Challenger." Zoology, Vol. IV. Prepared under the Superintendence of the late Sir C. WYVILLE THOMSON, and now of JOHN MURRAY. Longmans & Co. 1882.

[FIRST NOTICE.]

THIS volume commences with a brief account of the life and labors of Sir Charles W. Thomson, who, though he had attained to very high eminence for his scientific work, died at the early age of fifty-two. He was elected to fill the chair of Botany in Aberdeen at a time when most men are still engaged in learning the rudiments of their profession; at twenty-three he went to Cork as Professor of Natural History; in 1854, when still under twenty-five years of age, he was appointed Professor of Mineralogy and Geology in Belfast, and shortly after Professor of Natural Science. He took part in the *Porcupine* and *Lightning* expeditions, and subsequently was the head of the *Challenger* expedition, on his return from which, in 1876, he was knighted. He received many honors from home and foreign Societies, and after a severe illness in the summer of 1879, died at

Bonsyde, near Linlithgow, in 1882. A list of upwards of forty of his principal publications is appended to the memoir.

The contents of this volume are: (1) A Report on the Anatomy of the Petrels (Tubinares), by W. A. Forbes. (2) Report on the Deep Sea Medusæ dredged during the voyage, by Ernest Haeckel. And (3) Report on the Holothurioides, Part I., by Hjalmar Théel.

The account of the petrels, by Mr. Forbes, whose long silence since his arrival in Western Africa is beginning to cause much anxiety to his friends, contains much new information, for, as the author observes, the group of petrels has scarcely been examined anatomically, partly owing to their rarity, and partly to their peculiar habits, which prevent their being readily obtained, either dead or alive. The majority of the group inhabit the little-visited oceans and islands of the Southern hemisphere, and are only known from skins or skeletons, the great size of many of them rendering it impracticable for any ordinary collector to bring their bodies home. Professor A. H. Garrod, who, at the time when the organization of the *Challenger* expedition was being completed, was Prosector of the Zoological Society, recommended that special attention should be paid by the staff of naturalists to the formation of a collection in spirit of these oceanic birds, and though he unfortunately did not live to investigate their structure, a very large collection of these birds has been obtained, and their examination and description have fallen into good hands. Mr. Forbes appears to have had seventy-four specimens, belonging to twenty-two different genera, for examination, and has aimed, not at giving a detailed description of the structure of any particular petrel, but at describing the most important deviations from the ordinary Avian type, and to compare the members of it with each other and with other groups of birds in those points of their structure in which experience has shown birds to differ from each other.

The order Tubinares derives its name from the peculiar prolongation of the external nares into a cylindrical tube lying on the dorsal surface of the beak, and opening by one or two apertures. In the Oceanitidæ and smaller species of Procellariidæ, the nasal tubes quite coalesce, in the former presenting a circular aperture with scarcely any median septum, when looked at in front, whilst in the Procellarian genera it is oval and distinctly double. The legs are always bare of feathers for some distance above the tarsal joint, and the scutellation of the tarsi presents minor peculiarities in the two sub-orders. The hallux is always small, and quite absent in Pelecanoides. The pterylosis, or disposition of the feathers, seems to be on the whole very uniform. The ordinary number of the rectrices is twelve, though in *Ossifraga* there are sixteen. The number of primary remiges is always ten, but that of the secondaries varies. The form and arrangement of the stomach and intestines present several peculiarities, and are very similar throughout the group. The mucous membrane of the palate presents several longitudinal rows of pointed retroverted papillæ. The palate is cleft for about half its length by a narrow median fissure, fringed with small spines, and dilating behind into the opening of the posterior nares, and behind this is the linear opening of the Eustachian tubes. From the fore part of the median fissure a sharp median ridge runs forward with four or five strong conical spines on its posterior part. Other spines are found on the sides of the palate. The tongue is sometimes, as in *Ossifraga*, of considerable size, and more or less covered with spines, the oesophagus capacious and distensible, but without

a crop. The proventriculus is very large, reaching nearly to the posterior extremity of the abdominal cavity, and lying to the left side of the stomach and the mass of intestines; it opens by a slight aperture into the stomach or gizzard. This is small, globular, and muscular; it was nearly always found full of the horny beaks of Cephalopoda. The duodenum presents a peculiar upward curve to the right. The intestinal cæca are absent in the Oceanitidæ, but present, though small, in Procellariidæ. Mr. Forbes mentions and illustrates many peculiarities of the myology of these groups. The pectoralis primus is very large and divisible into two layers, as in many of the storks; the other pectorales are large, as might be anticipated from the powers of flight possessed by these birds. The biceps are small and peculiarly modified, the coracoid head alone forming the muscle proper, the humeral head going entirely to the tensor patagii longus tendon. The deltoid and glutei muscles are short and small. The tensor patagii brevis and longus are specially modified in the different species. Mr. Forbes gives a careful description of the different forms of the trachea and syrinx in the different species, the peculiarities being illustrated by many woodcuts. A short description is given of the osteology. He entirely agrees with the propriety of Professor Garrod's division of the entire order of Tubinares into two main families of Oceanitidæ and Procellariidæ, the distinctive features of which he carefully sums up. This report is illustrated by seven plates representing respectively the beak and feet, the alimentary canal, the muscles (three plates), the skull, and shoulder girdle, all excellently drawn.

The Diseases of the Prostate; their Pathology and Treatment. Comprising the Jacksonian Prize Essay for the year 1860. By Sir HENRY THOMPSON, Surgeon Extraordinary to H. M. the King of the Belgians, etc. Fifth Edition. London: J. & A. Churchill. 1883.

THE result of Sir Henry Thompson's experiment in the publication of the last edition of his *Clinical Lectures* in a cheap form has been such that when a new edition of his work on *Diseases of the Prostate* was called for, he determined to issue it in the same cheap form, at one-fourth of its former price. The work has been thoroughly revised, and the results of the author's more recent experience have been incorporated in it. The most notable addition is a chapter in which two operations for the relief of cases of Prostatic Hypertrophy, with very irritable and contracted bladder, necessitating the very frequent use of the catheter, are described. These operations are opening the bladder above the pubes, and opening into the membranous urethra in the perineum. Sir Henry Thompson now practices the latter operation, and speaks very highly of the excellent results it has yielded in his hands in this very troublesome and painful form of disease. The last chapter, on the Relation between Hypertrophied Prostate and Stone in the Bladder, is considerably modified; far less than formerly is said about the treatment of phosphatic concretions by solvents, "so greatly has the mechanical process of removing calculous matter in any form been improved." In the previous edition of 1868 Clover's bottle is described, and as the result of using it "not less than two hundred times," Sir Henry Thompson states that "it is necessary to use all such apparatus with extreme gentleness, and I prefer to do without it if possible, as its employment is quite as irritating as a sitting with the lithotrite. Repeated in-

jections, which alter rapidly and considerably the size of the bladder, are always irritating to that organ." Now (1883) we read that Bigelow's operation "has been proved the most successful operation ever practiced in dealing with very large and hard formations." It is interesting to read in the 1868 edition the following piece of advice in relation to Clover's bottle: "It is scarcely necessary to remark that before using this instrument on the living subject, it is desirable to practice with it by extracting stone or coal from a basin of water." Why has this piece of wise counsel been withdrawn from the present edition? We do not find in this cheap edition all the beautiful engravings of hypertrophied prostates that appeared in the former editions, but there are some new woodcuts which perhaps are more useful.

Politzer's Text-book of the Diseases of the Ear and Adjacent Organs. Translated and Edited by JAMES PATTERSON CASSELLS, M.D., M.R.C.S. Eng.

Diagnosis and Treatment of Ear Diseases. By ALBERT H. BUCK, M.D., Aural Surgeon to the New York Eye and Ear Infirmary.

DR. POLITZER's manual, which is a large volume of 800 pages, and illustrated by 257 wood engravings, contains not only all that is common knowledge as to ear diseases, and most of the recognized methods of treatment, but in it may be found the author's opinions upon nearly every kind of treatment that has been recommended in the recent numerous contributions to this branch of surgery. Dr. Cassells has done good service to English readers by furnishing them with so excellent a translation. Although the illustrations of the membrana tympani are altogether diagrammatic, they will be readily understood by those who are in the habit of constantly examining this structure. Nothing can exceed the clearness with which every change that can be seen in the membrane is described, and this accuracy would be expected by those who are familiar with the writings of Dr. Politzer. The anatomy of the ear, the physiology of the sound-conducting apparatus, are most thoroughly dealt with, as also are the methods of examination and the various operative measures that are in daily use with the workers on the subject. The three divisions which are now recognized in affections which implicate the lining membrane of the middle ear are separated by a very definite line—viz., catarrh in which the mucous secretion is in excess; catarrh in which there is no increased secretion (the proliferous catarrh of some authors); and those cases in which the process of inflammation proceeds to the formation of pus with rupture of the membrane. On the subject of posterior nasal catarrh the dangers that may occur from the use of the nasal douche are insisted upon, but it is now probably well known to most aural surgeons that fluid used in this way to the nostrils may pass up the Eustachian tubes and excite inflammation in the tympanum. It is, however, to the chapters on the treatment of the various forms of catarrh that the reader will turn with the greatest interest. In the simple cases where secretion is in excess Dr. Politzer relies on repeated inflation with the Politzer bag, and astringent solutions applied to the pharynx. When there is abundant evidence of secretion within the tympanic cavity he says as follows: "I perform paracentesis of the membrana tympani in those cases in which, after the application for several days of the methods of treatment already described, no decrease of the exudation is observed,

and in which, even when no exudation is demonstrable, the improvement in hearing, the immediate result of inflation, disappears again almost entirely in two or three days. I also frequently perform the operation in those cases in which at the first examination the accumulated exudation is seen to be copious. For although in these cases a cure may be effected by inflation alone, the treatment will frequently extend over several weeks, while by means of paracentesis a complete cure may be accomplished in a few days. The great advantage of this operation lies, therefore, in shortening the duration of treatment." The direction of the incision, whether vertical or horizontal, he regards as unimportant, but the length should be sufficient to ensure a free escape, for the air is of course passed through the middle ear to expel the secretion of mucus. With regard, therefore, to the propriety of making an opening for the escape of what seems a mucous accumulation, Dr. Politzer would appear to be in accord with the practice of many aural surgeons, but when he comes to discuss the question of operations on the tympanic membrane in cases of disease of the middle ear which are not attended with increased secretion, although a complete description is given of probably every kind of operation that has been suggested and practiced, the impression that will be left on the reader is that the results are discouraging in the extreme. This will apply also to the section of the posterior fold of the membrana tympani which was suggested and practiced by Dr. Politzer himself as long ago as 1871. Of this he now says, that although a temporary improvement at times took place, "only in a very small number of cases have I observed an improvement in the hearing lasting for several years, and a permanent removal or diminution of the subjective noises." Probably few have had greater opportunities than Dr. Politzer of seeing patients who have either had, or are said to have had, the tensor tympani muscle divided, and he describes at great length the operation and varieties of the instruments that have been suggested for its performance. Then, after saying that the experience which has been gained in competent quarters is on the whole unfavorable to it, he concludes as follows: "Division of the tensor tympani is, therefore, one of those operations which not only are of but trifling use, but which sometimes also have a deleterious influence upon the functions of hearing." Altogether the opinions which Dr. Politzer expresses on the vexed questions in treatment may be said to accord with those which met with general approval when these subjects were exhaustively discussed at the recent International Medical Congress, in the section for Diseases of the Ear.

The same observation may be said to apply to the views which are expressed in Dr. Buck's "Diagnosis and Treatment of Ear Diseases," except in so far as regards the frequency with which he practices paracentesis of the membrane. Dr. Buck inclines to the belief that, with patience and the ordinary method of treatment, the cases are rare in which it is desirable to make an opening in the membrane for the evacuation of mucus. He also very strongly advises the frequent application of a saturated solution of nitrate of silver to the posterior nares and pharynx when these parts are affected with catarrh. Indeed he has for some years given up the use of any other astringent in this direction, and has obtained excellent results. Although a brief mention is made of the practice of other well-known otologists, Dr. Buck's book is rather an account of his personal experiences than a detailed treatise on the subject of aural surgery. A great number of cases are well reported, and the author's large experiences make

his book extremely interesting to those whose studies are of a similar nature. On the treatment of perforations of the membrane, Dr. Buck speaks very strongly in favor of the introduction of a weak solution of nitrate of silver into the tympanic cavity through the perforation by means of middle-ear pipettes. By these instruments (slender glass tubes, fitted with a small india-rubber ball at one end) a few drops of the fluid can be injected through the perforation. Before this is done the tympanum is carefully freed from secretion and dried, and when there appears to be much inspissated pus in the tympanum this cavity is washed out before drying. Dr. Buck regards this plan of treatment as "simply invaluable." By far the most interesting and instructive part of the book is the chapter on Diseases of the Mastoid Process, in which forty-eight cases are given where inflammation has involved more or less the mastoid bone. Several of these cases terminated fatally by cerebral abscess or meningitis, and they form a most valuable clinical record. The book will be especially attractive to those of our readers who are familiar with Dr. Buck's contributions to the Transactions of the American Otological Society.

The Essentials of Bandaging. With Directions for Managing Fractures and Dislocations, for Administering Ether and Chloroform, and for Using other Surgical Apparatus; and containing a chapter on Surgical Landmarks. Illustrated by 136 Engravings on wood. By BERKELEY HILL, M.B., F.R.C.S., Surgeon to University College Hospital, etc. Fifth Edition. Revised and enlarged. London: Smith, Elder & Co. 1883.

This excellent little work is so well appreciated by students, for whom it is especially intended, that we need do little more than notice the appearance of this new edition. Mr. Hill has made no alteration in the plan of the work, although he has made some useful additions, such as an account of Thomas's splints for the treatment of the disease of the hip and knee-joints, and Carr's splint for Colles's fracture. We notice also a brief description of the mode of using the ophthalmoscope, from the pen of Professor Tweedy, and a similar account of laryngoscopy, by Dr. G. V. Poore. A few new engravings have been added. The index is very complete. We are surprised to find that Mr. Hill continues to give so prominent a place to the treatment of dislocation of the hip-joint by pulley extension, while the reduction by manipulation is dismissed in only a few words. The description of the former is enriched with several engravings, while that of the latter has not one apportioned to it. And yet any surgeon resorting to pulleys before a thorough trial of manipulation would be seriously to blame. We notice that in speaking of the use of Davy's lever Mr. Hill states that the rod is to be pressed against the ischium of the sound side as a fulcrum. Mr. Davy makes the anus his fulcrum, and we should think this to be by far the preferable plan.

Ovarian and Uterine Tumours. By T. SPENCER WELLS. London: J. & A. Churchill.

The great experience which Mr. Wells has had in operating on the subjects of ovarian tumour—an experience larger than that of any other operator—must of itself render this volume of great value. The work is a new edition of the well-known work, "Diseases of the Ovaries." Ten years have passed

since the publication of the latter, and the progress made during that period in our knowledge of the physiology, pathology, and surgery of uterine and ovarian tumours is far greater than that made during any other period of equal length; and in a work with the comprehensive title of the one before us, by an author of such wide experience, we should expect to find a full account of the progress referred to. We have stated that the work is a new edition of "Diseases of the Ovaries," and we shall point out the main points in which it differs from its predecessor. Speaking generally, the arrangement of the subjects has been considerably changed, and in many chapters the order of sequence of paragraphs has been altered. Other important alterations have been made—matter has been added and matter omitted, and the result of the experience of the author during the last ten years has been incorporated. The first chapter of the former edition, treating of the anatomy and physiology of the ovaries and their appendages, has been omitted, and its place is taken by a very brief introduction. The chapter on the pathology and classification of ovarian tumours remains almost unchanged. The only alteration in it is the addition of the conclusions arrived at by Doran and Harris with regard to the origin of ovarian cysts, together with a reference to Leopold's observations on the transplantation of embryonic tissues. With this exception no reference is made to any of the work done in this department since the publication of Dr. Wilson Fox's memoir in 1864. The works of Sinety, Rindfleisch, Waldeyer, and Malassez are entirely ignored; and we cannot help feeling surprised at such grave omissions, and at the meagre and incomplete character of the account of this important subject.

The chapter on Diagnosis and Differential Diagnosis remains much the same as in the previous edition, with the exception of the part which treats of the chemical and microscopical character of ovarian fluids. This has been rewritten, and some recent observations have been incorporated.

In Chapter V. the Rise and Progress of Ovariectomy are discussed. Here Mr. Wells gives a fuller account of his early experience than in the former edition, and traces the early progress of ovariectomy in England, the European countries, and America, and the origin of antiseptics. The time has not yet come to write the history of ovariectomy (though this chapter of the book will form a valuable contribution to the subject), for some of the actors in the early days of the operation are still living. Mr. Wells performed his first ovariectomy in 1858, eighteen years after Charles Clay had begun in Manchester, and nearly as many after Frederic Bird began in London. We do not think that justice has yet been done to these and other early operators, whose work alone rendered possible the great success of Mr. Wells.

In the chapters on the Preparation of the Patient for Ovariectomy, etc., the operation of Ovariectomy, Treatment of the Pedicle, etc., there are some new points, such as the use of pressure forceps for controlling hæmorrhage, the antiseptic method of operating and treatment of the pedicle, together with a short notice of the accidents which may happen during the operation, such as fainting, injuries to viscera, and leaving foreign bodies in the peritoneum. Fifty-two pages of the book are occupied by a table of 1000 cases operated upon by Mr. Wells. Mr. Wells, at the beginning of his career as an ovariectomist, wisely resolved to publish every case upon which he operated, for at that time the operation was not generally accepted by the profession as a legitimate undertaking; but that time has gone by, and with it the occasion for the literal performance of Mr. Wells's resolve.

The operation has for years been one of the most successful of capital operations, and the publication of the table referred to can serve no useful purpose, for the information it contains is too slight to be of any great value.

In Chapter XV., under the title Recent Extensions of Ovariectomy, Battey's operation is discussed. Although this chapter contains some sound and valuable observations, yet in the seven pages of which it consists it is impossible to do justice to Battey's operation; indeed we cannot regard this chapter even as an attempt at a scientific discussion of the subject.

The chapter on Uterine Tumours consists of the remarks on the diagnosis of ovarian tumours from fibroid tumours of the uterus which appeared in the former edition, together with additional cases in which the operation for the removal of fibroid tumours of the uterus was undertaken.

The last chapter in the book is on Partial Amputation and on Complete Excision of the Uterus, and mainly consists of notes of a case (already published) in which Mr. Wells performed the Porro-Freund operation.

We must confess to a feeling of disappointment on coming to the end of this work—a work which appeared to promise so much about ovarian and uterine tumours—for we find in it very little about uterine tumours, and but an incomplete account of ovarian tumours, while there is a good deal concerning ovariectomy and the method of its performance. The work would have been more correctly entitled, "My Experience in Ovariectomy and other Operations." As the experience of a great ovariectomist we estimate the book highly, but we cannot regard it as a scientific treatise on ovarian and uterine tumours.

Lehrbuch der vergleichenden Anatomie der Wirbelthiere.

Bearbeitet von Dr. ROBERT WIEDERSHEIM, Prof. in Freiburg. Part I, pp. 476. Jena: Gustav Fischer. 1882.

Dr. WIEDERSHEIM states in his preface that the present work has been long in preparation, that he has endeavored to give in it a good *résumé* of the present state of the knowledge we possess in comparative anatomy, and that he intends it to be used by and to be useful for the student, the zoologist, and the physician. There can be no doubt that the wide extent of the field of comparative anatomy permits few even of those who are most familiar with the subject to give a general account of the structure and morphological characters of the animal kingdom. In English, for example, we have only two works that can be considered as even approaching the modern standard of knowledge in Comparative Anatomy of Vertebrata, and embracing the information obtained by recent inquirers. One of them is Mr. Huxley's work and the other that of Mr. Mivart, though the subject is given in some detail in Gegenbaur. In Germany the great work of Bronn progresses slowly—so slowly, indeed, that a second edition of the first volume is already appearing, long before the last parts of any of the higher classes are complete. In France M. Lanessan has just commenced a work on zoology and comparative anatomy, which promises well and is profusely illustrated; but on the whole it seems right that a sound and yet comprehensive work on these subjects by a master should appear. The present volume fulfils the purposes for which it was intended by its author very well. It deals, as the title implies, with the Vertebrata alone.

The plan adopted by Professor Weidensheim in this volume is that after a short general introduction he takes up successively the integument, the

skeleton, the muscles, the electric organs, and the nervous system, in the several classes of vertebrate animals, commencing always with the fishes, and rising in the scale through amphibia, reptiles, birds, and mammals, which has the advantage of enabling the student not only to follow the organ described in its gradually increasing or varying degrees of complexity, but in addition to compare it with its embryological development.

A careful study of this work would be an extremely serviceable introduction to that of human anatomy, by giving that kind of general knowledge which would familiarize the young surgeon with the broad outlines of his future work. The book is sufficiently illustrated, and the author seems to be familiar with foreign as well as German work.

The Year-Book of Pharmacy for 1882. Edited by LOUIS SIEBOLD, F.I.C., F.C.S. London: J. & A. Churchill. 1882.

THE Year-Book of Pharmacy is of such value as a work of reference that it is with much pleasure we record the appearance of this volume. During the past twelve months considerable progress has been made in the investigation of the characters and composition of some of our most valued alkaloids. If the actual synthesis of many remains as yet unaccomplished, signs are not wanting that the day is not far distant when this problem will be solved. Ladenburgh's continued researches in connection with the mydriatic alkaloids are of considerable importance. In addition to the artificial products known as tropeines he has succeeded in producing another series of analogous bases by the action of chlorohydrines on secondary amines, and these in turn yield other basic compounds resembling natural alkaloids in their composition and properties. The number of new alkaloids thus brought within the range of possibility appears to be unlimited, and opens up a wide field both for chemical and physiological research. Another subject of considerable interest, to which reference is made in this work, is the mutual relation of certain of the opium alkaloids. It will be remembered that not long ago it was announced that Grimaux had succeeded in effecting the conversion of morphia into codeia. Doubts were subsequently thrown on the identity of the codeia thus formed with the product obtained direct from opium. These doubts are now disposed of by the researches of Dott and Hesse, whose observations fully confirm Grimaux's statements. The results of an examination of several specimens of pilocarpine indicate that this substance, as met with in commerce, is not a simple alkaloid, but a mixture of two distinct bodies, differing in characters and in physiological action. The jaborine, which is usually regarded as the impurity, may be removed by treating the nitrate with absolute alcohol. Another substance which has recently received careful investigation is chinoline, and attention is called to the fact that many specimens are impure, consisting of a mixture of several homologous bodies. This is a matter of some practical importance, for considerable risk would attend the administration of a substance containing aniline and nitrobenzol. Plugge has investigated the relative activity of aconitines from different commercial sources, and finds that Petit's nitrate of aconitia is at least eight times as strong as Merck's, and a hundred and seventy times as strong as Friedlander's. The preparations known as German aconitine are by no means of uniform strength, some of them exhibiting differences greater even than those observed between the aconitines of Merck and Petit. This points to the necessity for greater care in prescribing

ing aconitine, as the dispensing of a different preparation from that intended by the prescriber might lead to fatal results. Mr. Holmes points out that the description given in the British Pharmacopoeia is inadequate for distinguishing the root of *Aconitum napellus* from other species, that the imported roots are collected by peasants having no knowledge of botany, and that they are sold without any guarantee as to the time of collection. In his opinion the only way to secure root of good and uniform quality is to limit the official drug to home-grown aconite flowering in May and June, and gathered while the plant is in flower.

In addition to an account of these interesting researches, the volume contains a number of abstracts, notes, and formulae, together with several valuable papers read before the British Pharmaceutical Congress at Southampton in August last.

A Compend of Human Physiology. By ALBERT P. BRUBAKER, M.D., Demonstrator of Physiology in the Jefferson Medical College. pp. 133. London: Henry Kimpton. 1883.

THIS is a well-written little book, and if the plan recently adopted by the College of Surgeons, of compelling every student to pass an examination at the end of the first year of study, be ever fully carried out, such a work would prove useful as indicating the extent of information implied under the term elementary physiology, and that amount of knowledge which might be fairly expected from an intelligent student after attendance on one course of lectures, and with one year's reading. We have read through a great part of the book, and have noticed but few errors. In speaking of the effects of division of the third nerve, the author states that it produces persistent accommodation of the eye for long distances, which is correct as far as it goes, but might, we think, be better expressed by saying that its division produces loss of accommodation for near objects, the author's expression implying an active rather than a passive condition. Again, the statement that the blood in passing through the lungs loses two degrees of temperature is certainly open to question. Many good observers consider that the temperature in the left auricle is not materially lower than that in the right. On the whole, however, the facts that are given are the essential ones in each section, and would constitute a good foundation for subsequent work.

The Quarterly Journal of Microscopical Science.

Edited by RAY LANKESTER, THIRSELTON DYER, E. KLEIN, and ADAM SEDGWICK. New Series. No. XC. April. London: J. & A. Churchill.

THIS part contains the following memoirs:—1. The Anatomy and Development of *Peripatus Capensis*, by the late Francis M. Balfour, an essay which has the melancholy interest of being the last work on which this talented naturalist was engaged before his death. It has been prepared from the manuscript left by Balfour by his friends Moseley and Sedgwick, who have been greatly assisted in their labors by Miss Balfour, whose beautiful drawings illustrate many of the points in the organization of this curious myriapod, and who has materially aided the editors by her knowledge of her brother's views. 2. Klein gives an account of a Morphological Variety of *Bacillus Anthracis*, which is accompanied by a plate. Dr. Lankester appends a note on the statements made in this paper. Dr. Klein also gives a short account of a pink *Torula*. 3. Marshall Ward, of Owens

College, Victoria University, describes the characters of some of the *Saprolegniae*, which are of interest as illustrating the salmon disease. 4. Vincent Harris, of St. Bartholomew's Hospital describes a Method of Double staining nucleated Blood-corpuscles with Aniline Dyes. 5. Walter Gardiner gives the particulars of his Recent Researches on the Continuity of the Protoplasm through the Walls of Vegetable Cells. 6. Mr. J. E. Blomfield supplies a Review of Recent Researches on Spermatogenesis, chiefly those of Hermann on the Selachians, those of Renson on the Rat, and Max v. Brunn on the *Paludina*. 7. Mr. G. A. Dowdeswell gives a Note on a Minute Barb which he has recognized as existing at the extremity of the tail of the spermatozoon of the newt. 8. Mr. Ray Lankester concludes the part with a memoir on the Existence of Spengel's Olfactory Organ, and of Paired Genital Ducts in the Pearly Nautilus.

A Manual of the Minor Gynecological Operations and Appliances. By J. HALLIDAY CROOM, M.D., etc., Lecturer on Midwifery and the Diseases of Women at the School of Medicine, Edinburgh, etc. Second Edition, Revised and Enlarged. Edinburgh: E. & S. Livingstone. London: Baillière, Tindall & Cox. 1883.

WE have great pleasure in recording the fact of a second edition of this very useful and lucid little book, dealing with details in a delicate branch of practice, which are not always sufficiently given in more pretentious works. The book is larger by eighty or ninety pages than the first edition, and contains many new and beautiful illustrations. Dr. Croom modestly devised his book originally for students; but it may well be possessed by all practitioners, who will find in it carefully and briefly stated points and particulars of much utility in daily practice.

Minutes of the General Medical Council, of the Executive Committee, and of the Branch Council for the Year 1883. London: Spottiswoode & Co., Parliament-street.

OUR readers may be glad to know that the Minutes of the Medical Council for the year, including the Report of the Pharmacopoeia Committee and the suggestions of Professors Redwood, Bentley, and Atfield on the contemplated revision, and Dr. Chambers' very interesting statement on unqualified assistants, are now to be had of the publishers. Mr. Miller, with his usual aptitude for editing, has very promptly put all the materials into a little volume, with an index, not perfect, but very useful till the complete volume for the year can be had.

A Text-Book of Pathological Anatomy and Pathogenesis. By ERNST ZIEGLER, Professor of Pathological Anatomy in the University of Tübingen. Translated and edited for English Students, by DONALD MACALISTER, M.A., M.B. Part I.: General Pathological Anatomy. London: Macmillan & Co. 1883.

THIS work is a distinct acquisition to a branch of medical science that hitherto has not been well supplied by English authors, and its appearance so soon after the publication of an English edition of Cornil and Ranvier's Manual testifies to the need that is felt in this country for standard works on a rapidly advancing subject. Mr. Macalister

deserves certainly the best thanks of our students for so promptly presenting them with this, the latest, and in some respects, the best, work on Pathology at present available. In Germany its reception has been remarkable—a second edition of the first parts of the book being called for within twelve months of their appearance, and before the remaining portions have been issued. Nor, when the work is examined, can we feel surprise at the success it has achieved. For not only does it fulfil the requirements of the day in presenting students with the results of the accumulated research of past years upon pathological subjects, but it bears throughout the stamp of a thoughtful mind and an earnest worker. Invited to undertake the preparation of a new edition of Förster's well-known text-book—a work which has run through many editions, and which was itself, we believe, largely based on the classical work of Rokitsansky—Professor Ziegler found that to bring that work up to the modern standpoint would require him practically to rewrite it. He fortunately refrained from pouring new wine into an old bottle, and set himself to the task of preparing the present work, with what success we have already indicated.

At present two parts have been published, and the volume before us consists of the first of these—that which deals with general pathological anatomy. The subjects are treated in the following order—(1) Malformations, (2) anomalies in the distribution of blood and lymph, (3) retrogressive disturbances of nutrition, (4) progressive or formative disturbances of nutrition, (5) inflammation and inflammatory growths, (6) tumours, and (7) parasites, and the whole work is planned on a very definite and systematic method. There is, too, much matter introduced that is novel to similar works, showing how great have been the advances in the subject of which it treats. Thus we find included under the head of Necrosis an account of the interesting process of "coagulation necrosis," to which attention has been especially directed by Weigert and Cohnheim, and which is held to explain the formation of fibrinous false membranes; the effects on an organ of an embolic infarction, the peculiar degeneration of muscle known as Zenker's change, etc. Another section deals with the process of "colliquative necrosis," or softening. Professor Ziegler also gives prominence amongst the degenerative changes to hyaline degeneration of fibrous tissues, a change that has a superficial resemblance to amyloid degeneration without possessing its peculiar reactions. Again, in dealing with the cellular processes concerned in hypertrophy, hyperplasia, and regeneration, the author describes the remarkable structural changes undergone by cell-nuclei which were brought to light mainly by the researches of Flemming. He also devotes a short chapter to the interesting subject of metaplasia, or the conversion of one tissue into another of different type—e.g., of cartilage into mucoid or areolar tissue, or of fibrous tissue into bone.

The chapter on Inflammation deserves especial mention from the remarkably clear manner in which the author has dealt with the subject about which so many and varied views have been held. After describing the process and the varieties of inflammation, he passes to consider the later stages of the process, including repair, granulation, and cicatrization. Under the head of the "infective granulomata," Dr. Ziegler describes in turn the neoplasia characteristic of tuberculosis, syphilis, leprosy, lupus, glanders, and actinomycosis. The subject of tuberculosis is dealt with in a way which carries conviction to the reader, and it is interesting to observe how readily the idea of a specific organized virus harmonizes with the

conclusions arrived at from the purely anatomical standpoint respecting this disease. When the first edition of the work was issued Koch's discovery had not been made; but in the present volume the fact of that discovery is held to give an answer to the question of the nature of the tubercular virus, and the author says, "It may therefore be accepted as an established fact that tuberculosis is an infective disease induced by the presence of a specific bacillus." Further on, he remarks, "Clinical experience would seem to indicate that the tubercle bacillus is no ordinary bacterium, such as may enter and affect any organism without distinction. It would seem rather as if infection occurred only where a definite predisposition exists, or where a considerable quantity of the virus is introduced. This predisposition may be local as well as general. The local predisposition may perhaps depend mainly on antecedent inflammatory change. A general predisposition is attributed to *scrofulous* subjects especially. These are persons whose tissues exhibit a certain frailty or susceptibility to injury that makes them particularly liable to chronic inflammatory disorders. It is, however, not at all uncommon for the term '*scrofulous*' to be applied to individuals actually affected with tuberculosis, as well as those who are only predisposed to it." It might be thought that this unreserved adoption of so recent a discovery and the wide deductions that flow from it should hardly have found place in a text-book, where only facts that are well established and likely to be permanent should be quoted. But, to our mind, the very fact that so much prominence is given to it by the author is an admission of the thoroughness and exactitude shown by Koch in all his work, whilst the discovery of the bacillus has only crowned the edifice which pathologists have been slowly and painfully laboring to raise. When the history of this chapter of pathological research comes to be written, no fact will come out more clearly than this, that the anatomical study of tubercular lesions forced upon the mind the idea of a virus which by analogy from other diseases was supposed to be of bacterial nature. No one can foretell how far the knowledge gained concerning the influence of micro-organisms upon morbid processes will have led pathologists fifty years hence, or what further changes may be wrought in the pathological conception of tuberculosis. We may be sure of this, that the doctrine of its specific and infective nature, first initiated by Virchow, but widely extended and modified by his followers, will remain unshaken.

The sections upon Tumours does not deal so minutely with them as the chapters in Cornil and Ranvier's work, but it is ample enough and thoroughly represents the standpoint arrived at by modern histological research. This section concludes with a very interesting discussion of the etiology of tumours, in which Cohnheim's speculations of embryonic "residues" are justly held to be inapplicable to the explanation of many forms of new growth. The structural affinities of new growths are now fairly well known; but what is required, and what future observers will be bound to investigate, is their mode of origin and evolution. This is a difficult field, and one in which clinical rather than experimental research may furnish most material.

The concluding section on Parasites is notable for the very full account given of the bacteria. It is the first time that a text-book has ventured upon this intricate and ever-spreading department of pathology, and certainly the author has managed to survey the whole field of facts respecting pathogenic micro-organisms in a masterly manner. Teachers, as much as students, will be

glad to have before them a work which contains not only so accurate an account of these micro-organisms, but such ample references to the literature of the subject.

We must not conclude this notice without calling attention to the number and excellence of the illustrations, the large majority of which are original; nor without a word of commendation to Mr. Macalister for his able rendering of the work, which is certain to be widely read in this country.

Medical Annotations.

"Ne quid nimis."

MR. WATSON CHEYNE'S RESEARCH ON TUBERCULOSIS.

THE first fruits of the newly formed Association for the Advancement of Medicine by Research consist of Mr. Watson Cheyne's investigation into the relations of micro-organisms to tuberculosis; and his report of the inquiry, presented to the Association, was published by us last month. Space will not permit us to analyze this report as fully as it deserves, but occasion will doubtless often arise for further reference to it, as it seems to be a most important contribution to the subject. Mr. Cheyne tells us that he visited the laboratories of Professor Toussaint at Toulouse and Dr. Koch at Berlin, so as to become acquainted with their experiments and to obtain the material employed by them. As to his own work, he first of all cleared the ground considerably by demonstrating that tuberculosis cannot be excited in rodents by simple irritants, or even by Toussaint's micrococci, when full precautions were taken to prevent contamination from tubercular virus; and he further thoroughly confirms Koch in the conclusion that the infectivity of tuberculous material depends upon the presence of the tubercle bacilli. He always found these bacilli in specimens of tuberculous material, but in varying amount, and noted their greater abundance in bovine than in human tuberculosis. In pursuing the inquiry further—as to the relation which these organisms bear to the morbid processes in man—he points out the complete identity between acute tuberculosis in the human subject and in the lower animals, but admits the greater difficulty there is in understanding the relation of the bacilli to the localized tuberculous processes in man; with only one of which, viz., phthisis, he deals in the present report. His description of the phthisical process and of the share taken in it by the bacilli is very convincing. The bacilli were found most abundantly in the epithelioid cells, which apparently play a very important part in pulmonary tuberculosis; the giant-cell formation is derived from these epithelioid elements, which themselves are derivatives of the alveolar epithelium mainly (and occasionally of the epithelia of the bloodvessels and lymphatics), whilst the granulation-celled structure is regarded as due to surrounding inflammation. In this fact of the constant presence of the bacilli in such formations as contain these epithelioid cells, we have a suggestive point capable of application to tuberculosis of other organs than the lungs. Mr. Cheyne contrasts the two extreme conditions of phthisis—the acute caseous pneumonic form and the chronic fibroid form—finding, in confirmation of statements made from examination of the sputa by others, that the bacilli are extremely scanty in the latter but abundant in the former; and he suggests that the

difference between these types of consumption probably depends "on the number and growth of the bacilli, and on whether the patient is a good soil for their development." But these and other points are no doubt amply argued in the complete report shortly to be published. In the present abstract, Mr. Watson Cheyne states sufficient to show that his researches throw new light upon a subject which will afford for some time to come a rich field for investigation, with a promise of results of the highest importance to mankind.

THE AIM OF EXERCISE.

It should be understood by the public, as it is known to the profession, that the aim of exercise is not solely to *work* the organism which is thrown into activity, though that is one, and a very important, part of the object in view, because as the living body works it feeds, and as it feeds it is replenished; but there is another purpose in exercise, and that is to call into action and stimulate the *faculty of recuperation*. Those who believe in the existence of a special system, or series, of trophic nerves, will not object to this designation of the recuperative function as a separate "faculty," and those who believe nutrition to be effected in and by the ordinary innervation will recognize the sense in which we employ the term in italics. It is through defect or deficiency in the vigor of this faculty, unaccustomed feats of strength, whether of mind or muscle, are found to be exhausting. The task is performed, but the underlying faculty of restorative energy, or power of recuperative nutrition, located in the particular part exceptionally exercised, is not in a condition to respond to the unusual call made upon it. When a man goes into training, or, which is practically the same thing, when he habituates himself to the performance of a special class of work, he so develops this recuperative power or function that the repair or replenishing necessary to restore the integrity, and replace the strength of the tissue "used up" in the exercise, is instantly performed. The difference between being accustomed to exercise and able to work "without feeling it," and being barely able to accomplish a special task, and having it "taken out" of one by the exploit, whether mental or physical, is the difference between possessing the power of rapid repair by nutrition, and not having that power in working order—so that some time must elapse before recovery takes place, and during the interval there will be "fatigue" and more or less exhaustion. The practical value of a recognition of this commonplace fact in physiology will be found in the guidance it affords as to the best and most direct way of developing the power or faculty of recuperation by exercise. Many persons make the mistake of doing too much. Exercise with a view to recuperation should never so much exceed the capacity of the recuperative faculty as to prostrate the nervous energy. The work done ought not to produce any great sense of fatigue. If "exhaustion" be experienced, the exercise has been excessive in amount. The best plan to pursue is to begin with a very moderate amount of work, continued during a brief period, and to make the length of the interval between the cessation of exercise and the recovery of a feeling of "freshness" the guide as to the increase of exercise. We do not mean that false sense of revival which is sometimes derived from the recourse to stimulants, but genuine recovery after a brief period of rest and the use of plain nutritious food. If this very simple rule were carried into practice by those who desire "to grow strong," there would

be less disappointment, and a generally better result, than often attends the endeavor to profit by exercise unintelligently employed.

PROTECTIVE INOCULATION—KOCH AND PASTEUR.

THE controversy which has arisen between the two foremost investigators into the intimate nature of contagion—the veteran chemist of Paris, and the younger pathologist of Berlin—is one of which we are only just seeing the commencement. The issues are so important, that it is to be desired that renewed investigation will be undertaken by unprejudiced observers, in the hope that the truth may be revealed. There can be no denying that Dr. Koch has hit the weak points of M. Pasteur's case, and his analysis is all the more vulnerable from the severe and critical manner in which he has dealt with the subject—a style which differs very widely from that of his opponent—a difference partly, no doubt, explained by the admitted diversity in modes of thought, work, and expression between the Gaul and the Teuton. Those who have perused the summary of Dr. Koch's reply, that we have just published, will note how little agreement there is between himself and M. Pasteur, not only upon the subject of anthrax, but upon those other infectious diseases which have been experimentally studied by the latter. Thus Koch thinks it indubitably proved that the supposed virus of rabies which Pasteur discovered is identical with that of the septicæmia of rabbits; and he says the same of equine typhoid too, thereby implying that M. Pasteur is ignorant of the characteristic microbe of septicæmia in rabbits, or that he has been very careless in safeguarding his observations. Indeed, Koch's strongest attack is directed against the method followed by Pasteur in his assumption of a specific micro-organism in the saliva of a hydrophobic child, or in the nasal mucous of a horse suffering from typhoid fever, without taking the precaution to isolate the organism and cultivate it before making his inoculations—the method which Koch claims to be the only safe one for determining the question. It is in anthrax that the most important issues are involved, for it is only in this disease that the practical application of Pasteur's doctrine has been made—viz., that immunity from this scourge can be attained by vaccinating (or rather inoculating) sheep and oxen with the attenuated virus. Koch admits the fact of attenuation, and it may be remarked, agrees with Pasteur and differs from Dr. Klein, in believing that this is due to some change effected in the pathogenic bacilli themselves; but he does not admit that this change is due to the oxygen of the atmosphere, as M. Pasteur thinks, and by a series of carefully conducted experiments he shows how the virus loses its power in cultivation more or less rapidly according to the temperature to which it is submitted. There are graver differences than this, however, which may be summed up in a very few words. The method of vaccination is alleged by Koch to be imperfect. Although an animal previously inoculated with a highly attenuated virus is able to resist the effect of a second and more powerful vaccination, yet this is not a universal rule, and a certain proportion of the vaccinated animals—a number which Koch places much higher than Pasteur—die from the effects of the secondary vaccination itself. After passing through so severe an ordeal, the survivors should be sufficiently protected, if any real practical value is to accrue from the method. But Koch shows that, although they may resist further inoculations, such animals may still fall victims to spontaneous anthrax. If this be true, where is the protection? and what reli-

ance is to be placed upon the "vaccinations" and "revaccinations" to which so many thousand head of cattle in France and elsewhere have been subjected? Coming from one whose researches upon this and other infectious diseases have received general approbation for the exactitude and care with which they are conducted, such criticisms as are here offered upon Pasteur's labors must receive attention; for it must never be forgotten that, wide apparently as is the principle upon which Pasteur has based his advocacy for "vaccinations," applicable as it may seem to be to many human diseases, it has yet to be conclusively proved, even in the case of anthrax, where the conditions and nature of the virus have been so thoroughly worked out.

FILARIA DISEASE.

THE rapid strides which our knowledge has made during the past few years in the subject of the filaria parasite have been mainly owing to the diligent researches of Dr. Patrick Manson, who continues to work at the question. In the last number of the Medical Reports for China Dr. Manson deals with the phenomenon known as "filarial periodicity," and with the fate of embryo parasites not removed from the blood. The intimate pathology of the disease, and the subject of abscess caused by the death of the parent filaria, also receive further attention. An endeavor to explain the phenomenon of "filarial periodicity" by an appeal to the logical "method of concomitant variations" takes Manson into an interesting excursion which is not productive of any positive results; nor is any more certain conclusion come to with regard to the fate of the embryos which disappear from the blood during the day-time. Manson does not incline to the view that there is a diurnal intermittent reproduction of embryos with a corresponding destruction. An original and important speculation is made with respect to the intimate pathology of elephantiasis, chyluria, and lymph scrotum, which is thoroughly worthy of consideration. Our readers are probably aware that the parent filaria and the filaria sanguinis hominis may exist in the human body without entailing any apparent disturbance. The diameter of an embryo filaria is about the same as that of a red blood-disc, 1-3000th of an inch. The dimensions of an ovum are 1-750th by 1-500th of an inch. If we imagine the parent filaria located in a distal lymphatic vessel to abort and give birth to ova instead of embryos, it may be understood that the ova might be unable to pass such narrow passages as the embryo could, and this is really the hypothesis which Manson has put forward on the strength of observations made on two cases. The true pathology of the elephantoid diseases may thus be briefly summarized: A parent filaria in a distal lymphatic prematurely expels her ova; these act as emboli to the nearest lymphatic glands, whence ensue stasis of lymph, regurgitation of lymph, and partial compensation by anastomoses of lymphatic vessels; this brings about hypertrophy of tissues, and may go on to lymphorrhœa or chyluria, according to the site of the obstructed lymphatics. It may be objected that too much is assumed in supposing that the parent worm is liable to miscarry. But as Manson had sufficient evidence in two cases that such abortions had happened, he thinks it is not too much to expect their more frequent occurrence. The explanation given of the manner in which elephantoid disease is produced applies to most, if not all, diseases, with one exception, which result from the presence of the parasite in the human body. The death of the parent parasite in the afferent lymphatic may give

rise to an abscess, and the frequency with which abscess of the scrotum or thigh is met with in Chinese practice is, in Manson's opinion, attributable to this. Dr. Manson's report closes with an account of a case of abscess of the thigh, with varicose inguinal glands, in which fragments of a mature worm were discovered in the contents of the abscess.

DEATH FROM FRIGHT.

ON a recent occasion we commented on the physiological causes of death from fear. A curious instance of this description of casualty has just occurred. A child seven years old, the son of a sweep, and therefore not likely to have been brought up during the few years of his little life too tenderly, fell down and died from fright at seeing two older boys fighting. There is said to have been no organic disease discernible on post-mortem examination. This is remarkable, but it is, of course, possible that the impression made on the brain of this child may have been so strong as to arrest his heart's action. We confess we should like to hear more of the case in its strictly medical aspect. Meanwhile there can be no hesitation in pronouncing a strong opinion against the exposure of young children to powerfully affecting and more particularly terrifying spectacles. The practice of "frightening" children either to quiet them or simply as a diversion is inhuman in the extreme. Many cases of epilepsy have had this sort of agency for their exciting cause. It is a cruel and heartless pastime in which too many otherwise kindly intentioned persons are wont to indulge.

ACCESSORY SUPRARENALS.

PHYTOGENESIS has been said to be the mechanical cause of ontogenesis. The development of the individual is the compressed development of the race. No doubt in the process of compression some features are suppressed, whilst others are thrown into relief, but even these characteristics may be capable of a good explanation. The light which comparative embryology may be able to throw on many questions of present obscurity may turn out to be not inconsiderable. In the *Quarterly Journal of Microscopical Science* for 1882, the lamented Balfour has contributed a paper on the Development of the Suprarenal Bodies in Mammalia, which is full of suggestiveness from an embryological standpoint. There seems to be no reasonable doubt that the cortical and central parts of the adrenal of higher animals are as widely different in their nature as any two tissues can well be. The Elasmobranch fishes possess a single organ of inter-renal situation, which in structure corresponds with the cortical portion of a mammalian suprarenal body; here there is a local and actual separation between the two constituents which supports the notion of their essential difference. In fact the medullary part of the suprarenal body is in intimate relation with the sympathetic ganglia of the abdomen, and may be regarded as a part of that neural chain. And this is a view which all pathological researches tend to support. The vital opposition of these two tissues of the adrenals becomes an almost indispensable feature for the maintenance of the notion that the accessory bodies found by Dr. Marchland in the broad ligament of the uterus, are really of the nature of suprarenal bodies. The observations were made on infants either new-born or only a few months old. The bodies in question were always quite small, from one to three millimetres in diameter, of rounded shape and yellowish color. In four cases the nodules were situated at the free

end of the broad ligament, in immediate relation with the ovaries, and consequently in close association with the pampiniform plexus from which the ovarian vein starts. They are thus enclosed between the two laminae of this peritoneal fold, and project more from the anterior than from the posterior aspect. One instance is given of their occurrence nearer to the body of the uterus. A case is mentioned where the accessory nodules were located one on each side below the kidneys, in near relation with the ovarian vein. Rokitsansky has described these accessory adrenals in a position between the solar and renal sympathetic plexuses, and sometimes a large part of the suprarenal organ has been found to be spread out beneath the capsule of the kidney. The explanation offered by Marchland in Virchow's *Archiv* is that the additional adrenals are probably carried down to the broad ligament with, or in connection with, the ovarian vein. Similar structures have not been found in the male, though their presence in some part of the course of the spermatic vein is not impossible.

SHOULD WOMEN RIDE LIKE MEN?

SUCH is the question which is being seriously discussed in the columns of a contemporary. Perhaps it would be as well to leave the determination of the question to those whom it principally concerns. We fancy they have no wish to change the custom. As a matter of fact, although it may not appear to be the case, the seat which a woman enjoys on a side-saddle is fully as secure, and not nearly as irksome, as that which a man has to maintain, unless he simply balances himself and does not grip the sides of his horse either with the knee or the side of the leg. It is curious to note the different ways in which the legs of men who pass much time in the saddle are affected. Riding with a straight leg and a long stirrup almost invariably produces what are popularly called knocked-knees. Nearly all the mounted soldiers of the British army suffer from this deformity, as anyone who will take the trouble to notice the men of the Life Guards and Blues walking may satisfy himself. On the other hand, riding with a short stirrup produces bowed-legs. Jockeys, grooms, and most hunting men who ride very frequently are more or less bow-legged. The long stirrup rider grips his horse with the knee, while the short stirrup rider grips him with the inner side of the leg below the knee. This difference of action explains the difference of result. No deformity necessarily follows the use of the side-saddle if the precaution be taken with growing girls to change sides on alternate days, riding on the left side one day and the right on the next. The purpose of this change is to counteract the tendency to lean over to the side opposite that on which the leg is swung.

WOMEN'S DRESS.

THAT monstrosity of fashion, "the divided skirt," calls for criticism chiefly because it is so persistently obtruded on public attention as to bid fair to become a nuisance. If women please to unsex themselves in dress as well as in habits of life and silly exploits of possible, but not prudent, intellectual and physical energy, they may be left to compass their own discomfort without more than an ordinary warning; but when they appeal to the canons of health in support or defence of their vagaries, it is necessary to show that the appeal is inadmissible. The divided skirt is clearly not likely to advance the interests or improve the health of the sex if it should be commonly adopted as the dress of the period. It is unnatural, and

must be productive of unwomanly ways which are to be deprecated. Moreover, as it approaches the trousers in form and use it must tend—despite of projected reduction in the amount of under-clothing—to increase the heat of the limbs and body in a way which is undesirable. In short, the divided skirt is an outrage, and not to be countenanced. Meanwhile, the disuse of corsets is undoubtedly expedient; whether these casings be tight as well as stiff, or only the latter, they must necessarily restrain the movements of the thorax, and thrust down the abdominal viscera in a manner which is decidedly injurious; The attempt to substitute shoulder-straps for waistbands as clothes' suspenders is also good as far as it goes; but it would be well to reduce the weight to be carried by half or two-thirds. Surely women have no idea of the burden they bear. No wonder they are weak and unable to take sufficient bodily exercise. Twenty to five-and-twenty pounds weight is not, we believe, an exaggerated total for the burden of dress borne by a fashionable lady fully equipped for a promenade in chilly weather, when a mantle or "Dolman" has to be worn. There is abundant room for reform in female dress, though we do not think it desirable that the changes made should be precisely those just now contemplated—in certain quarters at least.

ADDISON'S DISEASE.

THE latest contribution to the above subject consists in a concise essay by Dr. Burger, of Bonn ("Die Nebennieren und der Morbus Addisonii," Berlin, Hirschwald), in which an inquiry based upon the chief literature on the subject is made into the assumed connection between disease of the suprarenal capsules and the phenomena of Addison's disease. The anatomy, physiology, and morbid anatomy of the adrenals are first discussed, and then follows an exact description of Addison's disease, concluding with a review of the facts and arguments which point to the abdominal sympathetic as the source of its symptoms. The writer sums up as follows: That structurally the adrenals should be classed with the blood-vascular glands, and they are not necessary for life. They have no connection with the cutaneous bronzing of Morbus Addisonii; a pigmentation which is not peculiar to that affection, since it may be present in very different forms of cachexia. Diseases of the adrenals are not uncommon, and they very often run their course without producing the phenomena of Addison's disease. In Addison's disease the most varied forms of adrenal affection may occur; but when supra-renal disease is present it does not contribute to the symptoms of Addison's disease, which depends upon an affection of the semilunar ganglia and solar plexus. This nerve change is generally brought about by disease of the supra-renals, the most frequent form of which is tuberculous inflammation. But the affection of the semilunar ganglia and solar plexus may be equally induced by disease of other organs, and may further arise spontaneously, so that the symptoms of Addison's disease may be produced apart from any change in the supra-renal capsules. In the main these results are consonant with our present knowledge of the pathogeny of this remarkable disease; the point which seems most open to question being that many kinds of morbid change of the supra-renal capsules may be found associated with Addison's disease. We had thought that evidence was overwhelming in support of the fact that when supra-renal disease is present it is of the kind which the writer admits to be most frequent—viz., a form of tuberculous inflammation.

SENSE-CULTURE.

THE special culture of the senses is too much neglected by us in this modern busy life. Probably at no previous period of human history has the nervous system generally, and, more particularly, have the sense-organs been so severely taxed as they now are, but never have they been less carefully cultivated. This is in part, if not wholly, the cause of the progressive degeneracy of the faculties of special-sense which is evidenced by the increasing frequency of the recourse to spectacles, ear-trumpets, and the like apparatus, designed to aid the sense-organs. The mere use of faculties will not develop strength—it is more likely to exhaust energy. Special training is required, and this essential element of education is wholly neglected in our schools, with the result we daily witness—namely, early weakness or defect in the organs by which the consciousness is brought into relation with the outer world. It is not necessary to adduce proofs of the position we take up, or to argue it at length or in detail. The truth of the proposition laid down is self-evident. On the one hand we see the neglect of training, and on the other the increasing defect of sense-power. The matter is well worthy of the attention of the professional educators of youth. Muscular exercise wisely regulated and apportioned to the bodily strength is felt to be a part of education. Sense-culture, by appropriate exercises in seeing, hearing, touching, smelling, would, if commenced sufficiently early in life, not merely prevent weakness of sight, deafness, loss of the sense of feeling, and impairment of the sense of smell, long before old age; but by its reflected influence on the nutrition of the brain and upper portion of the spinal cord, would do much to reduce the growing tendency to paralytic diseases, which are very decidedly on the increase.

CARCINO-SARCOMA OF UTERUS IN A CHILD.

THE most favorable time for the appearance of almost any disease of almost any organ is decidedly at or about the period of its greatest activity. But there are many exceptions. The pathological anatomist certainly does not expect to find disease of the generative organs in very young children, and past experience gives very good grounds for this expectation. Unquestionably, however, these organs are at times, though rarely, the site of well-marked disease in young children. Professor Rosenstein has recorded an example of alleged mixed sarcoma and carcinoma of the uterus in a child two years old. The child was taken to the doctor chiefly because it had not passed water for three days. On clinical examination a tumour of the belly was detected, which was partly due to a distended bladder. After 700 cubic centimetres of urine had been drawn off by means of a catheter, a tumour was still to be felt which reached about three fingers' breadth above the pubic symphysis. The child died after it had been under observation for fourteen days. At the post-mortem examination the uterus was found to be closely adherent to the bladder, an irregularly rounded tumour was seen projecting above the apex of the bladder, and apparently springing from the right lateral wall of the uterus, which was tilted towards the left; this nodule extended for about an inch beyond the limits of the fundus. Another nodule the size of a walnut was seen to project from the left of the fundus. The greatest length of the uterus was about two inches and a half, its thickness, from before back, about one inch and a half. Microscopical examination showed in some places, between the bundles of muscular tissue, a very fine alveolar stroma, packed with epithelioid cells of

various shapes and sizes, and which contained one or more nuclei. In other parts the structure resembled that of a spindle-celled sarcoma.

"CONSTIPATION" OF NERVOUS ORIGIN.

THERE are many diverse forms or causes of this malady—or abnormality of function—which it is important to recognize, but which are too commonly confounded, with the inevitable result of failure in the precise direction of remedies. The following may be noted as two or three of the commonest varieties of the trouble. For example, defect of muscular movement may be the cause of inaction of the bowels. This may be either want of peristaltic action in the small intestines or of extrusive force in the muscles concerned in the act of defecation; the location of the inertia being determinable by the character of the fæces, and the period and manner of their defection. The characteristics of fæces recently discharged from the small intestines and rapidly passed through the large intestine are too familiar to call for description. The scybalous dejecta of long retained fæces are equally well known. The error—if error there be—which is made in practice relates to the neglect of such lessons as the characteristics of the fæces are intended to teach, in regard to the cause or form of the "constipation." We lay great stress on this matter in diarrhoea, but it is practically disregarded in constipation, whereas, if possible, the character of the dejecta is more suggestive as an indication of the place and cause of detention than as an indication of the nature and cause of excessive or too rapid discharge. It is, for obvious physiological reasons, of the highest moment to determine whether constipation be due to inactivity of the muscular coats of the intestine, or of the levator ani and accessory muscles concerned in the act of evacuation. Second, there may be, and, often is, instead of inactivity, irritability of certain muscles as a cause of constipation. In a considerable proportion of cases of constipation with loaded rectum, the actual cause of the retention of the fæces is spasmodic contraction of the sphincter, which occurs the moment the levator ani begins to act. Only a little of the watery portion of the contents of the bowel escapes, the scybalous mass being retained. In cases of this class there is apt to be considerable disturbance of the pelvic viscera and other discharges while at stool. The cause of these muscular troubles is of course located in the nervous system. Sometimes the reflex excitability which should respond to the presence of fæces at particular parts of the intestinal canal is abnormally depressed, as in the constipation which arises from certain tabetic forms of spinal disease. In others the reflex irritability is unduly exalted, as in the cases of spasmodic contraction of the sphincter of which we have spoken. This increased excitability in the lower part of the cord is common, and it is generally to spasmodic irritability of the sphincter those forms of constipation are due in which the use of tobacco affords temporary relief, and seems to produce an action. As a rule it may be assumed that "habitual constipation" is an affection the cause of which must be sought in spinal exhaustion or irritability, or the two states combined. In another group of cases the cause of constipation is inactivity of the secreting glands of the intestines, from defect of innervation. We are not speaking of the cases in which the larger viscera, such as the liver, may be at fault, but of a multitude of instances in which the glandular system and apparatus of the walls of the intestinal canal are not in such a state of erectile and functional activity as to maintain the reflex excitability of the parts, and to so lubricate the

contents of the canal as to pass them rapidly along its course. This is one of the causes of that broken earth-like type of dejecta which attends a form of constipation common among subjects of spare and shrivelled physique, who are insensitive to most external impressions, though, perhaps, preternaturally sensitive to some special excitants. It is not within the scope of our purpose to discuss this topic in detail, but it is one to which the attention of the profession might be usefully directed. The practice of treating "habitual constipation" by cathartics is almost played out, and it is time the study of this common and most intractable affection from the standpoint of nervous origin and causation, should be seriously and earnestly undertaken.

THE TUBERCLE BACILLUS.

A PAINSTAKING and valuable contribution to the pathology of tuberculosis has recently been read before the Academy of Medicine by MM. Cornil and Babes. In general terms the conclusions aimed at by these histologists may be said to harmonize completely with all the teachings of Koch. Descriptions, illustrated by drawings representing the disposition and topography of the bacilli stained after Ehrlich's method in the tubercles of the meninges, serous membranes, mucous membranes, lungs, lymphatic glands, spleen, liver, and urinary organs, were forthcoming. Experimental inoculation with the sputa from cases of phthisis which contained bacilli into the peritoneal cavities of guinea-pigs gave rise, after five or six weeks, to an abundant crop of miliary tubercles in the spleen, liver, peritoneum, intestines, mesentery, genital organs, lungs, and lymphatic glands; these miliary bodies also abounded in bacteria. MM. Cornil and Babes have also searched for the bacilli in a series of lesions which, rightly or wrongly, may be regarded as intermediate between tuberculosis and scrofulosis. The characteristic micro-organisms were demonstrated in two out of three examples of scrofulous glands of the neck, taken from different individuals presenting no other obvious disease. The organisms were seen in small numbers, and only in the giant cells. The gland that was found wanting was the seat of much fibroid induration. No bacilli were discovered in a "tuberculous" abscess of the breast, nor in two cases of "tuberculous" abscess of the skin. Of three cases of *tumor albus* the bacilli were detected in but one instance, then in great scarcity, and exclusively in the centre of giant cells. Negative results were also the outcome of examinations of fragments of caseous pneumonia, interstitial pneumonia, fibroid pleura, and caseous pneumonia with vomica, in a syphilitic patient. Altogether, forty histological investigations were carried out, and M. Cornil is of opinion that from a point of view of bacilli a division into three classes may be made. In the first class would be placed all those instances in which the number of bacilli was considerable enough to explain the appearance of the tubercular lesions, just as it is supposed the nodules of leprosy may be accounted for by the growth of bacteria—in fact, an example of a genuine parasitic affection. The spread of the micro-organisms by way of the blood and lymph channels is believed to be proved by the presence of the bacilli in the interior of and about the vessels. The bacilli in the second series are not numerous, but they always exist in the midst of the tubercular lesion; this fact of central existence is regarded as sufficient to permit a belief in the notion that here, too, the affection is essentially a mycosis. The last division contains those examples of the chronic form of the disease in which the bacteria

are found only in the tissues which bound cavities and caseous material. In order to bring these cases into harmony with the prevailing views, it may be supposed that when the number of bacilli is far from being able to explain the lesions observed, there has been an elimination or destruction of bacilli, but not before they have had time to set certain inflammatory processes in action. The arrangement of the organisms in ancient tuberculous depôts may be explained by taking into account the action of the leucocytes in transporting the bacilli, and by bearing in mind that a constant elimination probably goes on when much expectoration occurs from the lungs, or when the débris of ulceration are carried off by means of the stools and the water.

COATING PILLS.

PRESCRIBERS who order pills to be coated would do well to try the experiment of dissolving a pill in a bag of slightly acidulated fluid at the temperature of nearly 100° F., and even frequently agitated. In a majority of instances it will be found that the mass is barely approached by the fluid after many hours, and does not actually break down until a very considerable period has elapsed. The obvious inference from these results must be that pills coated with gold, silver, and even mastic—unless quite recent—are not brought into a condition in which the drugs of which they are composed could be appropriated by the stomach until long after the time of administration. Again, and this is very important, it may happen that before one pill is dissolved, another may be reduced, and thus two doses of a potent drug may be possibly taken at once.

BURIAL.

THERE can, we think, be no question that the practice of burial, in the ordinary sense, must survive the impracticable device of cremation. Burning the dead is a simply revolting and socially unsafe procedure. It offends the feeling of human respect, and it would open the way for the commission of the worst crimes. Murder by poison would, in fact, be a perfectly facile way of "removing" enemies or victims if cremation were legalized. The law cannot sanction this mode of disposal of the dead, and, obviously, no man should allow the body of a friend or relative to be cremated unless the law of the land in which he lives and the State of which he is a subject permits the practice.

LIGATURE OF THE INNOMINATE.

MR. MITCHELL BANKS tied the innominate artery on Feb. 28th at the Liverpool Royal Infirmary for aneurism of the second portion of the subclavian. A ligature was also placed on the common carotid. Mr. Girdlestone's kangaroo tendons were used with strict antiseptic precautions. The patient recovered rapidly from the operation, and has already left the infirmary, with his aneurism much improved. Mr. Banks will doubtless furnish the profession with full particulars of this case.

EXTIRPATION OF THE UTERUS.

THE *Gazzetta degli Ospitali* (March 7th) reports a successful operation for the removal of the uterus per vaginam, performed by Professor Calderini, of Parma, on January 16th. The patient, a woman, aged forty-three, had suffered for two years from epithelioma of the womb, which had extended to the upper part of the vagina. This affected part

was removed, as well as the uterus, without any complication at the time of operation, or subsequent to it. The patient left her bed at the end of three weeks, and was in good health when presented to the Obstetric Institute of Parma, thirty-three days after the operation.

THE ANTIQUITY OF SYPHILIS.

THE very curious and interesting question of the origin of syphilis is one which has been keenly argued by many authorities. Perhaps the majority incline to the belief that syphilis was introduced into Europe, or originated there *de novo*, towards the end of the fifteenth century. Dr. Scheube (in Virchow's *Archiv*) contends for the antiquity of the disease. He founds his contention on the existence of a medical work of Japanese origin, written in the beginning of the ninth century. If we may trust the interpretation of the translation of that work, it would certainly seem that these ancient Japanese were sometimes the victims of a venereal disease, not one whit less loathsome or less searching than syphilis. But having gone so far, we may well ask—Was it syphilis? Was it the same disease with the dire effects of which we are still too familiar? And questions might be postulated without number, and without our ever being able to get any nearer to the truth.

AMPUTATION BY THE "COAT-SLEEVE" METHOD.

MR. KENDAL FRANKS, of the Adelaide Hospital, Dublin, on the 15th of March, removed the thigh, about the middle third, of a girl, aged seventeen, who was suffering from abscess of the knee-joint and necrosis of the tibia, by this method. A circular incision having been made through the skin and fascia, the part was dissected back for three or four inches, and, an incision having been made through the muscles down to the bone, the latter was sawn. The circular skin flap being brought down, was tied below the stump with a piece of tape, and two drainage-tubes left in the centre. The result so far is satisfactory, the patient going on favorably.

Correspondence.

"Audi alteram partem."

CURIOUS CASE OF VEGETABLE POISONING.

To the Editor of THE LANCET.

SIR—At 10 p.m. on April 11th my assistant was called to W. R.—, aged thirty. The patient was seated on a bench in his workshop with closed eyes, and apparently he was quite indifferent to all surroundings. All efforts to rouse him were unavailing, either to make him speak or in any way to answer questions. When left to himself he exhibited a slight occasional jerk of the limbs, especially of his arms. At times he made sudden thrusts into the air, as though attempting to catch flies. The pulse was rather weak, and the breathing quiet and regular; tongue moist. He obstinately prevented an examination of the pupils, and even when held by three men successfully resisted every effort to make him swallow a draught. After a cold douche to the head he talked irrationally, but soon became quiet again on being left undisturbed. There being no indication of danger, he was left in charge of his friends, after a continuous watching of nearly three hours. He was taken

home in a cab about 2 A.M. of April 12th. He had no illusions of vision whilst travelling the two miles, but on getting into his warm bedroom, he subsequently stated, he distinctly saw some one lying in his bed. At 7 A.M. of the 12th he came as usual to his workshop, when, he averred, he noticed some women sitting in his way, and that they vanished when he proceeded to turn them out. At 5 P.M. of the same day he presented himself at my surgery, and only complained of feeling "nervous," and rather sore from the rough handling of the preceding night. My assistant was informed that four hours previous to his visit on April 11th the patient had taken nearly a pint of stinging nettle "tea" made from about half an ounce of the dried herb. He had taken similar doses twice a week for some months past without any ill effects. On this last occasion a fellow workman had swallowed about a wineglassful from the said pint of "tea," and an hour and a half afterwards he also complained of dizziness and double vision, which symptoms, however, entirely disappeared after the operation of an emetic. The illusions of vision in this case came on soon after swallowing the "tea." They consisted in his seeing three or four objects where one only was present; he also saw frogs and other things crawling about, and his chief desire and endeavors were to catch them. Everything appeared green to him.

The bundle of herbs which was said to have been infused has been very carefully examined both by myself and by others, and only specimens of the common nettle (*Urtica dioica*) and of *U. urens* could be detected amongst the stems and leaves. These urticaceæ are chiefly and popularly known from their venomous sting when applied externally. The effects of some of the foreign species of the genus are recorded as dangerous. Lindley quotes M. Leschenault ("Mém. Mus." vi., 362) as describing the serious effects upon himself and a workman of gathering *U. crenulata* in the Botanic Garden at Calcutta, and the less violent effects of another dangerous species (*U. stimulans*) he found in Java. Lindley concludes: "Both these seem to be surpassed in virulence by a nettle called *Daoun setan*, or devil's leaf, in Timor, the effects of which are said by the natives to last for a year, and even to cause death." I can find no recorded evidence of any species, British or foreign, of the genus *urtica*, when taken internally, producing poisonous symptoms. I have procured of the herbalist from whom the dried herbs were bought a further supply, which he assured me he took from the same bundle whence came the former specimen he had sold to W. R.— On carefully examining this specimen I myself obtained, we found mixed with the nettle several broken leaves and a few undeveloped flowers of another plant, evidently the small capitula of one of the Compositæ. The material secured has, however, been insufficient for absolute identification of the plant; but we have made out that in all probability the leaves and capitula belong to a species of Compositæ closely allied to an *Artemisia*. Neither Christison, Taylor, nor Guy and Ferrier in their respective works name either of the *Artemisias* as amongst the vegetable poisons. Woodman and Tidy² class the *Artemisia absinthium* with the poisonous Compositæ, but only to refer to, and quote a case of, poisoning by the oil of wormwood, which oil they call a narcotico-acrid. The other poisonous Compositæ (*Caltha palustris*, marsh marigold, and the ordinary *Lactuca sativa*, and the strong-scented lettuce, *virosa*) which these

authors cite, respectively produce, however, very different symptoms from those observed in the patient. The fact that "everything appeared green to him" would point to the *Artemisia santonica* (the source of santonine) as probably forming part of the infusion of the dried herbs the patient had swallowed. The literature I have been able to refer to appears absolutely silent on the other poisonous qualities of this plant. Pereira,³ in speaking of its physiological effects and uses, cautiously says: "An accurate account of the effects of *santonica* is yet wanting."

Yours truly, ROBERT FOWLER, M.D.

Bishopsgate, May 5th, 1883.

ANTISEPTIC MIDWIFERY.

To the Editor of THE LANCET.

SIR—Now that Listerism as a principle, or system of principles, is so well known and recognized by the medical and surgical world, it is, I think, incumbent upon every practitioner to carry it out in the practice of midwifery.

I have read with great interest the notes of the paper read by Dr. Williams, at the Harveian Society of London, and, as far as my experience goes, I can endorse the opinion he expresses with reference to the incorrect and deficient returns of mortality from puerperal fever. If the reduction in the mortality consequent upon the use of antiseptics in hospitals should not prove a sufficient inducement to every practitioner to try them, that inducement ought to be found in his own prospect of succeeding better in midwifery practice with them than without them, and this prospect is what every disciple of Lister's will at once assure him of. For some time now I have been in the habit of using carbolic oil of the strength of 1 to 15 for anointing the examining hand and fingers. After the examination I simply rinse the hand in warm water without using soap. By the time the child is born I have the oil applied over every portion of the hand and arm likely to come in contact with the maternal parts, so that should it become necessary to remove the placenta by inserting the hand and arm, they have become perfectly aseptic. After labour I give directions to change the bed and body linen on the second day, and the diapers every second hour for the first few days, and order the genitals to be thoroughly washed, morning and evening, with carbolic soap.

I am, Sir, yours truly,

C. R. ILLINGWORTH, M.B.

Clayton-le-Moors, near Accrington, May 8th, 1883.

THE NECESSITY OF TAKING FORCEPS TO EVERY CONFINEMENT.

To the Editor of THE LANCET.

SIR—The above is an axiom laid down by most teachers of midwifery, but, I am afraid, rarely acted on by the general practitioner. My practice has always been to take an obstetric bag containing all the necessary articles to every case of confinement over a mile from home, but when the distance is short to content myself with taking ergot and carbolic acid, unless I know of something in the previous history of the patient that necessitates instrumental interference. The other morning I received a lesson which recalled the aforementioned axiom and brought it home forcibly. Believing the accident to be of rare occurrence, I take this opportunity of placing it on record.

On the morning of October 5th, about 2 A.M., I was called to attend a Mrs. H—, in her seventh

¹ Introduction to the Natural System of Botany, 1830, p. 93-4.

² Handy Book on Forensic Medicine and Toxicology, p. 286.

³ Manual of Materia Medica and Therapeutics, 1865, p. 334.

confinement. She had previously a history of normal labours on all occasions, and is a tall well-formed woman, with a roomy pelvis. I found on my arrival that the membranes were ruptured, the head was presenting, and the os uteri about the size of a five-shilling piece, the pains being slight but regular. After waiting about half an hour I made another examination, and found the cervix dilating nicely, the head being still in the normal position. Shortly thereafter she had a severe pain, and cried out for the first time, which made me again examine, to find that the cervix had slipped over the head, which was now well down. Expecting as I did, that the next pain would finish the birth of the head, I kept my finger in position and waited. You may imagine my astonishment when the next uterine contraction sent a loop of cord right into the vagina, pulsating vigorously until the pain developed and the head compressed it against the pelvis, when it did not again pulsate. To take off my coat and proceed to turn was the work of a moment, but, notwithstanding all my efforts, I failed to get my hand past the head, neither could I move the child by the combined method, nor replace the cord. I sent off for my forceps, but had little hope of their being of service, as I knew fifteen minutes must elapse before I could get them. With my finger hooked round the chin and vigorous compression over the abdomen, I caused very considerable expulsive efforts, which made little impression on the advance of the head, so that from the time the cord became prolapsed until the birth of the child fully ten minutes must have passed. I need scarcely say the child did not breathe, and that artificial respiration proved of no avail. Whilst compressing the abdomen during the descent of the child I became aware of the presence of a second, which was literally shot into the world about a quarter of an hour after the first. The second child was alive and strong. The cord in the first case measured forty-two inches in length, and lay loose in the amniotic cavity, being round no part of the child's body; in the case of the second, the cord measured twenty-five inches, and was loose also. Both children presented with the left occiput anterior; each had a separate amniotic sac, and the placenta came away singly. There was no bleeding. Both children were females, and weighed respectively 6½ lb. and 7 lb.

Here was a case of preventable death through failing to have the forceps at hand, a case to me unique, but which, I think, should be placed on record. No doubt there were various factors at work hindering a successful issue. First of all, there was the early rupturing of the membranes, the continuous pressure enfeebling the child; secondly, there was the long cord lying loose; thirdly, the roomy pelvis admitting of the slipping past the head of a loop of cord during uterine relaxation, or rather at the commencement of the contraction; fourthly, the presence of twins preventing turning or any manipulation on my part likely to hasten delivery, as also distributing the force of the uterine contraction, and causing less impression on the advancing head. All these influences would have been innocuous had I had forceps by me.

I am, Sir, yours very truly,
W. H. MURRAY.

Church-street, Galashiels.

HYDROPHOBIA.

To the Editor of THE LANCET.

SIR—An inquest was held before me on the 24th April last, at the Leicester Infirmary, on the body of a man named Toon, aged fifty-six years, a wagoner, residing at Thurmaston, about three

miles from Leicester, who was bitten in the left hand by a dog at Thurmaston on the 20th January last. The man did not obtain professional assistance at the time. His wife dressed the wound, and it healed up in about a fortnight. Symptoms of hydrophobia afterwards disclosed themselves, and ultimately the man was removed to the infirmary on the 21st April, and died there on the following day (according to the medical evidence after a post-mortem) unmistakably from hydrophobia.

It is stated that the dog has not displayed symptoms of hydrophobia; it is alive, and as a fact was at large until Wednesday last, when, in consequence of an application to the magistrate, the owner of it offered to keep it under control until he could sell it.

The house-surgeon at the infirmary stated at the inquest that it was not within his experience that a dog not suffering from hydrophobia could communicate the disease to a human being, and as the case may be of interest to the medical profession, I trouble you with this communication in order that you may bring it to the notice of your numerous readers, if you think it desirable to do so.

I am, Sir, yours faithfully,
GEO. T. HARRISON,
Coroner for the Borough of Leicester.

Leicester, May 4th, 1883.

CASE OF EMPYEMA CURED BY ONE ASPIRATION.

To the Editor of THE LANCET.

SIR—I think the cure of empyema by a single aspiration is sufficiently rare to warrant my reporting the following case. I give the physical signs somewhat fully, as the absence of symptoms in anything like a corresponding degree is curious.

M. E. B—, a girl aged seven, was brought to me by her mother on May 11th, 1882, complaining of want of appetite and gradual loss of flesh, which had been observed for some weeks. No history of a recent acute illness. Her condition on examination was as follows:—Pulse 104; temperature (10 A.M.) 99°6'; respiration 32. The left side of the thorax was almost immovable during respiration, and the lower spaces on that side were flattened, but not bulging; vocal fremitus was absent, and the heart's apex beat was displaced about two inches to the right of the normal position. The percussion note was dull except close to the upper dorsal spines and about two inches below the clavicle in front. In the latter situation it was tympanitic. On auscultation there was silence in nearly the whole of the left chest except below the clavicle in front and near the spine posteriorly. On the right side the expiration was prolonged in apex, and some moist râles were audible at base.

On the following day I entered a small-sized needle in the eighth interspace, about three inches from the spine, and drew off with the aspirator fifteen ounces and a half of laudable pus. The lung expanded very quickly, but ten days later, when I sent the patient to the country, there was still dullness at the lower part of the left lung, but vesicular breathing was audible in the dull area. Her general health was much improved, her appetite fair, and she had gained four pounds in weight during the ten days since the operation. After staying for a month in the country she returned, apparently in perfect health, and has continued so up to the present time. The chest is now resonant throughout, and the breath sounds are normal everywhere. The only medicines used were syrup of iodide of iron and cod-liver oil.

With this case before me I cannot help thinking

that simple aspiration might have had a fair trial in many cases where the more serious operation of establishing a drainage from the pleural cavity has been resorted to at the first.

I am, Sir, yours, etc.,

WALTER WEIR, M.B.

Norwood, May, 1883.

ABSENCE OF LOWER AND DEFICIENCY OF UPPER INCISOR TEETH.

To the Editor of THE LANCET.

SIR—A child two years and four months old was brought to me the other day. Its dentition was different from any I have ever previously seen. The teeth were all perfect with the exception of the lower incisors, which were entirely absent, the gums were sharp, and there was no appearance of rudimentary teeth. There were only two upper incisors, which were very large, and shaped like strong canine teeth of an adult. The family history was good; no scrofulous tendency known.

I would be obliged if any of your readers could say whether they have seen such a case, and whether during the second dentition the want was supplied. I am, Sir, yours faithfully,

JOHN R. HAMILTON, M.D., etc.

Elm House, Hawick, N. B., May 7th, 1883.

PECULIAR COLOR REACTION IN URINE AFTER THE ADMINISTRATION OF GURJUN BALSAM.

To the Editor of THE LANCET.

SIR—I have lately been trying gurjun balsam in chronic gleet discharges, etc., and in examining the urine of such patients I find a very remarkable change of color follows after boiling on adding a small quantity of nitric acid, the urine becoming of a blood-red color, soon changing to a deeper red. This peculiar color reaction is very lasting, as I have found it still existing, though in a less degree, in patients who have not taken any of the balsam for two weeks. The color principle appears to be contained in the balsam, and passes through the system unchanged, for if a watery extract be made and treated with nitric acid, an intense red is obtained on boiling. I should be very glad to have any further light thrown upon it. It seems just possible that a portion of its use as a cure in chronic diseases may be due to its slow elimination from the system. I am, Sir, yours, etc.,

BUXTON SHILLITON.

Frederick-place, Old Jewry, E. C., April 24th, 1883.

IS TENDENCY TO DEATH DURING PARTURITION HEREDITARY?

To the Editor of THE LANCET.

SIR—I was recently consulted by a young married lady aged twenty-two for troubles connected with the early stage of her first pregnancy. She is a fragile little body, of English parentage, but born in India.

Finding on inquiry she was in the habit of staying indoors for days together coddling and reading, I tried to impress upon her the necessity of taking plenty of outdoor exercise, so as to raise her physiological tone to its highest pitch, as a medical man would view with considerable anxiety the accouchement of a woman who indulged in such indolent habits, when she volunteered the following extraordinary statement:—

"My mother, grandmother, and great grand-

mother all died in their first confinement." Her mother married at seventeen and died at nineteen, three days after instrumental delivery, in India. She does not know any of the particulars of the other deaths, only the fact that each gave birth to a daughter and then died.

Out of over 1,500 cases of midwifery I have attended, I am thankful to say I have only had two maternal deaths, and in one of them hereditary tendency seemed to be an influence at work. It is over twenty years ago now. I attended the woman in her third and fourth labours. After the last she died of puerperal mania. The husband, when he called for the certificate of death, said, "It is a remarkable thing; both my wives died in their fourth labour, and they were sisters."

Perhaps some of your readers may be able to give further information on this interesting question. —I am, Sir, yours truly,

W. HENRY DAY, L.R.C.P.

Clayton House, Chapel-street, Pentonville, N., May 21st, 1883.

WHO SHOULD HAVE THE CASE?

To the Editor of THE LANCET.

SIR—Kindly give your opinion on the following case in your next issue. A patient of mine sends for me, saying "his gardener has broken his leg." I am not at home, and the groom goes to my neighbor, who attends to the case. As soon as I return I write a note of thanks to my neighbor, and see the case myself next day. The patient in question has never required any medical attendance since the family came into this part, and consequently I have never attended him, though I have attended his master's family and all his dependents for two years. My neighbor claims to be entitled to the case, inasmuch as the man had never been attended by me before. I claim it, because the master sent for me and intended me to have it, and only called in the other practitioner in consequence of my not being at home. I should add that we live in a village and are on good terms, and in the habit of stopping gaps for one another.

I am, Sir, yours, etc.,

TWENTY-FIVE YEARS' PRACTICE.

May 22nd, 1883.

* * According to commercial principles this case should be retained by the practitioner who first saw it. According to professional ones, it should be handed over to our correspondent. It is the peculiarity and the privilege of medical men to stop a gap for each other, and there is no greater happiness in professional life than to know that in one's absence a professional neighbor will act as one's *locum tenens* without any thought of professional advantage.—ED. L.

DR. JOHN S. BILLINGS has been elected a member of the National Academy of Sciences, Washington, U.S.A.

THE Alumni Association of the Jefferson Medical College of Philadelphia has decided to found a Professorship of Pathological Anatomy in the College in honor of Professor S. D. Gross. This is a very fitting tribute to this distinguished surgeon and teacher, since in his earlier years he wrote a book on Pathological Anatomy which was long used as the text-book on the subject in American schools.

THE LANCET.

A Journal of British and Foreign Medicine, Physiology, Surgery,
Chemistry, Criticism, Literature, and News.

JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

PUBLISHED MONTHLY.

No. 2.

NEW YORK, AUGUST, 1883.

Croonian Lectures

ON

MODERN THEORIES AND TREATMENT OF PHTHISIS.

Delivered at the Royal College of Physicians, London,

By JAMES EDWARD POLLOCK, M.D.,

Consulting Physician to the Hospital for Consumption and Diseases of the Chest, Brompton.

LECTURE II.—PART II.

We come now to the experiments of Koch on the bacilli of tubercle, which have attracted so much attention, and seem especially to have awoke the public to the opinion of the specific character and contagious nature of phthisis. I have purposely considered other parasitic diseases before this one, in order that we may see how tubercle is allied to many affections and shares their pathological meaning. We may condense Koch's opinions as follows. By late researches on the tubercle ferment the constant presence of bacilli is proved in recent tubercular formations. These are small, like those of leprosy, but finer, with pointed extremities. Their protoplasm easily colors with methyl blue, the solution having been made alkaline. They are found in great quantity in inflammation of a tuberculous character while progressing; when the height of the affection is past they diminish, as we found in malarious fever. They are always seen in the periphery of tubercular nodules isolated or grouped, in the so-called giant cells, and in chronic tubercle often only in the giant cells. They are always present in caverns mixed with others of analogous form, which do not, however, turn blue with methyl blue; the others take the brown color of vesuvium. In very recent tubercular formations, they are found without the coloring test in bloodvessels, lymphatics, and intercellular spaces. Koch established an artificial culture of these bacilli, making use of the serum of the blood of the ox for that purpose, which he dried by gentle evaporation at a temperature of 122° to 129° F., the coagulation of the serum being avoided. The bacillus of tubercle

must be at a minimum temperature of 94°, the maximum 105°. The bacilli of malaria require a higher temperature. Those of tubercle take about ten days to produce the germs, which cover the surface like scales. With these he experiments on animals (rats and mice). He either introduced bacilli into the blood or into various tissues of the body, and always obtained a positive result—viz., tubercular infection. Nothing occurred in tissues where inoculation was practiced under eight days, the glands inflamed in fourteen days, the general infection of the system took place in six weeks, then tubercle was developed in various organs, chiefly the liver and spleen. In phthisical cases in men half the number had bacilli in the sputa, and Koch never found them in persons not affected by pulmonary tuberculosis. Further, from inoculation with the sputa of phthisis, even when it had been previously dried, he never failed to produce tuberculous infections. The inference would seem to be that a spore producing a bacillus is the cause of phthisis. The opinion and experiments of Crudeli, of Rome, are especially advanced. He thinks scrofulous and tuberculous inflammations distinguished from all other pathological processes which produce cheesy masses by this: that the cheesy masses contain the tubercular contagion, which is proved by the inoculation of rabbits which reproduces the tuberculous inflammation. The cornea of the rabbit inoculated with tubercle evidenced inflammatory action after twenty days, from which tubercle can be reproduced. Tubercle in its earliest days has in its centre a mass of very minute granules, with a small bloodvessel or lymphatic. These granules are not the fatty albuminoid detritus of tissues, for they resist the action of alkalis and ethers. The granules in tubercle are micrococci; they multiply themselves in the blood, and in tissues where scrofulous inflammations are present. A wounded part will be invaded by them if inoculation occur. Bacilli are found in the tubercular nodules, and the peculiar contagion is probably in these. It is found endogenous—that is, it is produced and multiplied in a system affected by what he calls tubercular sickness. It is transmissible from the sick to healthy persons; is found especially in localities where tuberculous men, or animals as oxen, are grouped in numbers; in the morbid secretions of affected organs; in the liquids of normal secretions, and notably in milk. It can be transmitted by using the milk of tuberculous cows, they being very liable to that class of disease.

Klebs made animals tuberculous by feeding them on the milk of tuberculous cows. Lockmann, of Christiania, found a whole population in a district of Sweden, previously free from tuberculous affections, become so soon after the introduction of a breed of Ayrshire cows which were known to be affected by that disease. On this evidence Crudeli asks whether man did not originally derive tubercle from cows through their milk. He says it is a matter of historical record that America had no tubercle before its discovery by Columbus, and the introduction of European population who imported cows. There were no mammiferous herb-eating animals on the American continent previously, excepting the llama of Peru. On this point I think we shall agree to await further evidence. Crudeli considers that tubercle can enter the organism in intra-uterine life through the placenta, also by the father communicating it to the ovum. Tubercular metritis in the female and prostatic tubercular disease in man can infect. The contagion may also enter by the respiratory tract; to breathe the air where many consumptives are assembled, as in hospitals, may turn out very dangerous, and he thinks this is proved by the experience of the Consumption Hospital. The disease is especially communicable from husband to wife. Wounds exposed to tubercular air can be also infected.

Tubercular infection is either primitive and local or general, but in all cases infectious. In those which seem obscure there is some part of the vascular system already the seat of infection, but the general infection is always due to a local primary one. The matter is conveyed by bloodvessels and lymphatics; it forms new foci in glands and organs, where the infection multiplies itself till the whole system is engaged. These foci or stations are determined by local congestions and injuries, producing a diminished resistance of the tissues. Some persons escape the contagion to which they are exposed, as the physiological activity of the tissue, and especially of the circulating powers, hinders the contagion from taking effect. Even when the entry of tubercular infection has occurred, it is limited to that spot of entrance for a time, it being necessary that the condition of the organism be such as to permit the contagion to fix itself and to multiply in it. If it does enter the system it is eliminated by the secretions, the skin and kidneys especially. Crudeli, Koch, and others acknowledge the tubercular habit or constitution, of which they consider that some elements are known, and they confess to a predisposition to tuberculosis. Such are diminished respiratory capacity, lessened cardiac and arterial power and tension compared to the bulk of the tissues. Puberty and rapid growth, the lymphatic and scrofulous habit, incline to phthisis. This is probably caused by the incomplete drainage of any part by the lymphatics, by which a great vulnerability of the lymphatic system is induced. It is confessed that these abnormal conditions can be acquired by bad physical education, deprivation of fresh air, and exercise, etc.; but, again, it is acknowledged that it can be both hereditary and congenital. The difficulties of the therapeutics of such an affection are dwelt on, and I shall again have occasion to notice them; but will mention here that, according to this theory, in every node of tubercle the central part contains the contagion, while surrounding this there is a zone of dead tissue in which circulation has ceased. Across this zone the specific ferment can pass in the interstices between the cells; but the therapeutic agent cannot pass, and has already been greatly diluted in the mass of the blood. The same observation has been applied to the thickening of tissues surrounding syphilis. But, granting

that we have arrived at the fact that in all tubercle, or so-called tubercle, and in all the secondary structure changes of phthisis we can recognize a certain parasite, in what manner do those changes manifest themselves in the system?

Perhaps a division (made by others) may be followed with advantage—namely, septic acute changes and specific changes. In the former we must class infection from wounds, putrid matters, the exanthemata, erysipelas, diphtheria, typhoid, malaria; in the latter syphilis and tubercle, and perhaps rheumatism. Septicæmia is distinguished from all others by its short incubation period, and by its not having any elective seat in the system: for it pervades all tissues with rapidity. Typhoid, variola, and the exanthema, with diphtheria, seem to have selected tissues in which to germinate, as the intestine in typhoid and the nerve-centres in diphtheria. Rabies stands alone with a long incubation period and an acute final crisis, but in this it is resembled by rheumatism.

Taking, however, all diseases attributed to parasitic germs, excepting septicæmia, there seems to be a mode of evolution in common. They all have to find a nidus or station—a tissue of the body, in fact, selected by, and peculiar to, that particular germ in which it can, and does, mature and fructify. The incubation period, be it long or short, is just this time in which the seed is undergoing those changes which a grain of wheat does in the soil of the earth. That particular grain dies, but in dying multiplies itself indefinitely. The new germs are let loose into the circulation and lymphatics, for they are small enough to enter the smallest of these vessels, and then a fresh colony is formed in another site, perhaps in another organ. At the date of the first settlement of germs in phthisis there are febrile symptoms and inflammatory products, or so-called tubercle, in a localized part. During the incubation period there is a pause, be it diurnal or of days, or even a longer interval; and at the first evolution of new germs there is renewed pyrexia, and either extension locally of the first mischief detected in an organ, or a secondary nidus of disease set up at a distance. Taking the malarious disease in its common form of ague, the cold stage is that of first evolution of germs into the blood; they diminish in the hot, and die in the remission period. The pause is the incubation period, followed by similar phenomena in a cycle.

Now, applying this theory to phthisis as we see it, we have much that is plausible in this matter-of-fact way of interpreting its symptoms. The seed-sowing time, the period initiative of active symptoms, when the patient is in a subfebrile state, with few or no signs of local irritation in the lungs, is the time when he has received germs into the economy, and which he has failed to eliminate. The evolution period is that highly feverish state, with slight remissions, when the inflammatory or tubercular product is breaking up. At such time, say the theorists, the new crop of germs is being let loose into the system. At this period all the secretions are apt to be disordered, that of the skin and kidneys especially, and diarrhoea often sets in. An elimination is being attempted, and, perhaps, fails. Just then we often find a doubtful sound of crackle, with a little dulness of the apex or base of the opposite lung, and here is now a nidus station, or colony of the germs, which have been formed at the first station and been carried hither by the known channels of the circulation or lymphatics. The pauses or subsidence of symptoms in phthisis are very familiar to us, and we are asked to believe that they are the periods when the seed sown is again silently preparing a new crop in the soil of the tissues. The third period of local dis-

case, when much structure has broken down and a pus-secreting surface is formed, is known to abound in these bacilli, which are abundantly found in the sputa and other secretions of the patients.

I come now, Sir, to the crucial question whether, granting that these parasites are found in all cases of phthisis, granting that their inoculation in animals will produce a like disease, are the clinical phenomena of phthisis sufficiently accounted for by the germ theory? and in the few observations which I shall make I must ask you to class me as an inquirer and not as an advocate, being well assured that you are yourselves precisely in that mental attitude of impartiality which is open to the reception of new truths, but repellent of obvious error. The story of phthisis is commonly this. In certain persons, whose constitution is predisposed, or who have inherited a predisposition to a form of disease, and most commonly at a certain age, with or without actual cold taking or manifest cause, a slight wasting occurs with a subfebrile state followed by pulmonary symptoms, as cough and expectoration, and blood-spitting. A physical examination reveals incipient disease in a portion of lung. As regards heredity, this sequence of events is so common in some families that a whole generation will be carried off at about the same age. The sickness I am describing will take place without any exposure or direct contact with persons similarly diseased. Nay, it will occur to the members of the same family living at the greatest distances from each other, some in America, some in England. There is another form of disease called accidental, because it is not proved to be inherited from an ancestor, and seems to be due to causes of local origin, as taking of cold, pneumonia, etc., and this again without previous contact with persons similarly diseased.

Are we to believe that both varieties, the inherited and accidental, are instances of seeds, that is germs, introduced into the system from without, and there producing the characteristics, multiplication and fructification, which we have been studying? Or, if germs, then in the inherited form were they derived from the parent? This implies a long latent period of years during which the germ has been there but produced no effects on the system? Again, the introduction of such germs into the system in other than inherited cases should be a matter of proof and certainty before the theory can be received. A person falls into ill-health from depressing causes, as poor food, bad dwelling, anxiety, loss of sleep, and such like, and becomes phthisical, but where are the germs? The theorist will tell us that in such a state the individual we have supposed presents the exact soil suited for the reception and growth of such germs of disease. And so it is; but the field well ploughed and manured and ready for the seed-sowing will produce no grain unless the germs are introduced. The theorist will no doubt say, as regards the hereditary cases, that the seed was sown before birth; but if this be true, what a long period of incubation it has required. The introduction of the germs seems to me to be a difficulty yet unsolved. It is not sufficient to prove that germs introduced will bring forth fruit. This indeed seems clear from the evidence, but that such germs have been sown as an antecedent to all cases of phthisis has not been proved, and must be proved before we can accept the proposition in its entirety that phthisis has its origin in parasites.

In pursuing the clinical history of phthisis, we must, however, acknowledge that in its later stages the theory of the fructification and multiplication of germs harmonizes well with what we

observe at the bedside. The theory is that the germ has first a local position—say in the lung—that after a period of incubation it multiplies, and that parasites are carried by the blood and lymphatics to another and distant part where a colony, or station, or nidus is formed, a fresh deposit of morbid parasitic matter taking place with the same phenomena as in the first local irritation and general febrile disorder. Now, the story of phthisis is well known to consist of exacerbations and remissions, and the history of secondary deposits of miliary tubercle, of secondary infections of the opposite lung, and of the small intestine and of meningitis, singularly corresponds with the theory we have described. In the latest stages of cavity-bronchiectasis, etc., the phenomena are often more septic than specific; yet, if we may adopt the germ theory, we have a ready solution of the clinical conditions. The presence of a peculiar germ appears to be proved, and its secondary results seem demonstrated; but its originating power, its being the sole and invariable cause of the disease, seems scarcely proved. Comparing the tubercular germs with those of other parasitic diseases, we may have some light thrown on the *modus operandi*. Take malarious fever. In the experiments I have detailed it seems certain that malarious micrococci can be detected and cultivated and inoculated, with the invariable sequence of certain symptoms, the blood examined containing more bacilli in the invasion stage and less in the hot and sweating stages of ague, while in the remission period they nearly disappear. The poison is peculiar to certain localities, persons not visiting those places do not get the disease. It is proved to be non-contagious—that is, no contact of individuals will convey it from one to the other. The nature of the attacks and remissions so resemble phthisis that I have selected it first for comparison. If phthisis be contagious, why is not malarious fever or ague also?

I take, again, rheumatic fever, in which the bacilli are most marked in the fibrous structures and muscles, the endocardium, etc. Its symptoms also are acute pyrexia with profuse sweatings. It is one of the most heritable of diseases, and runs in families to a remarkable extent. What of the germs? Were they congenitally introduced; or were they acquired from outside? What of the latent or incubation period? A man will often have an interval of seven or ten years between the attacks. Are the germs there, but latent for all that time? Is it that they have not reached that part of the system capable of assisting in their multiplication? This can scarcely be, seeing that in some former attack a nidus may have already been formed in a joint or in the mitral valve. Again, has ever anyone supposed rheumatism to be contagious? In syphilis we certainly find a more close analogy to phthisis than in the other affections named. Granting the introduction into the system of a definite poison by an ascertained inoculation, we find a long latent period followed by characteristic symptoms—skin rashes with pyrexia, and deposits in distant organs: the brain, the tongue, the periosteum. The theory of successive developments of parasites will fit in here; or rather let us say that, parasitic or not, an infecting material first found in the hard chancre has passed through the blood and lymphatics and manifested itself after a long interval in distant parts. Its identity with the inoculated spot is further evidenced by its amenability to certain specific remedies, as mercury and iodine. We see in both syphilis and tubercle a selection of certain tissues, and we may contrast this with purely septic infections which seem to develop germs in all tissues and membranes.

But beyond all these analogies, and lying deeper in our pathology than any discovery of parasites, are other questions. Can all the systemic phenomena of such diseases be accounted for by accepting the proposed theory? Let us take phthisis tubercle, excluding miliary tuberculosis in its acute primary form. If asked what are the prominent systemic characters of phthisis, we should reply fever and waste. The characteristics of fever are disintegration of the living substance of the body, and increased and diminished constancy of bodily temperature. Fever is not merely a state but a process, and, as Burdon-Sanderson says, has had its beginning in the entrance into or action on the system of some affecting or infecting cause. The cause of waste is a consumption of albumen, which passes out of the system as urea, and which is derived either from blood-corpuscles, or from muscular detritus, or from both. It is probable that a breaking down of the blood-corpuscles is a part of the febrile process. The coloring-matter of the blood is the means by which oxygen is distributed to the tissues, and the destruction of it must impair every function of organic life. In fever the excessive nitrogen and carbonic acid passing out of the system is supplied by the waste of muscle and of blood-corpuscles. The same authority remarks that the tissue origin of fever is the basis on which we hope eventually to construct an explanation of the process. Fever probably originates with living tissues, and is from first to last a disease of the protoplasm, to which all systemic disturbances are secondary. He adds that at bottom we are all humoralists and believe in infection, and that fever is tacitly assumed to be the product of a material fever-producing cause contained in the blood or tissue juice, the morbid action of which on the organism is antecedent to all functional disturbances whatever. In applying these facts and theories to phthisis we may see how large a question is the pathology of that disease, and how inseparable are its phenomena from those produced by other affections accompanied by elevated temperatures and waste. That it has some analogies to purely zymotic disease is undoubted, but the question may fairly be asked whether in the absence of proof of the entrance or inoculation of any germ it is not possible to conceive blood changes which may originate the train of symptoms. The moment that the blood is overlaid by nitrogenous material, its corpuscles destroyed, and the detritus of muscular waste poured into it, we are assured that the presence of bacilli is manifested. In all degradations of vital fluids, nay, of all organized structures, do we not observe the same law, the development of parasites? Those more evident to our senses, as all the parasitic worms, assail the enfeebled body and enfeebled tissues, so many parasites, and in the vegetable world innumerable lower growths, become manifest when the organization of the tree or plant is impaired. May it not be so also in those blood changes which precede the development of tubercle? May it be possible that the bacillus is the consequence, and not the cause, of the disease? the lower organization which replaces the healthy blood-corpuscle? In the present state of our pathology it is impossible to answer these questions, but thoughtful inquiry will consider them in weighing the evidence which time and experiment will shortly develop on all sides. For we cannot stop where we are, nor at once accept as a solution to all our difficulties the theory which has its avowed basis in experiment and not in clinical observation, and which is as yet rather the fruit of the laboratory than of the hospital.

LECTURE III.

MR. PRESIDENT AND GENTLEMEN—In considering the whole modern history of researches into phthisis, its nature and its difficulties, we are struck at once with the return to Laennec's original doctrine of the specific character of tubercle. That there is a definite product, an entity with peculiar and distinguishable characters, with invariable results, and that the disease of phthisis is a pathological unity, have become more and more the doctrine of the day. Be tubercle what it may, it is now more defined than ever; and if we can assign to it an unvarying cause of production, an origin constant and unique, in a germ-producing bacillus, we have certainly receded from some late teaching. If tubercle, or those small masses seen on the lung and prone to cheesy degeneration, be only common products of ordinary inflammation, as some have taught, we must believe that ordinary pulmonic inflammation, if it affect the walls of the alveoli and the interlobular tissue, has its origin in the parasitic germ. Koch attributes miliary tubercle and all cheesy degenerative nodules to the bacilli. He has inoculated with them all, and found the same result.

Since Koch's observations have been published there have of course been many experimenters anxious to prove or to disprove them, and we have already numerous records of their experience. In Germany, Fränkel found bacilli in 120 cases of phthisis, which were all he examined, and Heron in sixty-two cases. Dr. Dreschfeld, of Manchester, has contributed most valuable observations. He found the tubercle bacilli in all cases (forty-six) of phthisis where the physical signs were well marked. He has also examined six cases of bronchitis and emphysema, one of bronchiectasis, and two of fibroid phthisis, without finding bacilli. Of catarrhal pneumonia he had three cases with the same result. In two well-marked cases of lung disease there were no bacilli. Taking cases of tubercular disease of organs other than the lung, Fränkel found bacilli in fifteen out of sixteen cases in the secretion covering laryngeal ulcers, and Crudeli found them always in the stools of tubercular enteritis. Rosenstein also found bacilli in the urine of a patient who had tuberculous disease of the epididymis, the lungs being free from disease. Fränkel also in the pus of a scrofulous joint. We thus seem to have it proved that bacilli are present in all tuberculous disease, and absent in non-phthisical lung affections.

As regards the stage of lung disease in which they are most prevalent, observations show that it is rather in the later stages that they are in greatest quantity. Our evidence hitherto also seems to prove that their greater number is accompanied by a higher degree of pyrexia, and signifies a more acute form of disease. On this point further observations are necessary, and the same may be said of acute miliary tuberculosis, about which we have hitherto no evidence. My colleague, Dr. Williams, has examined the sputa in 130 cases of Brompton Hospital. Of these, 109 were cases of phthisis, cavities in eighty-one; nine were cases of early consolidation. Bacilli were found in all of them, excepting three. There were twenty cases examined of other lung affections—bronchitis, bronchiectasis, pleurisy, empyema, pulmonary congestion from heart disease, but bacilli were found in any of them. Of the cases of phthisis, there was pyrexia in fifty the temperature ranging from 100° to 105°. The fact of Koch's discovery as sufficiently established, and that, bacilli being found in all cases of phthisis, they stand in the position of a causative agent, and taking also into due estimation the

persons exposed do not get the disease, we have to inquire whether there are not antecedent conditions—that is, conditions prior to the introduction of the germs—which favor their development. There is, we may assert, a state of health, or of constitution, or of lung, which is a main factor in the induction of disease. It is here that the old pathology meets the new, and we imagine that it will be found that in all instances there is a pre-existing state which prepares the way for such germs as shall be accidentally introduced. This consideration demands our earnest attention. The period to which we allude is as much a first stage period as is the manured and prepared bed in the garden to the crop which is to grow in it. It is probable, nay certain, that germs daily enter the air-passages and take no root. The two factors of heredity and inflammation are those which all recognize as difficulties in the way of accepting off-hand the bacillus theory. But they seem to be the agents which exactly prepare the way for the reception of infective germs. In the first lecture we dwelt on the evidence for the presence of inflammatory products in all cases of phthisis, and it is so proved that it cannot be omitted in any theory of the disease.

Let us examine what heredity and inflammation do and how they are supposed to act. Heredity may mean not only a germ conveyed by the parent or more remote ancestor, but may, and in fact often is, a weakness of constitution, a tendency to disease, an especial vulnerability of lungs, and proneness to their inflammation. As Dr. Green has remarked, the tendency to retention and accumulation of inflammatory products is a leading character of scrofulous inflammations. An inherited proclivity to phthisis favors congestion. It is also conceivable that a want of tone of the bloodvessels is inherited, with a general deficiency in the power of products of the circulation, which no doubt favors transudation of low vitality. On the whole, then, a want of resistance to such attacks is held to be the most likely preparation of a bed which will grow bacilli. A mere exposure of the bronchial membrane is not considered sufficient for their development, but their entrance to and impaction in the alveoli.

Another question which has been dwelt on by Dr. Green and others is the condition of the apex of the lung. The common localization of tubercle in the apex has been referred to a diminished range of movement tending to stagnation in the pulmonary capillaries, a state which is closely allied to congestion and the formation of inflammatory products. In this manner a nidus or bed is formed fit for the reception of germs, and ready to reproduce them. Thus the old pathology joins on to the new, and we carry the idea of inflammation as a necessary preparation for the reception of the bacilli. It is indeed essential to conceive some such preparation for the elaboration of the germ into an established disease of specific character, and it also accounts for the innumerable cases of exposure to contagion where no disease results, for we must uphold that clinical experience is against the contagious nature of phthisis, and that something more is required than the mere presence of the organisms. Again, we would say that the recognized observation that the walls of the alveoli are essentially engaged in true tubercular disease favors the bacillus theory, the germs being found in that position. We seem, then, to have advanced from one pathological view to another, and, if Koch's observations turn out to be correct, he has discovered that specific element of disease to which all advancing pathology pointed, and which the best observers were expecting. It is not a contradiction of their observations, but an

addition, which is not out of harmony with their results, and may even account for phenomena for which all previous reasoning had failed to find an adequate cause. It is in these subtle causes which influence the constitution as heredity and sexual transmission of tendencies to disease, and even of particular forms of disease bearing the same name, that we shall find ground for referring the germ theory to some deeper line of argument than can be resolved by a chemical experiment. Whole families are liable in a peculiar degree to phthisis, to rheumatism, to typhoid, to diphtheria, or to scarlet fever poisons. They seem to have been born with a proclivity which others have not. Is phthisis always the result of contact with diseased persons? Is the seed always sown at a given time, and can we gather more than one kind of fruit from a definite germ? Again, is it not possible to account for the phenomena of phthisis in another way? Granted that a given cause has originated a local deposit in the lung, do we see more in the symptoms of irritative fever so initiated than can be accounted for by the local cause of impacted alveoli, with compressed and strangled walls, pressure on the nutritive and pulmonary vessels, and resulting necrosis? Only last year we should have said "No." Again, are we to class all diseases from germs as of one or two kinds, say, septic and non-septic? There is a vast difference between the infection from the spirilli of anthrax and the bacilli of tubercle, as we have seen both in the incubative and crisis periods, in the latency and intensity of the symptoms, yet some of the later symptoms of phthisis are very like septic poisoning.

The question of the contagious nature of phthisis is one which cannot be decided by experiments of inoculation alone. They go a long way towards establishing a likelihood, but must be backed by clinical evidence of the largest kind. In discussing the question we are met in the outset by the fact that other diseases in which infective germs are found are well known not to be contagious—that is, capable of being communicated by one individual to another. The malarial poison and rheumatism are illustrations, as is also pneumonia of the acute or croupous variety. In the latter, according to Crudele and Koch, micrococci are found in the exudation in the alveoli of the lung, in the pia mater in cases of pneumonia with meningitis, in red hepatization, and in the interalveolar tissue. The clinical evidence will have to prove that in a large number of cases, not to be accounted for in any other way, phthisis has been conveyed from one person to another; it would also be expected that the poison would be intensified by the grouping of large numbers of diseased persons together, as in the Consumption Hospital. As a very remarkable outbreak of disease occurred in my own clinical practice at Brompton Hospital, I may with advantage quote it here. A few years since, in the old building at Brompton, an error was discovered in the ventilation. The system of Dr. Arnott had been adopted when the hospital was built, by which air was driven by a fan at the basement through various air-passages which permeated the building, in the walls and under the floors. There was no extracting power used, but the wards were furnished with the usual Arnott's ventilators opening into the chimneys. A serious outbreak of erysipelas occurred in several of my wards, which were in the terminal part of the system of air-passages—that is, in the portion furthest removed from the entrance of air at the basement. We had many cases and several deaths. This event led to an examination of the system, when it was found that really no air at all found its way into those wards by the shafts, the propelling power at the basement being quite insufficient. There had been

several preceding but more slight outbreaks of erysipelas, and more than the usual amount of "hospital throats." The ventilation was immediately rectified, and the system of extraction substituted which now works so well both in the new hospital and the old one; and since then there has been no more erysipelas. Now we may ask why had we not an outbreak of phthisis among the sisters and attendants instead of an attack of erysipelas? The germ was evidently septic, and produced its customary effects; but the bacilli of phthisis must also have been present in great abundance in the unrenewed air, and ought to have produced the characteristic results. I may mention here that bacilli in fair numbers have been discovered in the air of the extracting shafts of the hospital, which carry off the used air from the wards and passages.

Regarding the experience of the hospital since it was established, the evidence has been most carefully collected by several observers—by my late colleagues, Dr. Cotton, Mr. Edwards, the late resident medical officer, and more lately and completely by my colleague, Dr. Williams; and as this comprehends by far the largest experience of phthisis to be found in any country, I shall here condense it for our use. It is the more valuable as Crudeli has expressly quoted the evidence of the Brompton Hospital to prove the opposite. I think it can be shown that after an experience of thirty-six years during which the hospital has been established, not only has no infecting process been evidenced, but that the medical officers and nursing staff, and the officials and servants have been unusually free from phthisis. Three different forms of infection are possible: first, that by inhalation of the air breathed by phthisical patients, or of the germs set free by their secretions; secondly, infection by marriage, which partly includes the first, the husband and wife commonly occupying the same room and bed, but impregnation by one diseased parent may, through the ovum or placenta, affect the offspring; a third is stated to be by milk of diseased animals, or of the mother. The first will engage our brief attention now—namely, that from contact with phthisical persons, and breathing the same air. The hospital began with 90 beds, increased in 1856 to 200. At present there are 240 beds in use. The ventilation, which I have described, was very faulty in the earlier years, but has now for a long time been carried on by extraction of the used air, which has been proved to produce complete change of the whole air of any ward at least twice in one hour. The faulty system of Arnott was, however, adopted in one wing, that first built. Three-fourths of the cases are phthisis in all its stages. The others are pleurisy, empyema, bronchitis, asthma, and heart disease. In the old building the dispensary rooms were bad, and in direct communication with the out-patient department, where from two to three hundred patients attended daily, most of whom were consumptives. The residents in the hospital comprise medical officer, lady superintendent, four clinical assistants (who reside for six months), sisters, nurses, and servants. All the resident medical officers are now alive, and all the matrons but one, who died in advanced age. About one hundred and fifty clinical assistants have held office. They work in the wards and spend much of their time in the post-mortem room. Eight of them are known to have had consumption, generally at long periods after leaving the hospital, but none had it while resident; one had hæmoptysis before coming into residence, and in only one instance was it clearly proved that the disease was contracted while in the hospital. The sisters sleep in rooms communicating with the wards and gal-

leries, and have a system of ventilation common to the patients. The nurses sleep in rooms above the wards, but of course are all day in attendance on the sick. In the course of thirty-six years only one had consumption while in the hospital. She married a consumptive patient, and ultimately died in the hospital. Three died of phthisis some time after leaving the hospital, two of whom were attacked many years after. Since 1867 there have been one hundred and one nurses, of whom one died of phthisis some time after leaving. The gallery-maids scrub the wards daily. We have had thirty-two since 1867, but no case of phthisis occurred. Of porters most of whom have to work in the dead-room, we have had twenty, none of whom had phthisis. Of dispensers, we have had twenty-two. Among them three cases of phthisis, one of whom only was ill while in the hospital; the other two contracted the disease after leaving, one from intemperate habits. There have been twenty-nine physicians and assistant-physicians, of whom eight have died; one only died of consumption, which he had contracted before his appointment. There have been four chaplains, and nine persons in the secretary's office, but no phthisis among them.

Regarding the communicability of phthisis from husband to wife and *vice versa*, Dr. Hermann Weber's cases, published in 1874, give support to the opinion that the disease is communicable in this relation, and eminently from the husband to the wife. In the cases of thirty-nine diseased husbands, the wives of nine of them became consumptive after marriage, or taking second and third marriages into consideration that in fifty-one cases eighteen wives suffered from the disease. In comparing this with fifty-one marriages between healthy husbands and wives, we certainly do not find such a proportion of consumption among the wives. He found also that in twenty-nine marriages between consumptive wives and healthy husbands, only one husband became consumptive. He thinks that this disproportion can scarcely be explained by the ordinary means of intercourse. The wife, it is true, runs greater risk than the husband through nursing her husband much more closely, and so being more in the atmosphere of the sick room, but this does not explain the great preponderance of wives in the present case, for with scarcely an exception the husbands were in good health, not one being confined to the sick room. Dr. Weber considers that a more likely cause is to be found in impregnation and infection through the fœtus. And so far as his data go he found that wives who do not become pregnant are more likely to escape infection. He remarks on the great rapidity of the form of disease in the wives and its slowness or quiescent character in the husbands. The remarriage of consumptive widowers thus becomes a serious problem if these facts prove to be of general application. My colleague, Dr. Reginald Thompson, considers that he had seen fifteen instances of wives becoming infected through nursing consumptive husbands out of a total of 15,000 consumptives. He evidently inclines to the opinion that the symptoms of phthisis in these cases are rather due to septic than specific tubercular germs, the latter phenomena being pyæmic in most instances. In these communicated cases the symptoms were acute, and the morbid appearances almost pyæmic. My own experience, which has not been inconsiderable, and has extended over thirty years of hospital and private practice, does not supply other than occasional instances of the apparent communicability of phthisis, either in the case of husband and wife or of attendant on the sick. In families whose members successively fell victims to the disease, the attack seemed rather due to the peculiar age at

which persons closely related by blood begin to exhibit its symptoms. On the other hand, I have seen many instances in which the most assiduous personal nursing of the sick, living in the same room, sleeping in the same bed, and undergoing the same influences of air and lodging, of anxiety and harass as the sick, has failed to produce it. There have been waste of flesh and strength, loss of sleep and appetite, and all the evidence of depressed vital powers in numerous cases, but no phthisis. The apprehension of the disease has added to the risk, but the tried and trusty attendant has outlived the trial, and survived (often unwillingly survived) the object on which these attentions have been unselfishly lavished. This, too, has occurred again and again where an inherited taint has rendered the disease most probable to invade. But I confess that further and searching investigations are needed on this question, investigations which shall extend over this and other countries, which shall not have been dictated by already formed theories, and which shall stand the closest and most impartial scrutiny. As I shall presently notice, the result is of the gravest social importance, and is one on which the profession will often be called upon to decide in varied domestic problems, influencing the lives and happiness of families. In Southern Europe the opinion of the contagiousness of phthisis has long been held, and in Italy especially, where I have often witnessed the expense to which surviving relatives have been put after a death from phthisis in a lodging or hotel. I fear that the advanced views of Professor Crudell in Rome will not tend to lessen this apprehension of contagion nor render the residence of consumptive invalids more agreeable in that city.

In approaching the subject of the rational treatment of phthisis, that is, its management, according to our latest knowledge of its causes and progress, we are met on all sides by problems and difficulties. Our first and most natural division of such a subject is into prevention and cure. But what have we got to treat? a specific disease blocking the lung with nodules? an inflammation? or a parasite? Further consideration would lead us to the question of stages. If we have settled what is the cause, the true *materies morbi*, we shall have to regard it in its receptive or initiative stage, what used to be called the hopeful stage of phthisis, when cure was said to be possible; and secondarily, in its structural change stage, when structural mischief is established and parts of the lung are broken down. In the attempted division lie the difficulties of phthisis, yet in the present day especially they must not be put aside with impatience, nor handed over to empiricism, which is one of our dangers. With new theories there are always waiting men who say this is the cause of the disease, behold the cure! Yet this complex affection only still more shows its complexity when we come to apply theory of any kind to practice. We are, on approaching it closely and with impartial minds, struck with the fact that its phenomena are of mixed pathological import, and quite other than unique and constant. Let us take the first question. Is it a specific tubercle, or an inflammation, or a parasite? Judged by its pathological and clinical history, it is each and all of these at once. We find a disorder of local irritation and a pyrexial constitutional state; we find a period of quiet invasion, followed by one of much disturbance and proceeding to recognizable structural destruction—this is the story of inflammation of lung structure, and of the breaking up of the product involving death of surrounding tissues. Yes, but it is the story also of a germ introduced from without, lodging in the lung as a

nidus, fructifying and multiplying, and discharging bacilli into the blood and lymphatics. After a while we find perhaps a secondary centre of disease in the opposite lung. It is a second nidus or station of germs, says the parasitic theorist; it is the detritus of caseated material or a fresh military eruption, says the tubercle believer; it is a fresh inflammation-product centre, says a third. Anyhow, our patient is fevered and wasted, and physical evidence shows that he has one diseased spot, if not two, in the lungs. The treatment of such a state of things (I mean pyrexia, waste, and physical signs of a solid patch in a lung) used to be by local depletion and salines, and we have also seen the dulness over the lung diminish, and the patient relieved from cough and pain and pyrexia, by such means. Whether we were treating a tubercular deposit or an inflammation or a nidus of parasites, we were doing good to our patient. My own belief is that whatever was the primary cause of the lung irritation, we were procuring the absorption of purely inflammatory products in the lung. Practical men will probably agree with me. A study of its phenomena, then, will scarcely assist us in defining its cause, and if it be any of those insisted on by different schools, the practice does not, hitherto has not, varied with advantage to the patient. The believer in parasites will, however, tell his patient to inhale antiseptics, on the theory that their destruction will be accomplished in the lung and their multiplication prevented. However, even the theorist will acknowledge that there are other products in the lung besides bacilli, others even more removable. The introduction of remedies of sufficient power to kill parasitic germs through the blood and the diseased tissues has been, of course, advocated. But it has been well proved that this same cause which has cut off a portion of lung by strangling its vessels, has also rendered it very impervious to remedies approaching it through the circulation.

We fall back, then, on consideration of prevention. If it were possible on the parasite theory to prevent the introduction of germs into the system we should have no phthisis. Sow no seed, and you will have no crops. I suppose that those of us who, like myself, have tried to amuse their leisure with a garden have found less trouble in getting seeds to grow than in exterminating weeds. You dig up, burn, destroy, and after a few years of this preventive work you will have a tolerably clear area, and with excessive care may get on with only ordinary weeding. But still you will find that your soil is peculiarly suited to the production of certain rapidly growing, wide-spreading weeds, which, like the tares in the wheat, choke the healthy plant. The seed-germs, you know, are in the air, sailing on feathered wings, or hidden in the soil till spring comes, growth time; or they are of insect production, and a bird of the air has borne them; or an unseen wind has dropped them on the appropriate spot where their reproduction is certain. Such as this is what farmers call "blight." You sleep, and rise, and your potatoes or hops are covered with germs. There seems to me to be a very close analogy in all this to the germ theory of phthisis. The weed or blight and the germ theory of disease are like living organisms seeking a nidus for multiplication. On the other hand, receptivity of soil is an essential requisite to reproduction. To destroy germs, or to prevent their access and to render the soil unfertile as regards the weed, are the two problems. In an extensive experiment on sweet peas I found that the snails ate up all the seed in the earth. I applied nitrate of soda, when the snails vanished, and a second sowing on the same spot immediately produced the flowering plants.

I had destroyed the animal life, but rendered the soil fertile for the vegetable seed.

We have already noticed that all the theorists acknowledge a certain vulnerability of constitution which predisposes to the reception of the germs of disease and to their fructification. This seems essential to the production of tubercle, of specific inflammation, of parasitic bacilli. It is heritable and peculiar to certain ages. A concentrated heredity will invite phthisis at an earlier age than it would otherwise be due, and in a more intense form, as where both parents were consumptive. This constitution or proclivity is a well-recognized and perfectly proved condition; and it stands apart from all theories of the nature and proximate cause of the tubercular disease, and must be considered in every argument on the subject. It forms the receptive soil, without which, in the vast majority of cases, the germs will not take root; for all of us are exposed to germ agents, but few of us get the disease. If, then, we are to begin with prevention, we must counteract the constitution and prevent the vulnerability. The marriage of persons predisposed to phthisis or already phthisical should be forbidden. Where consumption is already in a family, the marriage of cousins would precipitate the malady, and ought not to take place. All that is invigorating in residence, habits of living, and diet should be strictly enjoined, and the open-air life insisted on as far as is possible. A hardening process of the surface of the body should be practiced by cold sponging and exercise in the fresh air; and sleeping chambers should be spacious and not overheated. But I need not here dwell on the recognized mode of dealing with those who are delicate but not diseased. If we adopt the parasitic theory—that is, that germs can be introduced from without by contact with a sick person—such contact should be forbidden, especially the occupancy of the same room or sleeping in the same bed with consumptive persons. I see no less stern an injunction than this to be possible to those who consistently believe in the germ theory. While we cultivate all that encourages the vitality and resistance power which we know to be hostile to the advance of disease, we are bound to protect those most exposed to its ravages. But if we seem to have it proved that we are exposed to a danger little suspected before from contact with the sick, there is a possible compensation to be found in the doctrine of the culture of germs by artificial means. In the experiments with the spirilli of anthrax it was found that by passing them through many animals, thus securing a repeated generation of the parasite, the intensity of the poison was greatly increased, so that an infinitesimal quantity sufficed for inoculation. But, again, it was found that by culture and reducing means applied to certain ferments, as those of splenic fever in the lower animals, the intensity of the poison could be reduced, as in the experiments of Büchner, who was able to mitigate the poison of the anthrax to the comparatively harmless "hay bacillus." There is a hope, therefore, in the minds of some that it may be proved possible to reduce the power of tubercle parasites by passing them through lower animals, and so be able to inoculate man with a mild form of tuberculous disease, which, theoretically, might prove to be preventive of other attacks of the same kinds. The experiments on the inoculation of syphilis will be in the memory of all of us. The virus had not been reduced by culture, or by passing it through other animals, and it is the opinion of Hutchinson and others that syphilis is not transmissible beyond the third generation. It is a well-known theory of vaccinia that that disease is only variola modi-

fied by passing through the system of the cow. We dare not indulge fanciful speculations on the subject, but that there is a future possibly productive of great practical results few can doubt.

The prevention of contagion, by declining to group consumptive people together in large numbers, is one of great national importance. There is no country which has built so large a hospital for consumption as we have. I have stated my own convictions on the question of contagion by personal contact in the ordinary way; but I have always upheld that phthisis would be better treated in separate dwellings, if possible in the country, rather than in cities, on dry soil, and on elevated localities. There can be no excuse for the grouping together of so many persons suffering from one disease, and that, too, productive of copious discharges from the air-passages, except that of convenience. Convenience for treating numbers together implies economy of money and of skill, and of all the appliances for the care of the sick. While acknowledging the necessity, we should exercise the greatest care in ventilation, cleanliness, the frequent removal of sputa, and of what is not often sufficiently attended to—the renewal of underclothing of the sick. Dust should never be allowed to accumulate, and the air-passages of the building should be frequently examined and cleansed.

I have stated the evidence obtainable as to whether the Brompton Hospital has been a spreader of consumption, and I must leave each to form his own conclusions. In doing so two things are to be remembered:—First, that great cleanliness has been always practiced; and next, that when the ventilation went wrong the outbreak of sickness which followed was septic, not tubercular. In treating the stage of phthisis in which lung disorganization is taking place, and according to the new theory a number of material germs are set free and find their way into the blood and lymphatics, there can be no reason why a fair use of antiseptics should not be practiced. The germ-destroying properties of many chemicals are now known; but we are yet in the infancy of efficient modes of applying them. Inhalations as now practiced are only made use of for short periods; but a long continued exposure of the air-passages to various vapors capable of being inhaled should surely be had recourse to. Not only should inhalers be used which may alter the septic character of the secretions, but to give the system a fair trial, the patient should be placed in a chamber impregnated with certain vapors, as carbolic acid, sulphurous acid, iodoform, and such like, and allowed to remain for hours exposed to their influence. In the new building at Brompton we have had such chambers constructed, and I trust we may shortly hear details of the results. By all the later theorists the local treatment of the lung has been brought into prominence, and there are other considerations besides the use of antiseptic or germ-destroying local applications which need further investigation. Such are the conditions of altered pressure to which the lung may be subjected. The collapse of its cells may thus be obviated, and the expansion and increased vital energy of alveoli bordering on those already blocked or injured may be promoted. We seem to have been waiting too helplessly for something to guide our treatment before having recourse to methods of altering pressure and increasing the vitality of tissues, of correcting foul secretions or stimulating languid and devitalized products of diseased action, which the surgeon daily applies to outward wounds with advantage, and frequently with success. In the new Brompton Hospital there are air chambers to which diminished or increased

pressure can be applied. The results hitherto published at other places have been limited and perhaps somewhat empirical, but no doubt time will develop correct opinions on this important question. We already know that the contraction and even ultimate closure of the cavities in the lung greatly depend on the condition of the surrounding lung tissues, and especially of the neighboring alveoli. That which Dr. Ewart has called compensatory hypertrophy, and which supplies mechanical extension of the healthy parts of the lung, acts both by improving the general condition of the system by affording more respiratory space, and also by pressure on the cavity walls. The boundary zone of a cavity may be more or less consolidated by fibrous alterations, by pneumonic deposits, and by pleural thickening. It is impervious and tough, and but little vascular. If a cavity were not so surrounded, its collapse and cure would in many instances follow a suspension of the morbid events of which it is the seat—purulent infective secretions, not unfrequently charged with bacilli. The effects of altered atmospheric pressure may be found of the greatest use in furthering the processes of dwindling and contraction.

Let us very briefly consider this cavity stage of phthisis. The possibility of the healing may be regarded as proved. Hertler, of Vienna, in 1880, had collected 780 cases in which cavity of the lung had become obsolescent, and in several of these complete cicatrization had taken place. There is no doubt that the physical signs of cavity often disappear, although it is likely that this is due rather to collapse than to obliteration. First, the reparative change appears to be governed by the cessation of morbid action and the disappearance of bacilli, and the lessened secretion in the cavity itself; secondly, by the facility with which its contents can be emptied into a neighboring bronchus; thirdly, by the mechanical conditions of its situation, and the state of the surrounding tissues. Apex cavities are unfavorably placed for contraction, owing to the surrounding thickening and adhesion of the pleura, through which the resistance of the ribs is conveyed. They are also by position removed from the closing up influence of pressure from the surrounding alveoli becoming enlarged; so that compensatory hypertrophy is not available. Nevertheless, deducting these mechanical difficulties in the way of closure, there is no reason to doubt that morbid actions may be sufficiently arrested in a cavity to permit of its healing. If these conditions are due to bacilli, they are then more locally within reach than in the earlier stages, when they are embedded in a tubercular nodule or in the walls of the alveoli. If the conditions are those of simple chronic abscess, whose contents may become putrid by the access of septic germs from the atmosphere, they are again accessible to remedies of the antiseptic class directly applied. If an ordinary wound be capable of setting up septic actions by exposure to the atmosphere, surely the lung cavity is equally if not more exposed, and should be guarded and treated in a like manner to that in which a surgeon acts towards an external abscess. As a matter of fact, septic phenomena are by no means an infrequent sequence of lung cavities, and are shown in secondary and distant pyæmic deposits. Therefore we should strongly advocate the local medication of cavities in the lung by direct antiseptic, stimulant, and other treatment calculated to kill parasites and restore a healthy state of secretion.

The surgical treatment of certain cavities by tapping has been practiced in this and other countries with a considerable amount of success. The ordinary apex cavity, with a free opening into a

bronchus, and with moderate daily secretion, not of a fetid character, is not likely to be much benefited by tapping, as, for the mechanical reasons we have given, it is not easy for it to collapse and become closed, the adhesions and condition of the surrounding parts of the lung forbidding such results. On the other hand, cavities with a less free opening into a bronchus and situated near the middle or base of the lung possess characters which do not forbid their relief, nor even their closure. Their secretion is apt to accumulate from gravitation having to find its way upwards into a bronchus, and fetor ensues, the cavity being never fully emptied. The mechanical difficulty is here considerable, as the secretions must be projected upwards, and the surrounding tissue of the lung, generally indurated, cannot contract on its contents. In phthisis a large proportion of the expectoration comes from bronchial irritation, the lining membranes of the tubes, in the neighborhood of such cavities, being irritated by the passage of fetid secretions over it. It is often found stripped of its epithelium, and even ulcerated in the neighborhood of the cavity, conditions which can never be remedied so long as the bronchial tube is the only exit for foul discharges. It is most natural to apply surgical principles to such cases, and by a free drainage to carry off septic matters. I may briefly allude to the conditions requisite to justify operation. The signs of cavity should be unmistakable and should all be present. And the existence of adhesions of the lung to the pleura should be proved at the point at which it is proposed to operate. In acute gangrenous cases, or hæmorrhagic cases where the lung is in a vascular spongy state, where little fibroid change has taken place, and adhesions of the pleura are not evident, the operation should not be performed; the trocar would not enter a defined cavity, but a broken up lung and hæmorrhage must occur, or the contents might escape into the pleura. But there are many cases met with in practice where tapping may prove highly beneficial and prolong life, by lessening copious suppurations, by altering the fetid character of the discharges and so relieving fever and preventing septic infection. I have witnessed several such cases, and there are a considerable number on record.

After the review which we have taken of the various forms and assumed causes of phthisis, we can have little hesitation in laying down one or two axioms to guide us in selecting the most suitable climate in which persons may reside who are either threatened with phthisis or inherit a proclivity to be counteracted. It should undoubtedly be of the bracing character, dry in soil and elevated. Starting from the supposition that a vulnerability is to be counteracted, which the best observers consider to consist in feeble circulation and tendency to stagnation and the pulmonary changes, and an undrained condition of the lymphatic system, which may give rise to exudations of low vitality, we ought to prescribe exercises and air, which give tone to the vessels. The whole state appears to be passive, a stagnation, a lowness, a want of contractile power in tissues, and this is not to be encouraged by placing its subject in relaxing heats, or permitting him to neglect exercise in fresh air of invigorating degrees. There is no doubt that the plan has been overdone by exporting such persons to a rigorous climate, but there is a just medium from which the benefits of pure and bracing air may be obtained without exposure to severities, for which these delicate frames and feeble circulations are not adapted by either their nerve power or the tone of their blood-vessels. It is also to be remembered that hæmoptysis is more frequent, and often to a dangerous

extent, on these Alpine heights; and it is evident that persons liable to such congestions should not reside there. The purity of air and constant change of a sea voyage are often preferable for invigorating purposes to a residence in winter in "upland valleys," where most of the day must be passed in poorly furnished apartments artificially heated by stoves.

In the stage of cavity, if it be single, and if febrile symptoms be absent, I have observed most benefit from a frequent change of locality, and from being much in the open air, if possible on horseback. The best reason for selecting a southern climate is undoubtedly that it affords facilities for open-air exercise. In searching for it, unfortunately, invalids have to travel far, for there is not much of a fixed and stable character to be found on this side of the Mediterranean. On reviewing the cases I have met with in practice, I find that those which survived longest were persons who travelled about in moderate climates and who, some of them, led a rough life occasionally in our colonies or in South America. A rule for our guidance, which I have always insisted on, I may be pardoned repeating here. Patients with a high temperature should not be advised or permitted to travel far, and those with much fever should not be moved at all. I care not whether the local disorder be inflammatory, or tubercular, or parasitic; that which is proceeding in the lung is an active condition of irritation, the blood is loaded with inflammatory products or bacilli, and rest is indicated before all things.

Let me say a word for those unblest by riches who are unable to travel for their health, who either have not the funds or decline to be a burden to richer friends, or to spend the last penny which may be wrung from the necessities of wife or children in a pursuit of health in a distant land. Well, I have had a great deal to do with the poor in this country, and I may console many by saying how well I have found numbers of patients go on in London—in London under the unfavorable conditions of climate so well known to all of us. I believe I was one of the first to note the great longevity of many cases of phthisis, and my statistics were gathered in the out-patient department of Brompton Hospital.

I had proposed to consider the use of nutrients in the treatment of phthisis, but time warns me that I must omit more than the bare mention of the fact that no parasitic theory can lessen the importance of the use of tonics and cod-liver oil. I must also apologize for the omission of a more detailed account of germicides. I would just remark that supposing we possessed a local remedy of sufficient power to ensure the destruction of such bacilli as are met with in the secretions, their rapid reproduction would soon overtake our treatment. I fear that in this direction we may have much empiricism and many disappointments.

Finally, to sum up the brief review which we have been able to make of these new doctrines, it would appear that while some facts, such as the presence of bacilli in all cases of phthisis and their absence in other affections of the lungs and air-passages, are fully proved, there are some assertions of those who hold that such appearances in the lungs and its secretions are the proximate and invariable cause of the disease, which we must for the present hold to be *sub judice*. Among these doubtful theories are those which concern the production of the parasites. Whether they be endogenous or introduced from without, whether they may not find their birth in certain blood changes which are the outcome of pyrexial action in the system, or whether they are the product of a like morbid condition in other animal bodies, and from them

introduced into other organisms by contact or infection, must remain for the investigation of later pathology. We may safely relegate these interesting questions to the ardent students who are now everywhere carrying on new observations. And for ourselves, knowing well that all pathology is progressive, and that we see but a portion of truth at any time, be content to await the result.

Lumleian Lectures

ON

URIC ACID: ITS PHYSIOLOGY AND ITS RELATION TO RENAL CALCULI AND GRAVEL.

Delivered before the Royal College of Physicians,

By A. B. GARROD, M.D., F.R.S., F.R.C.P., etc.,

Consulting Physician to King's College Hospital.

LECTURE III.

MR. PRESIDENT AND GENTLEMEN—Before proceeding to the more purely therapeutic part of our subject, I must devote a few minutes to the discussion of other classes of food in reference to the uric-acid-secreting function; and, first, with respect to the influence of a nitrogenized, and especially of an animal diet. Observations are not wanting to show the effects of a pure meat diet on the urine. Those of Lehmann are perhaps the most satisfactory. He first determined the daily excretion of the principal constituents of his urine when on an ordinary mixed diet; he then placed himself on a purely animal diet (chiefly eggs) for twelve days; afterwards, for another twelve days, on a purely vegetable diet; and subsequently, for two days, on a purely non-nitrogenized diet, which consisted of fat, milk, sugar, and starch. His conclusions are that the total solids, as well as the urea, are much increased by animal food, while they are considerably decreased by a vegetable diet, and still more so by one which is non-nitrogenized; whereas the uric acid is not nearly so much affected by the nature of the food, provided that it contains nitrogen. Thus the urea, on an animal diet, was to the uric acid 53.198 : 1.478; on a vegetable diet, 22.481 : 1.021; and on a mixed diet, 32.498 : 1.183. He found that after the use of purely animal food the urine of man closely resembles that of the carnivorous mammals, becoming of a light amber-color, having a strong acid reaction, and containing neither lactic nor hippuric acid. On the other hand, after a course of vegetable food, the urine becomes of a brownish-red tint, is much less acid, often deposits the earthy phosphates, and always contains alkaline lactates with oxalate of calcium; in fact, the urine closely approaches to that of the herbivorous mammal.

As a result of all the experiments made by different observers, both on man and the lower animals, I think we may fairly conclude that meat, taken in such quantities only as are sufficient to keep up the nutrition of the body, has no tendency to increase the excretion of uric acid; that, when the diet is purely animal, but the quantity small, the uric acid, far from being large, becomes exceedingly small in amount, more especially when it is compared with the urea. On the other hand, that the taking of a great quantity of meat—an excess compared with the requirements of the system—tends to increase the uric acid, though,

even then, not more than in proportion to the urea.

These different facts can be advantageously applied in practice in the treatment of gravel and calculus. In such cases, there is certainly no reason why a proper quantity of animal food should not be taken; and the knowledge of this is important, seeing that many patients have been lowered in health by being kept on insufficient diet, with the idea that by these means a lessening of the excretion of uric acid would result.

Causes of Gravel and Calculi.—In the course of our experience most of us have noticed that there are certain individuals who are prone, either to pass a urine thick from urates, or containing uric gravel, or to void numerous small calculi. I think we shall find, on inquiry into the history of those liable to pass gravel and calculi, that they frequently inherit gout. In looking over 1,900 cases of this disease, which I have had extracted from my books, I find it mentioned that, of this number, comparatively few had passed calculi. If, on the other hand, we examine cases of calculus, we shall find that a much greater percentage of these patients are the children or grandchildren of gouty parents. In the course of my experience, it has frequently occurred to me to see a man suffering from gout, and to find that he has one child who has had attacks of joint-gout, another who is suffering from eczema, and a third who is passing uric gravel or calculi. It is not very uncommon to find articular gout and calculus present in the same person; in fact, we may fairly conclude that those who suffer from an abnormal condition of the uric acid function on the inner side of our imaginary partition, mentioned in the first lecture—that is, in the blood or system at large—are also more prone than others to experience the effects of a morbid state of the same function on the outer side, or in the urinary tract; in other words, gouty subjects, or those who inherit that diathesis, are more liable than others to gravel and calculus.

There are, however, many influences which act strongly in determining the morbid action to the urinary tract—influences which will often cause the occurrence of such troubles in those who do not inherit them. We see, for example, that in England stone is more common in some counties than in others, and at one time of life more than at another. How can we account for this? Anything that checks the cutaneous function, such as the cold east winds of spring, felt so acutely in Suffolk and Norfolk, appears to act as an exciting cause, and it is well known that in these counties gravel and calculus are very common. When the action of the skin is checked, there is no increase of urates, but an undue acidity of the urine, which leads to the precipitation of the uric acid. Cold alone is not necessarily a cause, for in Sweden and Norway calculous diseases are very rare. Another cause which, I believe, leads both to an increase of the excreted uric acid and to its deposition in the urinary organs, is portal congestion. Of the exact pathology of this we are at present ignorant, but in the prophylactic treatment of gravel and calculus, it is important to look to this point; and much good is produced by the frequent use of remedies which tend to relieve such a condition. Hence the value of Carlsbad waters and salts, and of the numerous saline purgative waters which, of late years, have been so much employed. It must always be borne in mind that, in this administration in the diluted form, the water itself becomes an important element in their action upon the system.

Fatty and Oleaginous Food.—With regard to the influence of such food on the urinary excretion, the experiments of Dr. Böcker seem to be most

trustworthy; and from them it would appear that no influence whatever is exerted on the excretion of water, urea, uric acid, or any other constituent of the urine, by taking from about a quarter of an ounce to three ounces of butter daily.

Effects of Water on Gravel and Calculus.—Many observations have been made on the effect of increasing and diminishing the quantity of water taken with food or when fasting. In the latter case, especially if the water does not pass off by the intestines, it causes the urine to become pale and copious; but, at the same time the action of the skin is augmented. It has been asserted that the amount of uric acid is lessened, but it is doubtful whether this is really the case; but any increase in the quantity of the urine helps to keep this principle in solution, and may thus mask its presence.

When the quantity of water taken with food is increased, it appears that certain of the urinary principles are augmented in amount, owing probably to the increased metabolism of the tissues; but, at the same time, it is stated that the uric acid is decreased. Further observations are much required before we can come to any accurate conclusions on this point. That the quantity of water passed by the kidneys in a given time has a great influence upon the physical condition of the urine is evident. If, for example, a healthy man during one day passes an ordinary quantity of urine, and during a second day but half the amount, it is probable that, on the latter occasion, the urine will be turbid and thick from the precipitation of urate of sodium, whilst the first day's urine will remain bright and limpid; and yet the daily elimination of uric acid may be the same on both occasions, and it only requires that an equal quantity of water should be added to the concentrated urine to bring it to the same condition as the more limpid specimen. If a patient continues day by day to pass urine so concentrated that it rapidly becomes thick, perhaps even in the bladder itself, a very slight change in the acidity of the fluid will cause uric acid to be set free and crystallization to take place, and then uric gravel, in the shape of Cayenne pepper deposit is formed.

If these changes only ensue after the urine has been passed, of course, it is of no real consequence; but if they take place while the urine is still within the urinary organs, then either free acid or some urate may become deposited and form gravel, or increase the size of any calculus already existing within the urinary passages. The deposition of uric gravel is of very common occurrence in children; and I know, from clinical experience, that this often depends on the deficient amount of water excreted. I will give one instance of this.

A little boy, five and a half years old was passing, from day to day, urine which either contained uric acid crystals or gave rise to a copious red sediment almost immediately after it was voided; his health was otherwise good. I had the urine of the twenty-four hours carefully collected, and found that it amounted to sixteen fluid ounces, with a specific gravity of 1031. On causing the child to take five fluid ounces of water an hour before breakfast, and the same before his late afternoon meal, the quantity of urine was brought up to twenty-four fluid ounces, and the specific gravity reduced to 1017, nor could any uric acid be discovered when the fluid had stood for thirty-eight hours from the time when the last portion was passed. In a few days the quantity of urine was increased to thirty-seven fluid ounces, and the specific gravity lowered to 1013.

In many cases it is only necessary to give simple water, such as is usually supplied for drinking purposes. The importance of the proper adminis-

tration of simple water in these cases as a part of the diet is the greater seeing that the plan of treatment can be pursued for an indefinite period; whereas the duration of a course of mineral waters is necessarily limited to a few weeks. I believe that as yet the medical profession have not laid sufficient stress on the proper administration of water in the treatment of gravel and calculous diseases.

Effects of Alkaline Treatment.—In the treatment of uric gravel and calculus the different alkalies and their salts play a most important part. If we give any fixed alkali in the state of a carbonate, it is, we know, absorbed, and passes through the kidneys in an unaltered form—that is, a carbonate, when taken by the mouth, appears as such in the urine, and, therefore, necessarily diminishes the acidity of that fluid, sometimes rendering it neutral or even alkaline, according to the quantity administered; so that if we give, at frequent intervals throughout the day, a quantity of the alkali equal to the neutralization of about thirty grains of oxalic acid—the average acidity of the day's urine—we shall, as a rule, keep that fluid in a neutral state.

In considering the equivalents of the different alkaline metals whose salts are employed in medicine, we find that the neutralizing power for acids of the different bases must vary considerably. The most practical method of estimating this power is to measure the different alkaline metals, in the form of their carbonates, against each other, when we find that seventy-four parts of carbonate of lithium equal eighty-four parts of carbonate of calcium (chalk or its congeners), 106 parts of carbonate of sodium, and as much as 138 parts of carbonate of potassium. It must, however, be remembered that it is not merely the neutralizing power for acids of the above compounds that has to be considered in treating of uric acid disorders; we must also look at the character of the salts which result from the combination of the acid with the metal, for some urates are very much more soluble than others.

It is a matter of clinical experience that lead-impregnation powerfully disposes to the production of gout; and I can also assert, as a result of long-continued observation, that iron salts have a considerable tendency to cause a recurrence of an attack when administered, as they often are, with a view to overcoming debility.

The difference of solubility in the alkaline urates forms a subject of great interest, for the value of a solvent may often be expressed correctly as the product of its neutralizing power plus the solubility of the resulting salt. Let us take, for example, carbonate of sodium. It has been shown that its neutralizing power is large compared with carbonate of potassium, 106 parts of the former doing the work of 138 parts of the latter; but, on looking at the table of solubilities, it is seen that the soda salt has less than half the solubility of the potash salt. The same remark applies to carbonate of magnesium, as, although it possesses great neutralizing power, the resulting salt is very little soluble, and the very sparing solubility of the lime salt renders its employment as a solvent of uric acid undesirable.

The other properties of the alkaline salts must also be taken into consideration when they are administered as remedies. On comparing a soda salt with a corresponding potash salt, it is found that the latter is more prone to produce diuresis than the former; at the same time, there is good evidence that the alimentary canal and its appendages, especially the liver, are more influenced by soda than by potash. This is what might naturally be expected, seeing that true bile consists

essentially of glycocholate and taurocholate of sodium. Magnesia salts act more or less as purgatives, and lime salts as astringents, but all act as neutralizers of acidity, and to some extent as solvents of uric acid. Gravel and calculi usually consist of free uric acid, and even the least soluble of the urates, omitting lead and iron, are much more soluble than uric acid itself.

There is one alkali—lithia—which will require some few minutes' consideration, and upon which I propose to bring forward several new observations and experiments; but, before proceeding to discuss its value, I may make some remarks on the different salts of the alkalies, some of which are more eligible for exhibition, especially in the treatment of gravel, than the carbonates.

All of us are probably aware that, if an alkaline citrate is given by the stomach, it is changed, either in the blood or kidneys, into the corresponding carbonate. The same is the case when an acetate or tartrate is administered; in fact, most of the vegetable salts are thus decomposed in the system, carbonates appearing in the urine. The establishment of this point is important, inasmuch as we can, by the use of these valuable salts, introduce into the system, through the mouth, salts which have no alkaline action on the stomach and form, often, an important part of vegetable food, and can still produce the remote alkaline influence where it is wanted; in short, we can often give even an acid salt, grateful and useful to the stomach, and yet have the very opposite effect induced upon the urine.

I will now draw your attention to the salts of lithia, which were first introduced as remedies by myself as far back as 1859. If we look to the atomic weight of the metal lithium we find it very low, only 7. The number representing the carbonate of lithium is also small; compared with carbonate of potassium it is as 74 to 138; hence the neutralizing power for acids possessed by carbonate of lithium is greater than that of carbonate of potassium in the above proportions. The acid urate of lithium requires only 220 parts of water at the body temperature to dissolve it; the corresponding potash salt requiring 500 parts, and the soda salt as much as 1130 parts, while the magnesia and lime urates take 1,600 and 2,800 parts respectively; so that, with respect both to neutralizing power and solubility the lithia carbonate has a great advantage over the corresponding salts of potash, soda, magnesia, and lime.

In a paper in the *Medico-Chirurgical Society's Transactions*, vol. xlviii., 1875, on "The Solvent Treatment of Urinary Calculi," Dr. William Roberts, of Manchester, came to the conclusion that potash carbonate dissolves uric acid more rapidly than the soda salt. This he ascertained by placing sections of uric acid calculi in phials, and causing currents of the different solutions, at blood heat, to pass over them at a regulated rate. He also found that the strength of the solution employed was of much importance, the greatest amount of solvent power being exhibited in solutions containing from forty to sixty grains of the alkaline carbonate to the imperial pint (twenty fluid ounces). Below this strength the power of the solutions gradually declined, until, with those which contained less than three grains to the pint, the solvent power scarcely exceeded that of water. On the other hand, if the strength was above sixty grains to the pint, the pieces of the calculus became encrusted with the alkaline bi-urates which were then deposited, and thus the further action of the solution was impeded. This was especially noticeable when the strength of the solutions was much above 100 grains to the pint. Even without the actual experiment with pieces of uric calculi,

I think we could predict that potash would prove a more powerful solvent than soda; for we have only to glance at the table to see that urate of potassium requires, at the body temperature, only 500 parts of water to dissolve it, whereas the corresponding soda salt takes as much as 1,130 parts. The soda salt certainly has an advantage in its greater neutralizing power, but not sufficient to make up for the far less solubility of the resulting urate. In the paper referred to, and in his book on "Urinary and Renal Diseases," Dr. Roberts has the following footnote: "Some experiments were also made with carbonate of lithia, which has been vaunted in recent times as a solvent for uric acid. Its power was found much inferior to that of carbonate of potash and soda. Its reputation seems to have been gained through its comparative insolubility. Only weak solutions of it could be employed." I refer to this passage because other authors have evidently been influenced by the statement; for example, Sir Henry Thompson, in his little work on "The Preventive Treatment of Calculus Disease," says: "Dr. Roberts finds carbonate of potash to be the most powerful solvent; better than soda, much better than lithia."

I have recently had a series of experiments made, the results of which are seen in the following table:—

Effects of Solutions of Carbonates of Sodium, Potassium, and Lithium, upon Fragments of Uric Acid Calculi.

Strength: 60 grains to 20 fluid ounces. Temp., 100° F. Time of action, 12 hours.

In nine experiments (three with each carbonate) the solvent powers were as follows:—

With Carbonate of Sodium:

21·2—18·1—15·3 per cent.
Mean = 18·2 per cent.

With Carbonate of Potassium:

28·6—27·6—38·3 per cent.
Mean = 30·5 per cent.

With Carbonate of Lithium:

43·8—58·6—47·7 per cent.
Mean = 50·0 per cent.

In three experiments. Strength of solutions, 50 grains to 20 fluid ounces. Time, 12 hours. Temp., 100° F.

With carbonate of sodium... 16·2 per cent.

With carbonate of potassium 23·1 "

With carbonate of lithium... 37·7 "

One experiment, using carbonate of lithium—100 grains to 20 fluid ounces. Solvent power—70·2 per cent.

Two experiments, using carbonate of potassium and lithium, 20 grains to the 20 fluid ounces.

With carbonate of potassium 21·2 per cent.

With carbonate of lithium... 33·1 "

Two experiments, using carbonate of potassium and lithium, 10 grains to the 20 fluid ounces.

With carbonate of potassium 11·2 per cent.

With carbonate of lithium... 17·5 "

The substance employed was a large uric acid calculus given to me by my friend Mr. Erichsen. It was first cut, to ascertain its internal structure, and to see if this was pretty uniform throughout; then a portion was broken up, and the fragments washed with distilled water, and carefully dried. About equal weights of the calculus were put into

three bottles, and solutions of neutral carbonates of sodium, potassium, and lithium were added to them. The solutions were of the strength of sixty grains to the twenty fluid ounces; the action upon the calculus continued for twelve hours, at the temperature of 100° Fahr., with frequent agitation. Separate quantities of the calculus were taken. One was first treated with the lithia solution, then with those of potash and soda; another was treated first with the potash solution, then with those of soda and lithia; a third with the three solutions in the order, soda, lithia, and potash. The quantity of the solution used in each case was the same. The results of these experiments are very striking. Let us first consider the soda numbers; we find that the percentage of solvent power in the three experiments was 21·2, 18·1, and 15·3, the average being 18·2 per cent. The percentage of the potash numbers was 28·6, 27·6, and 38·3, the average being 30·5 per cent. The corresponding lithia numbers were 43·8, 58·6, and 47·7, the average being 50·0 per cent. We see, then, that in solutions of the strength mentioned the value of the lithia salt over that of potash, and still more over that of soda, is most evident. Other experiments were afterwards made with solutions of different strengths. Thus, in three experiments, the solutions contained fifty grains to the twenty fluid ounces. Time, twelve hours; temperature 100 Fahr.; with frequent agitation. The carbonate of sodium solution dissolved 16·2 per cent., the carbonate of potassium solution dissolved 23·1 per cent., and the carbonate of lithium solution dissolved 37·7 per cent.

In another experiment, the sixty grain lithia solution being used, but the time altered, at first to ten hours at 100° Fahr., then to eight hours at about 60° Fahr., the solvent power was 60·8 per cent.; but when a solution containing one hundred grains to the twenty fluid ounces was employed, the solvent power was as high as 70·2 per cent.

Lastly, it will be observed that, when the comparison of the solvent power was made between the potash and lithia salts, using twenty and afterwards ten grains to the pint—the quantity used by Dr. Roberts in his lithia experiments—the results were in each case more than 50 per cent. in favor of the carbonate of lithium.

It will be seen from these experiments that so far as soda and potash are concerned the results obtained exactly agree with those of Dr. Roberts; they exemplify the greater solvent power of the latter over the former, a result which might have been clearly anticipated, but, on the other hand, they are totally opposed to his conclusions with respect to lithia. How is this to be explained? On looking at the solubility of urate of lithium we find it more than twice that of the potash salt, or as 220 to 500, and we can scarcely believe that in solutions of the two carbonates the uric acid would be found to be most soluble in the one which contained the alkali which gave the more insoluble urate; this would be absurd—in fact, we should anticipate that the lithia solution would prove as superior to the potash as we have already found the potash to be to the soda solution.

We must look for some means of explanation. Dr. Roberts used the expression "only weak solutions of carbonate of lithia could be employed," italicizing the word "could;" and he appears to have used in his four experiments, two of which are given in the Medico-Chirurgical Society's Transactions, solutions of the strength of ten and twenty grains to the twenty ounces, whereas, in the case of the potash, he found that a sixty grain solution is the most powerful. Now it will be seen in the table that solutions of carbonate of lithium were employed containing sixty and even as much as 100 grains to the imperial pint, and

that, in the case of lithia, as the strength was increased the solvent power also was augmented. I should imagine that Dr. Roberts either used an impure carbonate of lithium or assumed that only one grain was soluble in the fluid ounce, as he used only ten and twenty grain solutions; whereas as much as 100 grains can be dissolved, at the temperature of the body, in the imperial pint of water. Impurity of the salt and the use of solutions which were far too weak will at once explain the discrepancies and the cause of the erroneous statements with regard to the solvent power of the lithia salts. The inevitable conclusion, therefore, is this: that lithia salts are far more powerful solvents of uric acid than potash salts, while these latter are more efficacious than those of soda. We have only to take three small phials, filled with a solution of the three carbonates, of the same strength, and to put into each the same quantity of small uric calculi, the amount being such that the lithia will dissolve them. If we carry these in a warm pocket, after a short time it will be seen that all the calculi have disappeared from the lithia solution, while more than half are left undissolved by the potash, and about four-fifths by the soda solution.

I have been informed by some patients that they have been deterred from using lithia salts, although they had found them valuable, by having been told that their employment would prove injurious, owing to their caustic effects upon the renal organs. In answer to this objection I may say that I have found the action of carbonate of lithium to possess less destructive power than the corresponding salts of potash and soda upon animal tissues.

The only effect that I have ever noticed has been that, when the quantity is increased beyond a certain amount, a little tremor of the hands is produced, which passes off at once on the diminution or omission of the dose of the salt. I have known patients of their own accord, continue the use of lithia salts for more than ten years, with the effect of entirely preventing the recurrence of the symptoms to remove which they were first prescribed, and without the production of any injurious effect. For myself, I have not the least doubt as to the value of lithia salts as therapeutic agents, and am convinced that, by their employment, depositions of uric acid in the renal organs can to a large extent be prevented. Free dilution and administration on a fasting stomach are points of much importance, which should be attended to in the administration of alkaline remedies. I have been much in the habit of using potash with lithia, in the form of the citrate or the carbonate; the former to give neutralizing, the latter to increase the solvent power.

I do not believe in the value of any injections into the bladder in the treatment of vesical calculus; at the very best, the process must be most tedious; and at the present day, when the surgery of the subject has reached to such great perfection, when a calculus can often be removed completely from the bladder in a few minutes without the use of the knife, I cannot but think that the surgeon is better qualified for the treatment of such cases than the physician.

Influence of Hippuric and Benzoic Acids.—Before proceeding further with the treatment of gravel and calculus, I must redeem my promise to explain certain difficulties in the physiology of uric acid which had to be passed over in my first lecture. How is it that the urine of the sucking calf contains a notable quantity of uric acid, seeing that the same animal, when it grows up and takes its ordinary food, excretes urine which is devoid of this principle? Why should the simple altera-

tion of food cause such a result if uric acid is formed in the kidneys themselves? Is not this fact completely opposed to the second view? Before endeavoring to explain these difficulties I thought it desirable to prove the fact, and examined first the urine of two sucking calves. In both I found distinct evidence of the presence of uric acid. At the same time I discovered another previously unknown fact—viz., that the cow's urine also, under certain circumstances, contains uric acid, as when taking turnips, mangold, brewers' grains, and such-like food, with little hay or grass, and that with such a diet there is little hippuric acid in it. In the horse's urine, which was rich in hippuric acid, I found no uric acid. At first sight it would appear to follow from these various facts that the seat of origin of uric acid is further back than the kidneys, and that these organs merely eliminate it from the circulating fluid; but I have already shown that the kidneys will not act as filterers of uric acid, even when that principle is known to exist in the blood.

Some little time ago I arrived at the idea that if the urine of man could be maintained in a condition resembling that of the herbivorous mammal, uric concretions, uric gravel, and calculus would be unknown. Alkaline remedies, useful though they are, do not effect all that could be desired. They do, indeed, as we have seen, hold the uric acid in solution, but in no degree do they remove it. While following up my idea of assimilating the urine of man to that of the herbivorous mammal, I made several experiments. I took a specimen of healthy human urine, of full specific gravity, and sufficiently rich in urates to give a free deposit of uric acid crystals when acidulated. With this I filled two tubes to about one-fourth of their capacity. To the first of these I added the urine of a horse, so as almost to fill the tube; to the second I added the same quantity of distilled water, in order that the amount of dilution of the human urine should be the same in each tube. After the tubes had been kept for some two or three hours at about 100° F., their contents were examined. A few drops of hydrochloric acid added to the second tube—where water had been used as the diluent—caused a slow crystallization of uric acid, but the acidification of the first, in which the urine had been diluted with that of the horse, failed to exhibit any precipitation; nor, when it was evaporated to a small bulk, could uric acid be detected either by the murexide or any other test. The experiment was repeated with the substitution of the urine of the lion for that of the horse. This failed to cause the disappearance of the uric acid.

If these observations are correct, we have found not only that the horse's urine is itself free from uric acid, but that it possesses the power of destroying, at least to some extent, the uric acid contained in the urine of man. It struck me that this conclusion was one which might be fraught with weighty consequences, and demanded much further investigation to corroborate it. Such proof is not wanting.

I next took eight very small uric acid calculi, none of them larger than a pin's head, and, by the aid of a solution of carbonate of lithium, dissolved them in a little water. To this solution I added about eight ounces of the urine of the horse. After the mixed fluids had been kept some few hours at the temperature of the body, no uric acid could be detected. This experiment shows that uric acid, in the form of calculi, when first dissolved in an alkaline solution, is destroyed by the influence of some ingredient which is present in the urine of the horse.

After reflecting upon these phenomena, I endeavored to find out what was the principle con-

tained in these urines of the herbivora which imparted to them this peculiar power; and, seeing that they are rich in hippuric acid—a substance absent from the urine of the carnivora—I instituted a very numerous set of experiments upon the action of this acid on uric acid. First, a strong solution of hippurate of potassium was mixed in equal quantities with a cold solution of the urate of the same metal, and kept for some few hours at the temperature of the body. On subsequent examination for uric acid by the microscopic test, none could be found, nor could any be detected by the murexide test. Another recorded observation is as follows: A cold concentrated solution of urate of ammonia was mixed with a strong solution of hippurate of sodium, made slightly alkaline with the carbonate; after being kept for a few hours at 100° F., no uric acid could be found. As it might be urged that the uric acid, though existing, was masked by the presence of other matters, the following observations were made, and have been frequently repeated. A cold solution of urate of ammonium was added to one of hippurate of sodium, and the solution made slightly alkaline with the carbonate, so as to imitate as nearly as possible the conditions which exist in the urine of the herbivora. On immediately placing a drop on a microscopic slide, and acidulating it with hydrochloric acid, numerous long crystals of hippuric acid were soon formed, and afterwards rhombic crystals of uric acid were seen, these latter being readily distinguished by their characteristic shape, and by their intense polarizing power for light. After about half an hour, the solution having been previously warmed up to the temperature of the body, a second drop was examined, and the uric acid crystals were found to be much less numerous, and in another hour or so they were not to be detected at all. The solution was afterwards evaporated, and no evidence of uric acid could be discovered either by the microscope or the murexide test. By this observation the fact that a change slowly takes place in the solution of the mixed salts is demonstrated; and it is also proved that the uric acid is not simply masked by the presence of other salts, for it is readily exhibited when the solutions are first mixed, and only slowly disappears under the influence of time and warmth.

In the earlier experiments which I made, which were qualitative only, it was found essential that the hippuric acid should be in large excess, in order that the results should be conclusive; but I was soon led to make numerous quantitative experiments.

In these observations I have used the urates of ammonium, sodium, potassium, and lithium, and acted upon them with the hippurates of the same bases, and I have uniformly found that when hippurates and urates are together in solution a change ensues, the urate becoming gradually destroyed, and probably a part of the hippurate also. It has required under the conditions which have been present in most of the experiments nearly fifty times as much hippurate as urate for the complete destruction of the urate; but when the dilution was much increased the quantity of hippurate required seemed to be lessened, as little as twenty-five parts of hippurate being sufficient. Possibly, in the animal body the action takes place more rapidly than in the flasks of the laboratory.

Having established the fact that hippuric acid reacts upon uric acid, we can, I think, at once make use of it to explain a difficulty which we left unsolved in our first lecture in relation to the urine of the sucking calf. We have only to take our original assumption that there are cells in the kidneys of all herbivorous mammals capable of

forming uric acid; then this principle would be always present in the urine unless it was subsequently removed; and having now shown that hippuric acid has a destructive power over uric acid, it follows that when the urine of a herbivorous mammal contains but little hippuric acid, then uric acid is present. This is the case in the sucking calf. When, however, the young animal ceases to take milk and lives on a diet of grass, clover, and the like, then the urine becomes rich in hippuric acid, and the uric acid disappears, being removed by the destructive influence of the hippuric acid.

The explanation I consider to be satisfactory, though it is one which I could not till recently have imagined to be correct. It is generally supposed that hippuric acid replaces uric acid—that is, is formed in its stead in the system. It does indeed replace it, though not, as is usually thought, by being formed, under certain circumstances, instead of it, but on account of its possessing the power of removing the uric acid after it has been produced in the renal cells. The explanation holds good equally with reference to the occasional presence of uric acid in the urine of the adult herbivorous mammal. Under their ordinary diet a certain amount of uric acid is always formed. Hippuric acid is also present in large quantities, sometimes as much as 1 to 1.5 per cent., in which case no uric acid can be discovered in the urine; but when these animals are made to eat food which fails to yield hippuric acid the uric acid remains intact, and hence it is that from time to time we hear of the presence of this principle in the urine of herbivorous mammals.

Now it follows necessarily that what happens in the case of these lower animals, applies also to man. If the quantity of hippuric acid becomes increased, the uric acid becomes diminished, and we are in a position to explain an observation made by Heller, who, in conjunction with a friend, first ascertained the quantity of uric acid which each excreted daily when under an ordinary diet; they then changed the character of their food—Heller living for a week on wheaten and rye bread—his friend on rye bread only, water being the sole drink of both. The uric acid soon began to diminish and to be replaced by hippuric acid, and at the end of the week a mere trace of uric acid was found in Heller's urine—none in that of his friend. During the next week, on an ordinary diet, the hippuric acid gradually diminished and the uric acid reappeared in the former quantities. Doubtless the character of the food, in these experiments, had a direct influence on the formation as well as on the destruction of the uric acid, for the amount of the nitrogenized elements of the food must have been small.

We know that glycine or glycooal (gelatine sugar), which enters into the composition of the bile of many animals, is closely connected with hippuric acid, that this latter can be broken up into benzoic acid and glycine, when boiled with caustic alkali, and, in fact, benzoic acid, when absorbed from the stomach, takes up glycine and becomes converted in the system into hippuric acid, and is thus thrown out in the urine. Such being the case, I thought it most desirable to try the influence of this body upon uric acid and to find out whether it plays any part in the change of the uric acid. I made numerous experiments, using glycine in place of hippuric acid, the other conditions remaining the same, and in no instance did I observe any change in the uric acid, even when days or weeks had elapsed. I then had to look to benzoic acid and ascertain whether the change in the uric acid was due to its influence, and for this purpose I completed a set of observa-

tions corresponding to those previously made with hippuric acid. The results were as follows:—I found that benzoic acid, in the form of a benzoate, when in contact with an urate in an alkaline solution, caused the same slow change in the uric acid which ensued when a hippurate was employed. This change, however, cannot be well observed under the microscope because the crystallization of the benzoic acid is so rapid that the presence of uric acid is obscured; but, when the solution is evaporated and the benzoic acid removed by alcohol, the murexide test can be readily employed.

To us, as physicians, several questions naturally suggest themselves. Can we make any practical use of the facts before us? Will the administration of hippurates or benzoates prove of any practical value in the treatment of the different forms of diseases connected with the uric acid diathesis? Can a diet be devised which will assimilate to some extent the urine of man to that of the herbivorous mammal? These are questions of no little importance to us and to humanity at large.

Let us see how far they may be answered. In January, 1842, when a young student, I read a paper before the Chemical Society, which was published in their Transactions and in the *Philosophical Magazine* for that year. It was entitled "On the Conversion of Benzoic Acid into Hippuric Acid in the Animal Economy." In it, I fully confirmed Wöhler's then recent discovery of the conversion of the one acid into the other, but I proved that this change could not be effected by the benzoic acid uniting with the uric acid, as had been suggested; first, because the quantity of the latter was not sufficient; secondly, because the uric acid found in the urine excreted three or four hours after the taking of benzoic acid was not very appreciably diminished. I also suggested in the paper the probable future synthesis of hippuric acid, and that, if benzoic acid be administered beyond a certain amount, the excess will pass into the urine in an unchanged condition. Both these suggestions have since then been realized. Within the last few years I have returned to the consideration of the subject, and have obtained a large amount of clinical experience.

If hippuric and benzoic acids in an alkaline solution possess the power of changing and removing uric acid it is natural to suppose that when the blood is in an abnormal state from its presence the administration of the salts of these acids should prove valuable; for there is no doubt that if hippurate of sodium be added to a blood-serum which shows the presence of a urate the latter is soon removed from it. It is important to ascertain whether they are of value in cases where uric acid is liable to be deposited in any portion of the urinary tract.

In the first place these salts act advantageously on the mucous membrane of the bladder and its appendages, and in cases where there is a disposition in the urine to become ammoniacal from decomposition they are most useful in checking such tendency. You will, perhaps, remember that in my first lecture I said that I had found the urine of the horse much less liable to decomposition than that of man—a circumstance possibly due in part to its containing hippuric acid. This action on the membrane may influence much the secretion of the colloid matter, and thus prove valuable in cases of gravel and calculus, which are so intimately associated with this colloid; and, lastly, it may have an effect upon the excretion of uric acid, a point which I must now endeavor to ascertain.

I have said that the usual absence of uric acid from the urine of the herbivorous mammal is due,

not to its non-formation, in small quantities in their kidneys, but to the presence of considerable quantities of hippuric acid in the urine; and that, provided that we remove this latter principle by an alteration in the food, assimilating it to that of the young sucking animal which takes milk only; or by giving vegetables which do not yield hippuric acid; that then uric acid appears in their urine. Ought we not, therefore, to conclude that the administration of benzoic or hippuric acid would influence the excretion of uric acid? In the herbivora the urine is always alkaline in reaction; in man it is acid. In my experiments on the destructive influence of hippuric or benzoic acid upon uric acid, I found it important to use solutions made alkaline with a carbonate, thus imitating, as nearly as possible, the condition of herbivorous urines. We do not get this in the case of man. In 1842, when, in a very limited number of experiments, I gave benzoic acid in the free state, I found but little alteration in the excreted uric acid, still it was lessened.

Kerner, who appears to have made a careful set of experiments, came to the conclusion that neither the nitrogenized nor the other principles of the urine were influenced by benzoic acid.

I have recently made some observations on the action of benzoic acid on the urine, with the results which I will give you in a minute. I may tell you that great care must be taken not to form conclusions from one or two experiments, as the excretion of uric acid is always fitful, little circumstances causing it to be greatly diminished for a few hours and then suddenly increased. If the uric acid is directly formed in the renal cells, it is natural to suppose that much of it would escape the action of the hippurates contained in the fluid portion of the urine, and especially if that fluid is in an acid condition; and experiments seem to confirm this idea.

I am still engaged in clinically investigating the value of the benzoates and hippurates, both in cases of gout and of gravel and calculus; and I hope ere long to bring the further results before the profession. I can confidently affirm that I have already obtained great advantage in the treatment of these diseases from their employment.

I frequently give the benzoic acid in the form of benzoate of sodium; but, if I wish at the same time to increase the quantity of the urinary excretion, then I give the benzoate of potassium or of lithium; and, if there be an abnormal acidity of the urine, some alkaline citrate.

Seeing that herbivorous animals excrete hippuric acid in a greater or lesser quantity according to the character of the food upon which they are fed, I cannot help thinking that some article of diet might be devised for those who suffer from the diseases above-mentioned, which might, at least to a great extent, keep in check the tendency to form and deposit uric acid.

In his report for February, Dr. Simpson, the medical officer of health for the City of Aberdeen, gives an instance of the way in which infectious disease is spread. A girl suffering from typhus fever was sent from Dundee to Aberdeen in a third-class railway carriage. The passengers in the same compartment, seeing how ill the girl was, kept the windows closed to exclude the cold air, and thus placed themselves in the most favorable position for contracting the disease, from which their fellow-traveller was, unknown to them, suffering.

The health of the troops in Egypt is showing continual improvement.

Lecture

ON

THE PRODUCTION, OUT OF THE BODY, OF PULMONARY SIGNS OBTAINED BY AUSCULTATION AND PERCUSSION.

By AUSTIN FLINT, M.D.,

Professor of the Principles and Practice of Medicine and of Clinical Medicine in the Bellevue Hospital Medical College of New York.

GENTLEMEN—In my lectures on Auscultation and Percussion given during the present session I have introduced illustrations of pulmonary signs produced either in lungs, healthy and diseased, after their removal from the body, or by imitating artificially the physical conditions which the signs represent. I have not heretofore appreciated the interest and value of such illustrations, as, in the first place, affording aid in becoming familiar with the differential characters of different signs; in the second place, corroborating the connection of cause and effect between the signs and certain physical conditions; and, in the third place, shedding light on the mechanism of the production of the signs. I propose in this lecture to give a *résumé* of the illustrations which my lectures have embraced. I am led to do this in order that you may be incited to repeat them at your leisure, and perhaps add to them others which may be equally or more interesting and instructive. We will consider first the signs obtained by percussion. The signs furnished by auscultation naturally arrange themselves into three groups—namely, respiratory sounds, adventitious sounds—or rales, and vocal sounds.

SIGNS OBTAINED BY PERCUSSION.

There are two articles which may serve to illustrate the normal vesicular resonance on percussion artificially—namely, a fine sponge of large size and a loaf of bread. These articles resemble the lungs in containing air within innumerable minute spaces. The distinctive characters of the normal vesicular resonance are due to the presence of air in the air vesicles or pulmonary alveoli. The characters which distinguish the resonance are lowness of pitch and a peculiar quality of sound called the vesicular quality. The resonance is variable as regards intensity, and therefore it derives no distinctive character from that source. Of the two articles named, the bread-loaf is much to be preferred. What is known as the "brick" loaf is best suited for the illustration. Covering the upper crust of the loaf with a napkin, folded once or twice, in order to diminish the noise produced by the contact of the fingers of the percussor, the resonance elicited by percussion has a pretty close resemblance to the resonance on percussing the healthy chest. Like the latter, it is low-pitched, and the quality is *sui generis*.

A bread-loaf may be made to illustrate *flatness*, *dulness*, *tympanitic resonance*, and the resonance which I have distinguished as *vesiculo-tympanitic*—the four signs obtained by percussion. Flatness is produced in a portion of the loaf by dipping it in water and allowing it to remain for a few moments. Up to the line on the loaf corresponding to the level of the water there is flatness. Above this line, for a little space, the interstices of the loaf being only filled in part with the water, there is dulness. In vesicular resonance flatness and dulness are thus illustrated in a single loaf. The highest pitch of dulness, as compared with the

vesicular resonance, will be found to be invariable. A still better plan is to immerse a part of a loaf in a solution of gelatine and allow it to remain until the gelatine congeals. The loaf then may serve to illustrate the three signs just named for a considerable period. Tympanitic resonance in a bread-loaf is illustrated by removing, in a portion of a loaf, all but the crust. The resonance is tympanitic over that portion, and vesicular over the remainder of the loaf. Vesiculo-tympanitic resonance is illustrated as follows: In a portion of a loaf remove a number of sections by passing through it a hollow cylinder of glass about half an inch in diameter. The distinctive characters of this sign are increased intensity, elevation of pitch, and the quality and combination of the vesicular and the tympanitic. These characters are obtained when several sections are removed in the way just stated, and they are brought into contrast with the imitation of the vesicular resonance by percussing over the portion of the loaf which remains intact.

Tympanitic resonance is illustrated by percussing india-rubber hollow balls and bags differing in size. Other things being equal, the resonance is higher in pitch the smaller the ball. The india-rubber bag enclosed within the leather case in the modern football, probably contains as much air as is generally contained within the chest in cases of pneumohydro or pneumopyo-thorax. The pitch of resonance on percussing such a bag inflated will be found to be higher than that of the resonance of the bread-loaf. This illustrates what I believe to be true—namely, that a purely tympanitic resonance in cases of disease is invariably higher in pitch than the normal resonance in the person examined.

The amphoric and the cracked metal resonance, which may be regarded as varieties of tympanitic resonance, are readily produced, the former by percussing indiarubber bags well inflated, and the latter by percussing hollow balls of small size with free openings. To obtain these varieties of tympanitic resonance, the bag or ball is to be held against the ear when the percussion is made.

RESPIRATORY SIGNS.

I know of no article by which may be illustrated the *normal vesicular murmur of respiration* as the normal vesicular resonance on percussion is illustrated by the loaf of bread. This murmur, however, may be produced outside of the body by using the human lungs, or those of the sheep or calf. Inserting the nozzle of a pair of bellows into the larynx or trachea, and imitating the acts of respiration, the distinctive characters of the normal respiratory murmur may be satisfactorily studied. The ear may be applied immediately to the lungs, covered with a few thicknesses of cloth, artificial respiration being produced by an assistant, or the stethoscope may be used. The binaural stethoscope is to be preferred. In using this instrument, here or on the living subject, care is to be taken that it is properly constructed. Many of these instruments are useless in consequence of defects in their construction. The bulbs at the aural extremities should be of a size admitting their easy introduction into the ear, but not allowing them to enter too far, and the curves at the extremities should bring the openings into the bulbs in the direction of the meatus. That the binaural stethoscope is not universally used is owing, in a great measure, to the want of knowledge or attention on the part of instrument makers as regards essential points in its construction. Lowness of pitch and a quality of sound which, like the vesicular quality in the normal resonance on percussion, is *sui generis*, are illustrated by artificial respiration in

lungs removed from the body. These are the distinctive characters of the normal vesicular murmur of respiration; and that they are produced by the movement of air in the air vesicles or alveoli, and not glottic sounds, as contended by Eichhorst and others, is proved by the fact that they are as fully reproduced by inserting the nozzle of the bellows into the trachea or a primary bronchus as into the larynx. My own theory respecting the mode of production of this peculiar quality is, that it is caused by the separation of the bronchioles, the walls of which are in contact and slightly adherent at the end of the expiratory act.

Bronchial respiration is illustrated by simply blowing into tubes of different sizes. Indiarubber tubes are to be used of sufficient length to reach from the mouth to the ear; in the latter situation being covered by the palm of the hand, in order to shut out extraneous noises. With an equal force of the current of air, the field of the sound is high in proportion as the tube is small. This sign may be studied by auscultating a lobe of lung solidified by pneumonia, after death, employing artificial respiration by means of the bellows, as already stated. Air enters readily into the bronchial tubes of a solidified lobe, and bronchial respiration may be produced by a current of air directed into a primary bronchus, as well as into the larynx or trachea. It is, however, probable that this sign in life is produced chiefly by the condition of the laryngo-tracheal respiration into the solidified lung, the medium of the conduction being chiefly air within the pulmonary bronchi. After death the sign is notably diminished over a solidified lobe if the primary bronchus be obstructed by a plug of cotton or wool.

The existence of a cavernous respiration with well-marked distinctive characters may be demonstrated out of the body. German authors, following Skoda, consider cavernous and bronchial respiration as identical in respect of their intrinsic characters, and the differential points were indicated in an essay published in 1852. The inspiratory sound in the cavernous respiration is low in pitch and hollow or blowing in quality. The expiratory sound has the same quality and is still lower in pitch. If the statement of these points of contrast with bronchial respiration be correct, the two signs need never be confounded with each other. That the statement is correct may be shown, in the first place, by a purely artificial production of cavernous respiration. Take an indiarubber balloon of the size of an orange, with thin walls and an opening at each end connected with an indiarubber tube. One of the tubes should be long enough to extend from the mouth to the ear. Applying the balloon to the ear, covering it with the hand, and with the mouth alternately inflating it and withdrawing the air from it by suction, the characters of the cavernous respiration are illustrated. The bellows may be used instead of the mouth, or the instrument known as Davidson's syringe. The cavernous respiration as thus produced may be contrasted with the bronchial respiration as illustrated by a current of air in the indiarubber tube employed in the foregoing experiment. The sign may, in the second place, be demonstrated by obtaining a specimen of phthisical lungs in which there is a cavity of considerable size near the periphery and not surrounded with solidified lung. By inflating the cavity and withdrawing the air from it by means of the bellows or Davidson's syringe, and applying the binaural stethoscope over the cavity, the cavernous respiration which existed during life may be reproduced.

All are familiar with the imitation of amphoric respiration by blowing over the mouth of a phial.

The musical intonation is also produced by blowing into an indiarubber bag of considerable size already inflated. I have found this sign well marked on inflating with the bellows a phthisical lung, and been led thereby to discover, by incision, a cavity in the centre of the lobe surrounded by solidified lung.

The sign which I have called the *broncho-vesicular respiration* embraces the abnormal respiratory sounds to which have been applied the names, *rude, harsh, rough*, and by German writers, following Skoda, *indeterminate respiratory murmurs*. The morbid physical conditions represented by this sign are all the varying degrees of solidification of lung falling short of a degree sufficient to give rise to a purely bronchial respiration. The varying characters of the sign denote the degree of solidification—that is, whether it be slight, moderate, or nearly sufficient to be represented by the bronchial respiration. The name *broncho-vesicular* expresses a combination of the characters belonging to the vesicular and the bronchial respiration. In the inspiratory sound the vesicular and the tubular qualities are combined in different proportions. Either the vesicular or the tubular quality may predominate. The pitch is low or high according to the predominance of the vesicular or the tubular quality. If the vesicular quality be predominant, the solidification is slight; if the tubular quality predominate, the solidification approximates more or less closely to that represented by the bronchial respiration. The expiratory sound is always prolonged and raised in pitch. The length of the expiratory sound, its intensity and the elevation of pitch, are proportionate to the predominance of the tubular quality in the inspiratory sound—or, in other words, to the degree of solidification.

The broncho-vesicular respiration cannot be artificially illustrated. It may, however, be studied by auscultating either human lungs removed from the body, or the lungs of the calf or sheep. Imitating respiration by means of the bellows, and applying the binaural stethoscope on the upper part of the lungs over the large bronchi, the characters of the sign are observed as contrasted with the vesicular murmur in other situations. The sign is, in fact, present in life over the large bronchi. It has been known as the normal bronchial respiration; but as the characters are not those of a purely bronchial respiration, a more correct term is the *normal broncho-vesicular respiration*.

ADVENTITIOUS SOUNDS OR RÂLES.

The important signs following in this division are the *moist bronchial* or *bubbling râles* (coarse, fine, and subcrepitant), the *dry bronchial râles* (sibilant and sonorous), the *crepitant râle*, *metallic tinkling*, and *pleural friction sounds*.

The moist bronchial or bubbling râles are artificially illustrated by indiarubber tubes differing in size. After forcing water, or any liquid, through the tubes by means of Davidson's syringe, there remains enough to give rise to these râles for some hours on passing a current of air either from the syringe or mouth through the tubes and holding them close to the ear. The bubbling sounds thus produced are coarse or fine according to the size of the tubes. The subcrepitant râles are produced within a tube of extremely small size. These râles may also be illustrated in lungs removed from the body, by introducing within the trachea water, or some other liquid, and imitating respiration by means of the bellows. If the quantity of liquid introduced be not large, it is quickly driven into the bronchial tubes of small size, and fine bubbling sounds over the subcrepitant râles are

produced. Coarser bubbling sounds are produced by the introduction of an additional quantity of liquid. If liquid be introduced, after death, into the bronchial tubes within a pulmonary lobe completely solidified, or in the second stage of pneumonia, the high pitch of the bubbling râles may be observed in contrast with the low pitch of râles produced within healthy lobes.

The dry bronchial râles may be produced by constricting abruptly the calibre of indiarubber tubes of small or moderate size, using for this purpose ligatures, or making compression with a pair of forceps or tweezers. It is, however, not easy to hit the proper amount of constriction. A current of air through the tubes may be produced by the bellows over the mouth, the tubes at the points of constriction being held close to the ear. The mechanism of the râles is in this way demonstrated, but I have not succeeded in illustrating them so as to approach to their abundance in cases of asthma. This, perhaps, might be done by getting together a number of tubes properly constricted at certain points.

The crepitant râle is well illustrated in various ways, with which every student of auscultation is familiar, such as rubbing a lock of hair close to the ear, throwing salt upon coals of fire, igniting a train of gunpowder, etc. The best illustration was afforded by an article made some ten or twelve years ago, of indiarubber, to be used as a sponge. Pressing this article close to the ear, and allowing it to expand, the imitation was as perfect as possible. This mode of illustration exemplified the mechanism—namely, the production of the dry crackling sounds by separation of bronchioles and alveoli in the act of expiration, which had become agglutinated by an adhesive exudation at the end of the expiratory act. An American writer, Dr. E. A. Corr, was the first to give this explanation of the mode of production of this râle in a communication published in the *American Journal of the Medical Sciences*, October, 1842. An article analogous to that just referred to is still in use by artists, and is known as the indiarubber sponge; but something is now combined with the indiarubber which renders it more useful as a sponge, but impairs its usefulness for the representation of the crepitant râle.

Metallic tinkling is very satisfactorily illustrated by means of the indiarubber bag of the foot-ball. Introduce into the bag half a pint or a pint of water; hold the bag so that the opening is dependent, and, by means of Davidson's syringe, introduce air so that bubbles will escape from the surface of the liquid. Holding the bag close to the ear, the escape of the bubbles gives rise to tinkling sounds. Invert the bag, and holding it quickly to the ear some tinkling sounds may be produced by drops of liquid from the upper part upon the surface of the liquid. The bag should be well inflated for the sounds to be produced. The sounds may be produced by shaking or percussing the bag when held close to the ear. But the best illustrations are produced by connecting the bag with an indiarubber tube of considerable length, and, after the passage of the liquid through the tube, enough remains to give rise to tinkling sounds for several hours on blowing through the tube and holding the bag close to the ear. In the last experiment it is not necessary that the bag contain any liquid. It should, however, be made tense by inflation. These different modes of producing illustrations of metallic tinkling represent corresponding physical conditions giving rise to the signs in connection with pneumothorax and large tuberculous excavations.

Pleural friction sounds are imitated by rubbing together the palms of the hands, and by placing

over the ear the palm and moving the finger over the dorsal surface of the hand.

VOCAL SIGNS.

The signs pertaining to the laryngeal or loud voice are *bronchophony*, *simple increase of vocal resonance*, *ægophony*, and *pectoriloquy*. None of these signs can be artificially illustrated, but, with perhaps one exception (*ægophony*), they can be readily produced in lungs removed from the body. Bearing in mind that the essential characters which distinguish bronchophony are elevation of pitch and nearness to the ear, intensity not being essential, this sign may be reproduced after death as follows: Remove the lungs from a subject dead with pneumonia, one lobe at least being solidified. Into the trachea insert the end of a tube nearly as large as the trachea, the other end of the tube being provided with a mouth-piece large enough to receive the lips. What is known as "Holden's resonator" is well adapted for these experiments. Now an assistant is to direct his voice into the speaking-tube, and the solidified lung is auscultated with the binaural stethoscope. The transmission of the voice gives rise to the bronchophonic modifications, the intensity being less than during life. Comparing the voice-sounds over the solidified lobe with those over a healthy lobe, the latter are found to have the distinctive characters of the normal vocal resonance—namely, diffusion and distance from the ear. The intensity of the voice-sound over the healthy lung is greater than over the solidified portion, showing that a healthy lung containing more or less air is a better conductor of sound than solidified lung. Experiments seem to me to prove conclusively that Laennec was in error in making the reverse of this statement. That the conduction of the voice-sounds into solidified lung is largely by the air contained in the bronchi, is shown by comparing the transmission when the trachea is unobstructed with that when it is plugged with cotton or wool. This comparison suffices to disprove the statement by Skoda and others, that the bronchi within a solidified lobe do not contain air. That air enters freely into the bronchi is shown by blowing with the mouth or bellows, into a tube inserted into either the trachea or the bronchus leading to the solidified lobe. Normal bronchophony may be illustrated, in healthy lungs, by comparing the voice-sounds over the large bronchi near the apex with those over the lower portion, an assistant speaking into a tube inserted into the trachea.

The characters which distinguish from bronchophony simply increased vocal resonance are to be clearly apprehended. In the latter sign the resonance is increased in intensity without the modifications essential to bronchophony—namely, elevation of pitch and nearness to the ear. Increased intensity without these modifications either denotes solidification of lung not sufficient in degree to give rise to bronchophony, or it denotes a cavity. The sign may be illustrated in the same way as bronchophony, over a lung partially solidified, or over a tuberculous cavity. A tuberculous cavity after death, as during life, may give intensely increased vocal resonance without the bronchophonic characters; this is when the cavity is large, near the surface, and not surrounded by solidified lung. Increased vocal resonance, not bronchophonic, within a circumscribed area is often a valuable cavernous sign.

Ægophony has one of the essential characters of bronchophony—namely, elevation of pitch. It lacks the other essential character—namely, nearness to the ear. Other distinctive characters are tremulousness, bleating, and the nasal intonation. The high pitch and distance from the ear are ob-

tained by placing beneath the stethoscope, in a situation in which bronchophony is well marked, a bag of liquid; but the additional characters are not in this way produced. I have no practical knowledge of any mode in which complete ægophony may be produced out of the body. The conditions in life may be imitated by placing within an india-rubber bag lungs with a solidified lobe, introducing into the bag a certain quantity of liquid, and auscultating, while an assistant speaks into a tube inserted into the trachea. This experiment I have not tried. The interest belonging to this sign relates chiefly to the mechanism of its production; for, with the other signs denoting pleuritic effusion, together with the exploratory needle, the sign cannot be said to have much practical importance.

Pectoriloquy is often confounded with bronchophony. All confusion is avoided by defining pectoriloquy to be the transmission of *speech*—that is, not merely the voice but articulated words. As thus defined, pectoriloquy may perhaps be illustrated over a solidified lung by speaking into a tube inserted into the trachea. I have not succeeded very satisfactorily in two instances in which I have tried to illustrate it in this way; but the instances have been few. It would be of interest to ascertain whether the sign may be illustrated as heard over a solidified lung and over a cavity not surrounded with solidified lung. The object would be to verify out of the body an important practical distinction pertaining to this sign during life. The distinction is one which I believe I was the first to indicate. It is this: If pectoriloquy be accompanied by the distinctive characters of bronchophony the conduction of the speech is through the solidified lung; but if the characters of bronchophony are wanting the pectoriloquy is a cavernous sign. By means of this distinction it is practicable, in cases of disease, to determine whether the sign denotes solidified lung or a cavity.

WHISPERING SIGNS.

A series of signs produced by the whispered voice was arranged by me, and the different signs (pectoriloquy excepted) named in 1856. The whispered sounds of health were embraced under the name *normal bronchial whisper*. The morbid signs, correlative to those produced by the loud voice, were called *whispering bronchophony*, *increased bronchial whisper*, *cavernous whisper*, *whispering pectoriloquy* and *amphoric whisper*. It is unnecessary to describe the differential characters of these different signs, inasmuch as they are those which belong (following the same order of enumeration) to the expiratory sounds in bronchial respiration, broncho vesicular respiration, cavernous respiration and amphoric respiration. Pectoriloquy is, of course, excepted. The experience of many years has confirmed the opinion that these signs are often serviceable in the practice of auscultation; albeit their analogues are to be found in the respiratory signs just named. The distinctive characters are brought out more fully and distinctly by the whispered voice than by the expiratory acts in respiration. The whispering signs may be fairly represented by means of diseased lungs removed from the body, an assistant speaking in a whisper into the trachea, and the stethoscope placed over portions of lung in different degrees of solidification, over cavities with their walls near the surface, and over cavities surrounded by solidified lung. Let me add, that the characters distinctive of whispering pectoriloquy as a sign, on the one hand, of solidified lung, and, on the other hand, of a cavity, are not less marked than those of pectoriloquy produced by the loud voice. If whis-

pered words transmitted through the chest are accompanied by a sound high in pitch and tubular in quality (whispering bronchophony), the conduction is through solidified lung; but if the word sound be low in pitch and non-tubular (cavernous whisper), the conduction is through a cavity.

I have given, gentlemen, a succinct account of the production, out of the body, of pulmonary signs obtained by auscultation and percussion, for reasons which were stated at the beginning of the lecture. I do not profess to be an adept in devising methods for the illustrations of these signs. I doubt not, that many of you, by the exercise of your ingenuity, will be able to do better than I have done. Efforts in this direction, as it seems to me, will be likely to be more useful than attempts to elucidate the physical signs by resorting to abstruse principles of physics. It would be easy to show that the latter method of investigation has led to important practical errors. The physical elements involved in certain of the signs are too varied and obscure to be embraced in mathematical calculations. This difficulty does not apply to experiments having for their object the imitation of the physical conditions which the signs represent, and to those made upon the lungs, healthy and diseased, after death. Teachers of auscultation and percussion will, I am sure, find much advantage in producing the signs out of the body in the class room, in conjunction with clinical illustrations, and I hope hereafter to be able to do more in this way than I have done during the present session.

Clinical Remarks

ON

ABDOMINAL SANGUINEOUS CYSTS.

By J. S. BRISTOWE, M.D., F.R.S.,

Senior Physician to St. Thomas's Hospital.

ONE autumn, seventeen or eighteen years ago, I went to Hastings with my wife and family, and on the platform of the station met a young lady with whom and whose family I was acquainted. She looked miserable, and told me that they had all been there several weeks on account of the illness of one of her brothers, who was, in fact, then dying. I was surprised, for I had heard nothing whatever of the matter, and had seen him only a few months before, apparently in perfect health. A little later in the day she called at my lodgings to request me to see him in consultation with his medical attendants, Mr. Barnard and Dr. Adey; and in the evening we met. The patient was a young man, twenty-seven or twenty-eight years of age, of loose habits, but who had (so far as I know) enjoyed very good health. His present illness was of a few months' duration only. He had been ailing for a month or two at home with symptoms referable to the abdomen, but which his own medical man, failing to understand or to benefit, sent him to the seaside to get rid of. He gradually became worse, however; and before long an abdominal tumour of large size was discovered. This rapidly increased in volume, and concurrently with its enlargement the patient emaciated and got weak; he had suffered also, more especially latterly, from intense abdominal pain, coming on in frequent paroxysms. I found him in bed, lying on his back, with his head and shoulders raised. He was pallid and sallow looking, emaciated to the last degree, but with an enormously distended abdomen. His general aspect, in fact, was precisely that of a woman in the last stage of untreated ovarian dropsy, or of a

child sinking from the effects of a malignant tumour of the kidney. He had no appetite, and indeed vomited (as he had done for some little time) everything that he took. He was in much pain during the whole time of my interview with him, and now and then appeared to be in extreme agony. It was supposed that his end was near, and I confess that I shared that view. On careful examination, I found a large ovoid, but somewhat irregular tumour occupying mainly the left side of the abdomen; it extended from the ribs above to the pubes below, and from the left loin to a couple of inches or so to the right of the umbilicus. The bowels were pushed to the right, there was no fluid apparently in the peritoneal cavity, and, with the exception of the large tumour, no evidence of abdominal disease. I may further state, at once, that the thoracic viscera were all healthy, that none of the superficial glands were enlarged, and that the excretory functions and products were normal. The tumour, when first discovered, was assumed to be malignant, and to have originated in the liver. Its position now, however, did not in the least suggest an hepatic origin. It seemed rather to be connected with the spleen, or kidney, or peritoneum in the neighborhood of these organs. It was fixed; it presented no notched edge, nor indeed any edge at all; and so far as could be made out the large intestine did not cross its surface. Which of the latter alternative views of its origin was the correct one was undeterminable by ordinary physical examination. It was, however, cystic, and it was decided to tap it. The next morning a large-sized trocar and cannula were introduced, and at least a gallon and a half of opaque, turbid, dark, reddish-brown fluid were removed, with the result that the cyst was nearly emptied, and not much evidence was left of its presence in the abdomen. The fluid was simply altered uncoagulated blood, and the only microscopic elements detected in it were ordinary red and white corpuscles.

I left Hastings after that for a fortnight, and when I returned I found our patient able to sit up and enjoy some hours daily on the beach, gaining flesh rapidly, free from pain, with a good appetite, and sleeping well. Indeed, he was advanced in convalescence; but the cyst was refilling. I saw nothing more of him at this time; but learnt that at the end of two months from his tapping the tumour had become almost as large as ever, and paracentesis had again to be resorted to, and that the fluid removed was of the same quality and almost as abundant as that removed on the first occasion. He had, however, retained his renovated health to a large extent. The fluid never reaccumulated after the second tapping, and after the lapse of two or three more months he returned home perfectly well and able to resume his occupation.

I may as well give the subsequent history of this case at once, with its episodes, for they are interesting, though they have little relation to the main object of this lecture.

Shortly after his recovery from the above illness the patient married a young lady to whom he had been for some time engaged, and who had nursed him, and took up his residence in one of the suburbs of London. I did not see him again for three or four years, when I was requested to attend him in consultation. I found him living in very good style, but he had been drinking rather heavily, and was suffering in consequence from an attack of delirium tremens. When I entered his bedroom he was laughing heartily, and it was some time before I could get him to explain the cause of his mirth. He told me at length that just before I arrived he fancied he had seen,

through his window, a number of naked men running one after another across some fields, and leaping over a ditch that divided them, while a person concealed in the ditch, and armed with a razor, lopped off each one's privates as he jumped. Not a trace of his old abdominal tumour could be detected. It is a pity, however, that he had not been treated at this time as the phantom jumpers had been treated by their phantom enemy, for shortly afterwards he imparted syphilis to his wife, from the effects of which she ultimately died. The next time I saw him was some seven or eight years ago, when I was requested to admit him under my care into St. Thomas's Hospital. He had for some years taken to drinking; he had been turned out of the business in which he was a partner; he had sunk into the lowest depths of degradation; and for a year had been living with a prostitute and on the proceeds of her traffic. He was filthy and squalid and worthless, and he was suffering mainly from filth-sores about his body and enlarged lymphatic glands resulting therefrom. Again I examined his abdomen most carefully, and again could discover no sign whatever that he had at any time suffered from abdominal disease. For the third time he recovered. I have seen him once since, in rags and begging, in Cornhill, but where he is and what he is doing now I have not cared to inquire. I hope I may have done some good in my time. I certainly looked back for a few years with special pleasure to my share in the successful treatment of this case; I look back to it now with regret and almost with remorse.

What was the nature of this man's tumour? Was it a portion of the peritoneal cavity, cut off from the rest by adhesions, and in connection with a rupture of the spleen or some other viscus? I have seen such a cyst, on the right side of the body, due to rupture of the liver, and containing altered blood, the patient surviving many weeks. There was no history, however, of injury in this case, and, moreover, the symptoms were slowly developed. Was it a simple cyst arising in the peritoneum, spleen, or kidney, the secretion into which had assumed a hæmorrhagic character? If this were its nature it had most probably, I think, originated in the spleen; but I have never met with any such cyst even in this organ. Was it an hydatid? I should think not, for many reasons, and amongst others because even after the most careful examination by several competent observers no trace of hydatid membranes, of microscopic cysts, of echinococci, or of hooklets was discovered. Was it a case of rapidly developed and gigantic hydro-nephrosis, or (as I presume it should be called) hæmato-nephrosis? I think it was either a simple cyst of the spleen or a distended kidney, and on the whole I lean to the latter opinion. I confess, however, that its nature has ever been a mystery to me, and I have always hoped that sooner or later some elucidative case would present itself before me.

The case which most resembled it first came under my notice early in 1879, and for a time seemed so close a copy of it in its phenomena that I looked forward hopefully for an equally happy result. But, alas! I was doomed to disappointment; for my poor friend, as I like to think him (for he was a man of character and culture, and grateful in the highest degree to all about him for their efforts in his behalf), after remaining intermittently under my care for several years, died of his malady last summer. He was a newspaper reporter and writer, of dark complexion and delicate physique, who towards the end of the year 1878 first began to complain of the symptoms of the malady for which he placed himself under my care in St. Thomas's Hospital on Feb-

ruary 20th, 1879. He was then thirty-five years of age.

On admission it was found that he had a large belly (the veins in the walls of which were dilated), and that the enlargement was due to the presence of a tumour which occupied its lower part. This was rounded and symmetrical in shape, extending from an inch or two above the navel to the pubes, and from one anterior superior iliac spine to the other. There was absolute dulness in all this area and distinct fluctuation. It was neither tender nor painful, nor did it present the hydatid thrill. The abdomen was in all other respects healthy. The thoracic organs also were healthy. He had a good appetite, but could take very little food. His bowels were constipated, and opened only every three or four days. The urine was abundant, and had a specific gravity of 1014, and contained a trace of albumen. He slept badly, and complained of a dull aching pain about the anus, extending thence up the rectum, and also of pain about the umbilicus. The girth of the abdomen at this time was about thirty-three inches. The tumour, from its situation, might well have been the distended bladder; but it was broader than a bladder might be expected to be, and extended higher. A catheter was passed, however, and the vesical contents were removed, but without any effect on the tumour. Then an aspirator was introduced into the cyst, and a few ounces of fluid were withdrawn. This was reddish-brown, grumous, alkaline, with a specific gravity of 1024, became consolidated by boiling, contained abundant chlorides, and under the microscope showed numerous blood-corpuscles, but no other morphological elements. The resemblance of this cyst to that in the case first narrated naturally struck me; and the question I had formerly failed to answer again rose to my lips, What could be its nature? In this instance, however, it was clear that we had to do neither with a spleen nor with a kidney; neither was there any more evidence in this case than in that that the cyst contained hydatids. There was evidently, however, some ground for hoping that they might be, and, indeed, for thinking that they were, identical in their nature. After he had been in the hospital three weeks, his girth at the umbilicus had increased to thirty-four inches; and it was determined to tap the cyst. This was done with the aspirator, and 128 ounces of fluid, exactly like that obtained by the exploratory puncture, were removed. The patient was relieved from many of his discomforts, and no ill effects of any kind followed. On examination of the abdomen a day or two afterwards, its girth was twenty-nine inches and a half, and no trace of the tumour could be felt through the abdominal walls. There was a little tenderness, however, in the left iliac fossa. About a week later it was noted that dulness on percussion extended upwards two inches from the symphysis pubis; and from this time, with the exception that there was difficulty as regards the bowels, the patient improved in health and strength. The cyst, however, was slowly enlarging. On May 20th his girth was thirty-two inches, and it was thought advisable to tap him a second time. Eighty-six ounces of fluid were removed on this occasion; it was redder than, but in other respects exactly of the same character as, that removed previously. He left the hospital, much benefited, on June 8th.

He was readmitted on July 3rd, and, as he was then suffering much as he had done when he first came under treatment, it was decided to tap him at once, although the tumour did not reach the umbilicus by two inches. Seventy-four ounces of fluid, exactly like the last, were removed by the aspirator next day. A week later he got a slight at-

tack of acute rheumatism, from which he recovered in the course of a few days. And again he left the hospital, much improved, on July 19th.

On Feb. 27th, 1880, he for the third time became an inmate of St. Thomas's. He had been suffering from abdominal pain, difficulty of breathing, some cough, sleeplessness, constipation, and more or less difficulty in micturition. His tumour was larger than it had been, and extended to two inches above the navel in the mesial line; its shape was unaltered, and it still fluctuated; but its walls were manifestly thicker, and there was an oval solid tumour, about an inch and a half in length on the right side, between it and the abdominal wall. This was freely movable and somewhat tender. The girth of the abdomen was thirty-three inches and three-quarters. On March 4th 167 ounces of fluid, exactly like that formerly yielded, were removed by tapping. The girth of the abdomen after the operation was twenty-nine inches and a half, but the tumour could still be recognized as a more or less solid mass, occupying the region above the pubes. There was a gradual but slow increase in the size of the tumour after the operation, and at length, as the patient's health was deteriorating, as my original hopes were as to the cure of the tumour seemed doomed to disappointment, and as also it was evidently becoming more solid, I consulted Mr. Sydney Jones as to the feasibility of its removal by abdominal section. On May 13th, the patient being kept under the influence of anæsthetics, Mr. Jones inserted his hand into the rectum, and made a combined rectal and vesical examination, with the result of discovering that the tumour dipped deeply into the pelvis, between the rectum and bladder, displacing the bladder to one side, he concluded that it was inexpedient to perform any such operation as had been contemplated. On June 4th the cyst was tapped for the fifth last time, when only seventy-eight ounces of fluid were removed. Subsequently to this, the tumour slowly increased in size, and altered in shape, becoming somewhat lobulated and more solid, as my note says, "fleshy;" then it appeared stationary for a time; and, finally, it was thought to undergo distinct diminution, which continued up to the time at which he left the hospital Nov. 27th. At that date the highest point of the tumour reached the level of the umbilicus; and a separate, movable lump had either receded so far out of reach of the finger, or had become incorporated into the larger mass. During this stay in the hospital his health varied a great deal, but on the whole he got thinner and weaker. His bowels were usually constipated, and he had a continuous discomfort after the rectal examination there was frequently some difficulty in passing urine, and this fluid varied in specific gravity, quantity and in quality; it often contained more or less albumen, and occasionally a little blood and traces of pus. Latterly, too, it was abundant and of low specific gravity. His appetite poor, he complained of pain and tenderness in the abdomen, his pulse was feeble, and his temperature for the most part was normal or subnormal. He had during this time a little temporary oedema of the legs, and on one occasion there was a break of petechial spots over the abdomen and lower extremities. He lost nearly a stone in weight during the nine months.

It was not until May 19th, 1882, or after an interval of eighteen months, that he again came under admission into the hospital. He had been coming up almost daily to have morphia injections, and reported himself from time to time to the doctor, and had been seen by myself occasionally in the street or in the hospital. He was very weak

ing all this time, and seemed if possible to get thinner, but the abdomen remained considerably smaller than it was when it used to need tapping, and he thought it was still diminishing. For the last month, however, he had been distinctly losing ground, and especially had been suffering from cough and expectoration, with spasmodic difficulty of breathing, and frequent vomiting.

On admission the abdomen was large and prominent, and the superficial veins in its lower part were dilated; the tumour, which was certainly smaller than when last examined, was lobulated but rounded in outline, slightly movable, somewhat soft to handle, but free from all sense of fluctuation. It appeared to be a softish solid mass, and was very tender. The chest was fairly resonant, but over the upper part of the right side there was dullness with loud creaking, sonorous rhonchus and harsh expiration; and over the middle third behind crepitation. He had a frequent cough and expectorated much nummulated muco-purulent fluid. The tongue was dry, red, and glazed; he was thirsty and had no appetite; the bowels were confined. He passed a great deal of water, which was turbid, acid, contained one-sixth of albumen, and some pus cells, but no casts. His pulse was quick and feeble, and his temperature ranged from 98.2° to a little over 100°. He complained much of pain across the lower half of the abdomen and in the back. His remaining clinical history is little more than a simple record of the incidents of death from asthenia. He gradually got weaker, his pulse feebler and falling from about 120 to 96, his temperature becoming subnormal. His cough and expectoration continued, and the latter became fetid. Inflammation of both eyes supervened, resulting in ulceration of the left cornea. He became also forgetful, and wandered slightly in his mind. Abdominal pain continued until his death, which took place on June 24th, 1882. During all this period his treatment consisted mainly in the subcutaneous exhibition of morphia, which had been largely employed throughout his illness, and the administration of food and stimulants.

A curious circumstance occurred a day or two before his death which it may be worth while to record. I was discussing the case with my class, and was especially considering the fact that the original thin-walled cyst had become almost completely solid; and I proceeded to examine the patient, when to my surprise his tumour appeared thin-walled and fluctuated distinctly in almost its whole extent. It turned out that the patient in his half unconsciousness had retention of urine, and the distended bladder in the shape of a tea-cake had intruded itself temporarily between the tumour and the abdominal wall.

Autopsy.—The body was emaciated to the last degree. Chest: The left pleura contained a few ounces of blood-stained fluid, and the left lung was large, oedematous, and congested. The right lung was adherent over the upper lobe, but the lower part of the pleural cavity was occupied by purulent fluid. Near the anterior border of the lower lobe was an ulcerated opening the size of a shilling, by which the empyema communicated with the lung tissue. In the upper lobe was a large irregular cavity of new formation; and in the lower lobe was a smaller cavity which had opened into the pleura. No tubercles or other kind of adventitious growth was found. The remaining lung tissue was collapsed. Heart and pericardium healthy. Abdomen: A large and irregularly rounded tumour occupied the lower and anterior part of the abdominal cavity, extending from above the umbilicus into the pelvis, and displacing the intestines upwards and backwards. The distended bladder lay between the lower part of its

anterior surface and the abdominal parietes. Its exact seat of origin was not determined; but its lower part extended to the bottom of the recto-vesical pouch, and it was intimately connected with the soft tissues in front of the sacrum and with the parietal peritoneum of the lower part of the sides and back of the pelvis. The tumour was a thick-walled cyst. The walls varied from about half an inch to an inch and a half in thickness, and consisted for the most part of a moderately firm, whitish, semi-translucent material. The inner surface was lined with an opaque buff-colored mortary layer, which infiltrated the adjoining solid wall to a depth of a line or so; and here and there isolated patches having the same appearance and small hemorrhages studded the substance of the walls. The central cavity was now comparatively small, and flattened from before backwards, but contained many ounces (probably a pint and a half) of turbid, opaque, light-brown fluid, looking much like a solution of the solid matter lining the cyst. The tumour weighed 7 lb., and was a round-celled sarcoma. A few small outlying solid growths of the same texture as the primary tumour were found in close proximity with its posterior surface. No secondary growths were discovered either in the neighboring glands or elsewhere. The bladder was distended but healthy. The kidneys were both moderately hydronephrotic. The spleen was large and firm. All the other abdominal organs were sound. Brain healthy.

It seems to me now, looking back on the case of my poor friend, that it was in the main a very simple one; and that only a fatal issue could have been anticipated from the beginning, had one recognized the pathological character of the growth within which the cyst, so frequently tapped, had become developed. No doubt the growth from its origin was, as it proved to be ultimately, a round-celled sarcoma; and that (although the exact organ or structure in which it arose was not determined) it sprang from the cavity of the pelvis. It is clear, too, from the progress of the case, that in the beginning the vascular sarcoma broke down in its interior into a sanguineous cyst which rapidly increased in size, with probable attenuation of its walls, until it attained the dimensions presented by it on the occasion of the first tapping; and that from this time onwards there was progressive invasion of its walls by sarcomatous growth, and progressive thickening, which gradually rendered the tumour more and more solid to the touch, which, in association with the degenerative changes in the inner surface of the cyst, checked and finally arrested the enlargement due to simple fluid-accumulation, and explained equally the diminishing need for tapping, and the reduction, at any rate for a time, of the tumour in bulk. The same process had, in fact, been going on here as one occasionally witnesses in cysto-sarcomatous tumours of the ovary, and in cystic ovarian tumours which become invaded by sarcomatous growth. The persistent constipation and frequent difficulty of micturition were obviously due to the pressure of the tumour on the pelvic organs; and the variable, and for the most part abnormal, condition of the urine was doubtless dependent on the hydronephrosis, which itself had resulted from partial obstruction of the ureters. The pulmonary abscesses and empyema were apparently unconnected with either tubercle or sarcoma, and probably the result of a low form of pneumonia determined, like the affection of the patient's eyes, by his extreme debility and imperfect circulation.

In conclusion, do these cases throw that clear light on one another that I had expected? or do they even throw any light at all on one another?

I am bound to acknowledge that I think not. They both furnish examples of rapidly developing cysts with sanguineous contents. But there all real resemblance between them ceases. They illustrate the facts, however, that cysts of different origin and of different structure may so far resemble one another in the conditions of their lining membrane as to secrete morphologically and chemically identical fluid contents; and that morbid developments of the most diverse kinds may yet have common characteristics. At any rate it will be admitted, I think, that the cases are far more instructive when considered together than either of them would be taken alone.

Original Papers.

NOTES OF TWO UNCOMMON CASES OF ABSCESS OF BONE.

By WILLIAM S. SAVORY, F.R.S.,

Surgeon to St. Bartholomew's Hospital.

EVER since Brodie directed attention to the subject, surgeons have learnt to recognize the characters of abscess of bone. We are now familiar with its more common forms, but varieties of this affection occasionally occur which have been hardly noticed. In certain instances not only is pus found in a well-defined cavity, but also a sequestrum lying loose in the fluid. Such a state of things, may be understood without difficulty. The inflammation here has produced not only suppuration, but the death, also, of a considerable fragment of bone. But the following two cases are examples, I believe, of a still more rare condition.

A man, thirty years of age, not very robust, was admitted into the hospital in November last, complaining of much pain in the upper part of the left tibia, from which he had suffered for the previous six weeks. He described the pain as deep seated and dull, but variable. There was general enlargement of a portion of the bone, most marked at the junction of the upper and middle third. At this part the limb measured an inch and a half more than the opposite one. Here, over the tibia, and adherent to it, was a longitudinal scar, some three inches long, on the surface of which was a small aperture, and from this two or three drops of pus occasionally exuded. He gave the following history. Sixteen years ago he was struck on the left shin by a cricket ball. After a while the bone became painful and the leg began to swell, but for some years he did not suffer much. Seven years after the accident all the symptoms became aggravated and pointed clearly to an abscess in the tibia. Nine years ago I trephined the bone and exposed an abscess about three inches in length. The wound gradually closed, and for five years after the operation the man was free from all trouble, but about four years ago the bone again became painful, and then some pus escaped from the site of the old wound. The chief features of the case since that time he very clearly described, and his description was confirmed by what was observed in the hospital. After a period of freedom from suffering he would be troubled for some days with severe pain in the part, which gradually increased up to a certain pitch, and then almost suddenly ceased. This cessation would be marked by the formation of a small abscess in the scar, which would burst, discharge, heal, and leave him free from pain for some weeks, when it would be-

gin again, and lead up to an abscess as before. When the scar was reflected from the surface of the tibia, a very small indentation was observed in the centre of the prominent bone, and here, by the aid of a fine probe, a minute aperture was discovered, only just large enough to admit it, which led, at some depth, to a cavity in the interior. This was opened and found full of pus, holding about two drachms. The state of things was then clear enough. It was a case of abscess in the tibia, but with the striking fact that it communicated with the exterior by a fine canal, and this explained the peculiarity of the symptoms. They were not of the urgent and characteristic kind usual in cases of abscess of bone, for when the cavity became filled, tension was relieved by the escape of pus from time to time to the surface. The question how such a condition had been brought about is more difficult to answer. Was this fistulous tract the remains of a process by which this abscess had, during its course, made its way to the surface, as in the instances mentioned by Mr. Carr Jackson? In the history of this case there was no evidence of this. Had it been the result of incomplete repair after the first operation? It is hard to understand this with a period of five years' absolute freedom from all trouble. But if not, how came such a delicate fistulous passage to form? My view is that repair after the first operation could never have been thorough and complete.

A delicate girl, eighteen years of age, was admitted into the hospital on the 15th of last January, with the following history:—Her health had been good until seven years ago, when she struck the right shin. This was followed by inflammation of the knee-joint, and mischief in the upper part of the tibia. Abscesses followed, and at length several pieces of dead bone were removed from the shaft. She recovered from this. The wound healed and remained sound until a fortnight before admission, when dull, aching pain began in the site of the old injury, and increased until the day before she came to the hospital, when matter was discharged with much relief. In front of the upper part of the right tibia was an irregular scar, about two inches long. Near the centre of this was a small sinus discharging a little thin pus. At this part there was a general enlargement of the bone, ill defined, with a smooth surface, but indented under the scar, which was adherent to the periosteum. There was great tenderness on pressure over the scar. There were other scars of previous abscesses in the limb, one over the inner condyle of the femur, and another just above the internal malleolus. The scar was dissected back, then on the surface of the bone a very minute orifice was seen, too small to admit a probe, through which a drop of pus exuded. With a drill this was enlarged, and the cavity of an abscess was exposed in the shaft of the bone. It was regularly oval, with perfectly smooth walls, about an inch in length, filled with pus. Again, in this case how can the formation of the slender fistulous canal be explained? Could it have remained since the first operation, or had it been produced at some subsequent period? It seems to me that neither view can be accepted without difficulty. We are certainly not familiar with these extremely minute fistulous tracts in the substance of bone. But the clinical features of these cases are very remarkable. With many of the usual signs of abscess of bone, one—perhaps the chief—intense and long-continued pain, admitting of no relief, and rising at times into great agony, was wanting. And the explanation of its absence is easy. The pain of such an abscess is due to its tension, and

here, as the pressure from the accumulation of pus increased, the fluid found vent to the surface with corresponding relief.

ON A CASE OF OBLITERATION OF SUPERIOR VENA CAVA.¹

By GEORGE WILKINS, M.D., M.R.C.S. Eng.,

Professor of Physiology and Lecturer on Histology, University of Bishop's College; Physician to Montreal General Hospital.

(Reported by Dr. DUNCAN, Resident Assistant-Physician.)

CHARLES R—, aged thirty-four, third officer of an ocean steamship, entered hospital on the 27th of June, complaining of great shortness of breath and a feeling of fullness in the head. He said that twelve months previously, when lifting a heavy weight, he felt something give way in his chest; this was immediately followed by severe dyspnoea and weakness, and he was obliged to give up work for a time. He soon became better, but for six months after this he had occasional attacks of dyspnoea, very severe at times. He also had pain in the region of the heart, extending to the left shoulder. The severe symptoms then abated till about four weeks ago, when he became much worse. When ascending the gangway of the ship he suddenly felt "as if he would smother," and coughed up a small quantity of blood. He soon became easier, but still had considerable dyspnoea on exertion. Four days ago his breath became very short; he felt a fullness in the head and had slight pain extending down each side of the neck. He said he never was a hard drinker, but he had the appearance of a man who had lived well. No history of syphilis. The chest and other parts of the body presented spots of enlarged capillaries. Heart sounds perfectly clear. No perceptible impulse at the apex. There were swelling and tenderness on each side of the neck, just over the great veins; no enlargement of glands; no pulsation in supra-sternal notch. Laryngoscopic examination gave negative results. Breathing appeared rough at apex of both lungs; percussion note was clear over both lungs, and breath sounds heard distinctly. No increase in liver or spleen dulness. When sitting up could breathe fairly well, but the slightest exertion in lying down caused urgent dyspnoea. He had had a slight laryngeal cough, though not of a clanging character. Urine normal in amount, and containing no albumen and no casts. Temperature normal; pulse 84. Ordered a purgative and nitrite of amyl (three minims) inhalation when the dyspnoea became severe.

June 30th: Passed a very bad night; great difficulty in breathing; eyelids oedematous; considerable lividity of the right ear; no alteration in physical signs. Ordered thirty grains of iodide of potassium three times a day.

July 4th: Complained of great tenderness on the right side of the neck, behind the posterior border of the sterno-cleido-mastoid muscle; no improvement in the breathing. Ordered the painful parts of the neck to be smeared with equal parts of glycerine and extract of belladonna; also a saline purge.—11th: The tenderness in the neck had disappeared, but the dyspnoea was very great; face oedematous and ears livid; a little oedema of the scrotum.

Aug. 4th: Percussion note over the heart and lungs, which previously had been found quite normal, was dull below the nipple on the left side; directly outside the nipple the breathing was

blowing; behind on the left side the percussion note was dull up to an angle of the scapula, with weak breathing over the dull area; an occasional moist râle was heard behind; breathing not altered over the right lung. Increased lividity of the face; eyes quite closed from the swollen condition of the lids; no oedema of scrotum.—8th: Patient felt easier; was able to lie down and sleep; breathed comfortably when he kept quiet.—13th: Dyspnoea very urgent; face much swollen; ears livid; some oedema about the arms and chest; percussion note dull on left side below nipple and in lower axillary region. An aspiratory needle was introduced into the axillary line at the eighth rib, and four ounces of clear fluid removed, with relief to breathing for some hours.—23rd: Considerable oedema and lividity of face; on left side in front the percussion note was dull from the second rib to the base of the lung, the dullness extending to the posterior axillary line and also across the sternum two inches beyond its right edge; behind the note was clear. Good vesicular breathing was heard over the entire back and above the second rib in front; below this point no breath sounds were heard, nor in the axillary region. Tactile fremitus was diminished. The heart's impulse was not seen; but the apex beats were in normal position as fixed by stethoscope; sounds clear, but distant. The left side of the chest was aspirated with a fine needle in the fifth interspace directly outside the nipple line, but no fluid was obtained; the same interspace in the line of the axilla was tried, and seventy-six ounces of clear yellow fluid were removed. After the tapping the percussion note became clear down to the seventh rib in front and in the axillary line, and was clear behind. Breath sounds more distinct, and a grating friction sound was heard in the previous dull area. The breathing became easier for a few hours, but towards night the patient began to cough and said he felt a gurgling in the throat; he did not lie down the whole night, and the next day the lividity and dyspnoea were as bad as before.—28th: Again aspirated, and forty-four ounces of fluid were removed from the left side.

Sept. 1st: The chest again filled with fluid; the left pleural cavity aspirated, and fifty ounces of fluid were removed. This state of affairs continued for over a month, the chest filling with fluid and causing urgent dyspnoea. This was relieved every second or third day by tapping with an aspirator, usually in the axillary line. Occasionally the right side of the chest was aspirated, but did not give the same relief as the left side. The amount of fluid removed at each aspiration varied from twenty to seventy ounces. The fluid never showed any tendency to become purulent, but was a little bloody on one or two occasions. The urine was repeatedly examined during the course of the disease, and was never found to contain albumen. He never had any oedema of the legs, and, during the last six weeks, no oedema of the scrotum. At no time was there any ascites. The face was often excessively swollen and very livid, and there was also pitting on pressure on the sternum.

Oct. 9th: The distress in breathing was so great that a Southey's cannula was introduced into the left pleural cavity through the seventh interspace in the axillary line; a piece of fine rubber tubing, previously filled with carbolic acid lotion, was attached to it by one end, the other end being immersed in a vessel containing lotion. In this way the fluid was drained away, and the patient felt some relief; but on the following day the cannula came out. It was again introduced on the 11th, but after a short time the tubing appeared plugged with coagulum, and the fluid ceased to flow away. Previous to this the pulse had never been over 104,

¹ A paper read before the Medico-Chirurgical Society of Montreal, Dec. 8th, 1882.

and the temperature had been normal. On the evening of the 11th he complained of pain in the left side, and felt feverish. On the 12th a hot poultice was applied to the side which was still painful. The tongue became furred, the pulse rapid (116); temperature 102° F.; respiration 38. The distress in breathing was extreme. Both the pleural cavities were now aspirated; from the left side twenty ounces of bloody fluid were removed, and from the right forty ounces of clear limpid serum. This relieved the dyspnoea, and caused the lividity to disappear for a short time. On the 13th the patient became much worse: respiration 50; pulse 120; temperature 103° F. Towards night he became much weaker, dyspnoea severe, and finally drowsiness supervened with cyanosis. At 11 p.m. he died. The whole amount of fluid removed from the chest by aspiration was 862 ounces, the greater portion coming from the left side.

Autopsy by Dr. OSLER.—The body was that of a large stout man. The face and upper extremities were swollen; the face was very livid. On opening the thorax a large quantity of fluid was found in the right pleura; in the left there was not so much, and the membrane was covered with recent lymph. In the anterior mediastinum, between the aorta and the right lung, there was a thickening of the tissues, and a firm, cord-like structure extending towards the root of the neck. In the right auricle were blood and clots, and there was considerable distension of the chamber. The superior vena cava was found to be obliterated. There was a funnel-shaped projection of the auricle towards the region of the obliterated vessel. There was a valvular opening between the auricles. On section of the vein it was found converted into a firm fibrous cord, the ultimate result of a thrombus in the vessel. Organized thrombi extended into the innominate and internal jugulars. There was nothing special in the other chambers. The left ventricle was large, and the walls thick. The right branch of the pulmonary artery was a little compressed beneath the fibrous cord. The left lung was much compressed, and sodden at the base, and contained much blood. The pleura was covered with fibrinous exudation. The right lung was also compressed. The azygos veins were much enlarged. There was nothing special in the abdominal organs. A large number of sections from various parts of the thrombosed vessels were made by means of the freezing microtome, for the purpose of microscopical examination. The most interesting were those taken from the vena cava superior, especially those from its cardiac extremity. On examining one of these with the naked eye by means of transmitted light it showed a deep staining, three millimetres wide, which involved not quite the entire circumference of the vessel, whilst the lumen of the vessel itself, which could be distinctly seen filled with clot, was considerably reduced in size (six millimetres). On examining beneath the microscope this staining was seen to be composed of dense cicatrized tissue, involving the coats of the vein and extending quite up to the intima. This cicatrized condition extended upwards along the course of the vessel about one centimetre, where the lumen of the vessel became slightly greater, and its walls resumed their normal thickness. The thrombi of the vena cava were more highly organized than were those in the jugulars. These specimens are interesting as showing the process of organization of thrombus. All the sections exhibited transverse sections of, comparatively speaking, large vessels, some of which, doubtless, were in direct communication with the blood in the thrombosed vein. In some of the specimens extremely delicate vessels could be traced, whose course extended from a consider-

able distance within the walls of the vessel to far into the clot. There were new vessels which had been developed from vessels in the walls of the vein itself. Baumgarten considers this alone to be the true source of the vascularization of clot. The results of the autopsy, I need scarcely say, were quite different from what had been expected. The symptoms during life pointed to obstruction of the large veins, due to some growth or aneurismal dilatation exercising pressure on the vessels. Phlebitis affecting both jugulars was easily recognized, and treated accordingly, and had been considered as the effect of pressure on vessels below. That there had been an inflammatory condition of the jugulars and large veins below there was no doubt whatever. The complete absence of any growth and the condition of the walls of the vessel at its origin point rather to a primitive phlebitis beginning in the adventitia, which resulted in structural changes in the vessel. Structural change in the intima has unavoidably associated with it more or less thrombosis. On comparing the thrombi from different regions, it will be seen that those of the jugulars were of recent formation, whilst those from the vena cava were of a much older date; the thrombus was completely organized and the vessel walls had contracted on it. The accumulation of fluid in the pleura was evidently only a slight factor in the breathlessness.

It is a debatable point whether or not the bronchial and pulmonary vessels anastomose. Cohnheim³ and Litten deny that there is any communication between the two. Virchow, Hippolyte-Martin, Rindfleisch, Kuttner, and others are even more positive in asserting to the contrary. Hippolyte-Martin⁴ says, "After having rapidly opened the thorax in a guinea-pig and placed a ligature upon the trunk of the pulmonary artery at its origin, we have injected Prussian blue gelatine through the abdominal aorta; the coloring matter could penetrate into the pulmonary vessels by the bronchial arteries." He adds, however, "Upon section of the organ it was easy to see that the alveolar capillaries were but partially injected." I think we may accept the view that the vessels do communicate; we would then have these vessels considerably dilated, and this permanent dilatation means really thickened walls; conditions less favorable to the interchange of gases in the pulmonary capillaries and consequently accounting for the dyspnoea; the thickened walls of the septa would also impede free interchange of the gases. Another condition which, on purely physical reasons, I believe to have been a sufficient cause for the great distress in breathing is the permanency of the foramen ovale which was present in this case. This abnormality may exist without any disturbance of circulation—that is, so long as you have the auricle filling from above, the direction of this current being over the annulus ovalis will keep it in contact with the fossa ovalis, thus closing the orifice and preventing blood passing directly from the one auricle to the other. As soon, however, as the blood coming from the superior vena cava is shut off, the blood rushing upward from the inferior vena cava must naturally get beneath the annulus ovalis into the left auricle, which would be a most unfortunate circumstance for an over-distended pulmonary circulation.

To account for the fluid in the pleura, before any inflammatory attack developed itself, we will examine a little more minutely the vessels implicated. Thrombi were found in the superior vena cava, right and left innominate veins, internal jugulars and inferior thyroid veins. This would

³ Virchow's Archiv, Bd. lxxv.

⁴ Archiv de Phys., t. vii.

involve, besides the vessels of the head and neck and both arms, all of which were cedematous for a considerable time, four large intercostal veins on the left side, one intercostal on the right, the left bronchial vein, besides the internal mammary and some other smaller vessels, all of which reached the heart through the superior vena cava; thus, most of the blood from the left thoracic cavity emptied itself into the left innominate vein. Now, Sotnischewsky⁶ proved by experiments at the Pathological Institute of Leipzig four years ago, that tying the veins is not of itself sufficient to cause edema; that it requires that the vessel should be in a thrombosed condition in order that no possible collateral circulation could relieve the congested vessels. I regret when the autopsy was made, that I was not aware of these facts. However, the autopsy affords quite sufficient evidence of the cause of this effusion. The fluid blood from the regions in which the thrombosed vessels lie must reach the heart by way of the inferior vena cava; so must, also, certainly a portion, if not all, of the blood of the bronchial vein. It can only do so by widening of the inosculations of the superior intercostals with the fifth and inferior intercostals and azygos veins on the left side; on the right side by way of the azygos major; also by the superficial epigastrics and possibly the renal vessels on both sides.

Whatever the nature of the initial lesion may have been, I think there can be little doubt the lifting a heavy weight twelve months previous to entering the hospital was associated with it, and that it was of an inflammatory nature in the region of the vena cava—probably commencing in the adventitia—the inflammation assuming a chronic character. With the further progress of this inflammatory condition thrombosis occurred, as yet not completely obliterating the vein. The coughing up of blood I would suppose to have been the result of strain in this way:—The calibre of the vena cava has been diminished by conditions just described. Some blood would still be streaming through it, but in greatly diminished quantity; the upward current from the inferior vena cava would be much the stronger of the two. With the slightest extraordinary effort it would get beneath the annulus ovalis and permit of the blood entering the left auricle, and thus delay the blood in the lungs. Rupture of some of the capillaries in the lungs could easily take place.

If my theory be correct, a history of the succeeding pathological processes becomes a simple matter. We know that when we have coagulation taking place in a vein as a result of injury it very frequently causes other coagula to be formed, and eventually inflammation of the walls of the vessels, or should any inflammation have been previously present, these processes are still further intensified. The symptoms which were present point conclusively to at least two, if not three, well-marked extensions of the affection which might be interpreted thus:—As soon as the primary lesion caused closure of the vena cava, thrombosis occurred up to the vena innominata, causing disturbance of circulation, cyanosis, and other symptoms. This condition would be gradually relieved by collateral circulation, by way of the intercostals and azygos veins, and also by the internal mammary and superficial epigastrics; the phlebitis continuing, thrombosis would extend higher up, consequently the blood would have to seek other channels than those established by way of the internal mammary and intercostals, etc., to reach the azygos veins.

Montreal.

THREE CASES OF CILIA IN THE ANTERIOR CHAMBER.

By CHARLES E. GLASCOOTT, M.D.,

Surgeon to the Manchester Royal Eye Hospital.

A CASE was published in *THE LANCET* by Mr. Williamson, of the Newcastle Infirmary, in which a few lashes were removed from the anterior chamber after a presumed residence there of about three weeks. As very few cases of a like nature are recorded, it occurred to me that it might be desirable to supplement Mr. Williamson's case by the description of three cases in which I have found cilia in the anterior chamber, at periods varying from one week to three years after injury to the globe. It is worth noticing that in all three cases the rupture of the cornea had been caused by the impact of a blunt-edged substance striking from above; the lashes in all my cases, on examination, were found to be entire, as if they had been forcibly pulled out by the roots; their exit from the anterior chamber with the first gush of aqueous humor had no doubt been prevented by the elasticity of the edges of the cornea wound closing upon them, by the prolapse of iris, and by the subsequent healing of the wound. It is interesting to note that in two cases an attempt had been made by nature to extrude the foreign bodies through a fistulous opening in the wound, in the axis of their longest diameter. These cases also point to the advisability of using lateral or oblique illumination in the examination of all cases of injury to the eye as a matter of routine, for without its aid the cause of the irritation would certainly have been overlooked.

On Jan. 12th, 1870, G. G—, a young engineer, was in the act of shutting the door of a broken lamp which was swinging in the wind, when a large, irregular piece of plate glass fell out and injured his right eye, cutting the globe across at its outer sclero-corneal junction. He at once put his handkerchief to his eye, and keeping it firmly compressed he hastened to the Salford Hospital, where he states he was treated by means of cold water compresses, without the lids being opened. He suffered much pain the night of the injury, and slept very little. On the 17th he came under my care at the Royal Eye Hospital, when I found that there was an almost horizontal wound two lines and a half in length, at the outer sclero-corneal junction of the right eye, the lips of the wound being in close apposition, except at the outermost margin, where there was a small prolapse of iris. The anterior chamber was quite full of blood, so that the amount of injury to the deeper structures could not be made out. Atropine was instilled several times, with the effect of making him "feel much easier," and a pad and compressive bandage were applied. He continued the use of atropine drops and bandage for about three weeks by which time most of the effused blood had become absorbed, and the wound had healed, leaving a minute fistulous opening close to the outer angle. Vision was reduced to counting fingers at two inches and a half. Three days later I saw him again, when he complained of a pricking feeling in his eyelids, as if there was something in his eye. Suspecting atropinization, I everted his lower lid, and was about to examine the upper one for granulations, when I observed a small, black point projecting through the fistulous opening referred to above. On seizing it with a pair of forceps, it readily came away, and the patient expressed himself relieved. On examining the foreign body it proved to be an eyelash, slightly swollen by its immersion in the aqueous humor. This led me to

⁶ Virchow's Archiv., Bd. lxxvii., S. 85.

examine him ophthalmoscopically, and by oblique illumination; by the latter method I was enabled to see a number of cilia bridging across the anterior chamber, and resting against the anterior surface of the lens. By some manipulation I induced a few more of the cilia to present themselves at the wound, and drew them out with the forceps. They were mostly adherent to one another in bundles of twos and threes, and I succeeded in removing fourteen; I then used atropine, and reapplied the bandage. Since their removal he has had no lacrymation or uneasiness whatever; the wound has closed, and he says his sight is returning. Two months later the site of the wound was occupied by a dense linear cicatrix, and although the lens capsule was partially opaque, he could make out letters of No. 6, Jaeger, at five inches. I may here remark that the affected eye was an amblyopic one before the accident, and squinted outwards, so that he feels very little inconvenience from the result of the injury. The patient stated that his eye was perfectly comfortable, and I found there was no tenderness on pressure. I have just seen my patient after a lapse of twelve years, and I find the eye unchanged. His vision is No. 6 with the right eye, the refraction being myopic, and the sight of the left is 1 6-6. Although the wound was over the ciliary region, he has had no irritation in the eye, or tendency to sympathetic trouble.

My second case occurred in the person of M. S—, a young mill hand, who was injured by a young man throwing a piece of a broken bobbin at her from across the room, hitting her on the right eye, causing an irregularly shaped wound across the cornea, with a slight prolapse of iris. The wound healed rapidly under ordinary treatment, with a very slight anterior synechia. She has had several attacks of irritation in the eye, with increased tension and bulging of the wound, since, when she attempted to work, which caused her to return to the hospital. On examining the eye by focal illumination four months after the accident, I found two lashes lying saltierwise in front of the upper quadrant of the iris, the lower limbs of the St. Andrew's cross formed by the lashes being directed somewhat forward, and standing upon the posterior surface of the wound. I determined to attempt their removal, and proceeded to make an upper iridectomy, so as to include the anterior synechia as well. I managed to remove one of the lashes by means of the iris forceps, but the other disappeared, no doubt having become entangled in a blood-clot, and thus sponged away, the hemorrhage from the cut surfaces of iris being pretty copious. The iridectomy wound healed in a few days, and the tendency to corneal staphyloma was reduced. Eight months later she visited the hospital, and reported the eye as having been perfectly quiet since the removal of the lashes, and that she had resumed her work at the mill. Vision with injured eye is now 8 6-00 c. + 8 sph. = 1 6-18. I have no doubt that the distant vision could have been further improved if the corneal astigmatism had been corrected.

Rachel B—, my third case, aged thirteen, received a blow on the right eye with a rough piece of wood, a portion of a clog sole, three years before I saw her, which wounded the lid, and ruptured the cornea above and to the inner side, causing traumatic cataract and prolapse of iris. The corneal wound healed in a month, but the eye always remained "weak and watery," and three weeks before I saw her the eye had become inflamed and painful. When I first saw her there was a dense cicatrix in the upper and inner side of the cornea, bulging forward and pierced in the centre by a minute fistulous opening through which a lash projected for about two-thirds of its

length. The pupil was blocked by a dense capsular remnant, and there was a large anterior synechia. I took the girl into the hospital and performed an iridectomy downwards and inwards, removing three lashes, which were sticking in the stretched iris. The capsular remnant I was also able to remove by means of a pair of straight iris forceps. The wound healed in a few days, and the staphylomatous bulging subsided. I saw the patient recently, and found vision to be No. 6 c. + 2 and c. + 4 = 6-18. There has been no recurrence of pain or irritation since the removal of the lashes.

Manchester.

THREE CASES OF LISTERIAN OPERATION FOR THE RADICAL CURE OF INGUINAL HERNIA.

By EDWARD LAWRIE,

Professor of Surgery, Lahore Medical School.

In the following cases the antiseptic principle was strictly carried out.

CASE 1.—A European gentleman, aged forty-four, from Phillour, consulted me on December 7th, 1882, on account of double inguinal hernia. The protrusion on the right side had existed since 1863, and that on the left since 1865. On December 11th I performed a modification of Professor K. McLeod's¹ (of the Calcutta Medical College) operation for the radical cure of the hernia on both sides. Commencing with a free exposure of the external abdominal ring, and of the hernial sac and spermatic cord for an inch or more below it, the sac was dissected clear of the cord and transfixed close to the ring with long thick double catgut ligatures, which were tied on each side. The sac was then cut across below the ligatures. The pillars of the ring were next brought together with the ends of the ligatures which held the stump of the sac. A Wood's needle was passed first through the outer end and then through the inner pillars of the ring, and threaded and withdrawn with the ends of the ligature on the outer side of the stump, and the same process was repeated on the inner side. The four ends, now holding the pillars of the ring, were tightly tied in pairs on each side of the stump of the sac, and the ring was thus effectually occluded without any undue pressure on the cord. The ligatures were cut short, and the external wound sutured with thin catgut. The patient left Lahore cured and not wearing any truss on Jan. 13th. Both wounds healed by the first intention, though the patient's recovery was delayed by a severe attack of dysentery, which developed itself on the day following the operation.

CASE 2.—A gentleman, aged forty-nine, from Amritsar, consulted me on December 30th, 1882, on account of an inguinal hernia of the right side of six years' standing. The operation was performed on Jan. 1st. The wound healed throughout without inflammation, and the patient got up on Jan. 8th. On the 14th he left for his home cured, and able to walk freely without a truss.

CASE 3.—A gentleman, aged thirty-seven, was sent to me from a distant station on Jan. 3rd, 1883, with a tumour of the right testicle and right inguinal hernia. The hernia dated from July, 1872. The tumour was as large as the closed fist, of three months' growth, and of soft consistence. The operation was performed on Jan. 5th. The abdominal ring and tumour were fully exposed by a free incision. The hernial sac was found to be

¹ Vide Indian Medical Gazette for October, 1881.

congenital, and contained a mass of omentum, which was adherent to the upper surface of the tumour. The neck of the sac and its contents were transfixed *en masse* with double catgut, which was tied on each side immediately outside the ring. The sac, omentum, and tumour were amputated half an inch below this point, and the ring, with the thick stump in the centre, was occluded in the same manner as in Cases 1 and 2. A horsehair drain was employed and removed on the fourth day. On Jan. 12th the wound, with the exception of a single stitch-hole at the top, was soundly healed. The patient left Lahore on Jan. 20th, 1883, well and not wearing a truss. (The tumour proved on examination to be a soft carcinoma. It weighed fourteen ounces and was confined to the epididymis. The spermatic duct was healthy.)

The operation I have adopted for the radical cure of hernia differs from that described by McLeod in the *Gazette* in detail, though the principle is the same. The modifications of McLeod's procedure, which I consider important, are briefly (1) non-excision of the sac and (2) occlusion of the ring, with the ends of the catgut employed for its transfixion and deligation. In this way the wound, in uncomplicated cases, is small, the catgut cannot slip off the sac, and the correct position of the stump in the centre of the ring is secured. I have recently operated in this manner on nine cases of hernia in hospital, in all of which the results were as good as in those reported. Under proper antiseptic management, without which the operation would be impossible, the wound heals at once, and consolidation of the ring is complete in from eight to ten days.

Lahore.

ON CHEYNE-STOKES' RESPIRATION.

By F. M. PUDDICOMBE, L.R.C.P. Lond., etc.

SEEING that the above subject has been brought before the notice of the profession once more by Dr. Paterson in *THE LANCET*, I venture to submit the particulars of the following case which has been under my care for some time past, and which presents several points worthy of notice.

S. E—, aged sixty-four, deaf and dumb, a brewer's laborer, with no family history, and no history of the patient's past life can be traced, with the exception that he was given to fits of intemperance. On January 29th he was brought to the Teignmouth Infirmary in a state of insensibility, the limbs motionless, and the body cold; pupils somewhat contracted but answered to light, and the pulse was slow but weak. He had been found in this condition in a yard adjoining the brewery about an hour previously. Hot bottles were applied to the feet, he having been put to bed, and soon he was able to move slightly, when it was found that he was paralyzed on the right side. No reflex movements could be produced on tickling the right foot. A short time after this he resisted all attempts to feed him, and we were obliged to use force during the rest of the day in order to make him take small quantities of nourishment.—30th: Has passed a restless night, snoring loudly whenever he dropped to sleep for a few minutes. He has passed some urine in the bed, but seems to have some control over his bladder. Has taken beef-tea and milk willingly, but latterly it has returned. Has had an ice-bag applied to his head and blisters behind his ears. Although there seemed to be some improvement this morning, he is decidedly worse to-night, and is very restless.—31st: Sickness continues. Pulse is full and slow (56) this morning. Has used a bottle to pass urine in. Has retained a small quantity of

beef-tea mixed with ice and lime-water. Bowels confined. Temperature 99.8° this evening.—Feb. 1st: Sickness stopped; temperature 98.6°. Seems better; appears to be conscious. The bowels have acted after an enema. Five grains of the bromide of potassium to be taken every five hours.—2nd: The same.—3rd: Rather lower this morning, but takes beef-tea and milk willingly. This evening, for the first time, my attention has been drawn to a most peculiar form of breathing. It much resembled that related by Dr. Paterson; the ascending and descending respiratory acts being well marked; the crisis, so to speak, consisting of a long-drawn, violent, and noisy respiration. Each breath was accompanied as a rule with stertor, even to the last of the descending series, the noise of the last breath somewhat resembling that made by the escape of the last water from a bath by a waste pipe—a peculiar sucking noise. The pause would then take place, and would last from ten seconds to a minute, the duration varying greatly; the breathing would then recommence, softly at first as a rule, and then louder and louder, but sometimes it would begin again with a sudden violent and noisy effort. The number of ascending and descending respiratory acts numbered on an average seven to ten of each.

It would be superfluous to give a detailed account of the daily progress of the case. Suffice it to say that no material improvement took place; indeed, little or no alteration could be observed for many days, until, on the 19th, when, though he seemed on the whole to be much weaker, reflex movements were readily induced by tickling the feet.—24th: The pauses still continue, though not so markedly as before; they have been observed several times during the daytime for the past few days, but only when sleeping, whereas at first they were only noticed at night.—26th: The patient is much weaker. He can only be made to swallow with difficulty, and each attempt is attended with violent coughing. Only once or twice has the peculiar respiration been observed during the past twenty-four hours.—27th: The patient is very much worse, and apparently sinking fast. The character of the respiration is entirely changed; there are no pauses, but he breathes with stertor, fifty respirations to the minute. All the patient's urine since the previous day has been passed under him, and he seems quite unconscious. Feeding (beyond wetting his lips with a feather dipped in milk) is out of the question. At 10 p.m. I was called by the nurse, who said the patient was dying. His respirations were sixty in the minute. The pulse could not be felt. The breathing gradually became slower and weaker, and after a couple of pauses of about a minute each (such as may often be noticed in dying people) it finally stopped. The temperature of the body at the time of death was 102.6°. The urine could not be collected for the past two days.

Before giving an account of the autopsy I will mention several facts in connection with the case, which for convenience, I have hitherto omitted. In the first place, the pauses rarely were noticed in the daytime, and then only during the last few days of the patient's life, but during the night they were extremely well marked, coming on with regularity about eight or nine in the evening, and ceasing towards morning. Secondly they never occurred when the patient was awake, but he would drop off into a nap, and after a minute or two, more or less, the peculiar form of respiration would commence. Thirdly, towards the termination of the pause twitchings would often, but not always occur; these were noticed, of course, on the sound side of the body, also occasionally movements of the abdominal parietes might be noticed.

Fourthly, shaking would not at first break the pause, but if continued it generally took effect. Sometimes on shaking him he would give a short inspiration, and again pass into a state of apnoea. On auscultation the heart sounds, which seemed normal, but rather faint, could be heard plainly alone, and in no way irregular. The pulse could be felt at the wrist beating strongly, and differing in no perceptible degree from that which could be felt during the breathing period. The commencing respiration sounded most peculiar, and could be heard through the stethoscope generally a second or two before there was any outward or visible sign of it. The urine during the early part of the case showed only traces of albumen, and had a specific gravity of 1025, acid reaction. During the latter period of the case there was a great quantity of albumen, and the urine was more scanty. There was no dropsy of any part of face, body, or legs. With regard to remedies, I found none to have much effect. Bromide of potassium and chloral hydrate were totally inert, and the more he slept the worse he was. Nitrite of amyl, on being held to his nostrils, stopped the symptoms temporarily, but only by causing him to wake up, which he invariably did after it had been held to his nose for seven or eight seconds. The nurse reported that on several occasions he was more quiet after its use for the rest of the night, but on others he was as bad as ever.

The following is an account of the post-mortem examination made on the body the day following death. On removing the skull-cap and dura mater a quantity of fluid escaped, and the posterior surface of cerebrum and cerebellum was congested, especially on the left side. The pia mater was much injected. The substance of the cerebral hemispheres differed little, if at all, from that seen in health. On cutting into the ventricles the left was greatly distended with bloodclot, and the right contained a small clot and a great quantity of serous fluid. On washing away the clot the corpus striatum and other portions of the floor of the left ventricle were found to be much softened and disintegrated. The pons and medulla, as far as could be seen with the naked eye, were perfectly normal and healthy, and, though covered with injected vessels of the pia mater, it was white and healthy on being cut into. There was no softening or disease of any kind apparent in these latter parts. The above were the only lesions to be found in as careful an examination of the contents of the cranium as it was in my power to make. The lungs were congested and oedematous. There was but little fluid in the pericardium. The heart was hypertrophied but little if at all dilated, and the walls were firm and looked healthy, showing no evidence of fatty degeneration that could be detected with the naked eye. The aorta was of large size, but showed no atheromatous patches. There was no valvular disease in the heart, but I found on opening the right ventricle two growths, the one about three-quarters of an inch across, embedded among the columnæ carneæ, and another about an inch in length and half an inch in diameter, attached by a pedicle, and hanging from the wall into the cavity of the ventricle. I also found a smaller growth in the left ventricle, attached to the columnæ. The other viscera were healthy, with the exception of the kidneys, which were both diseased, the right especially so. The granular condition was shown to a slight extent; but the principal point for notice was the presence of a number of cysts varying in size from a hemp-seed to a small marble, and containing a yellow transparent fluid. These were principally found in the cortical portion. The capsules were

easily removed, but the kidney was torn at one or two points.

The above is only a poor description of the case; but I hope it may have presented some points worthy of notice, and which may be acceptable to those taking an interest in the subject.

Teignmouth.

FRACTURE OF THE PARIETAL BONE; ATAXIA; RECOVERY.

By JOHN HOSACK FRASER, M.B. Edin.,

Late Resident Physician to the Edinburgh Royal Infirmary.

THE following is the history of a most interesting case, which has recently come under my care, and which appears to me to be worthy of publication.

About two years ago, M. W—, aged forty-five, was engaged at work when a brick fell on his head, from a height of twelve feet, inflicting a fracture of the posterior superior portion of the right parietal bone. In the course of three weeks he had so far recovered from the effects of that accident as to be able to resume work. For the next fifteen months the only symptom from which he suffered to indicate disease of the brain was occipital headache. About seven months ago he became depressed, taciturn, and apathetic, and complained of giddiness, amblyopia, diplopia, deafness, and loss of memory, from which it was manifest that he was the subject of a grave form of brain disease. A few months later his gait became unsteady and tottering, and his hair was becoming rapidly grey. When he walked he had an inclination to fall forwards or backwards; at other times he moved in a peculiar spiral manner, describing the so-called "circus" movements. About the end of March this ataxia became so much worse that he was unable to sit or stand. Urgent vomiting, a slow and irregular pulse, and drowsiness, accompanied with sleeplessness and delirium, set in. This was his condition when I saw him on March 29th, 1883, and, after making a careful examination on that occasion, I pronounced him to be suffering from a tumour of the cerebellum. Ophthalmoscopic examination revealed double optic neuroretinitis. The right pupil was dilated and semilunar in shape; the left was normal both in size and form. His sensations, sensibility, and reflexes were perfectly normal, and there was an entire absence of motor paralysis.

My reasons for localizing the disease to the cerebellum were as follows:—(1) The persistent occipital headache. This probably pointed to a stretching of the tentorium. (2) Vertigo. (3) Loss of coördination. (4) Amblyopia and diplopia. (5) Deafness. (6) Vomiting, and slowness and irregularity of the pulse. These two last-named symptoms probably pointed to an irritation of the pneumogastric nerve. The slowness and irregularity of the pulse varied distinctly with the headache, being most marked when the headache was most intense, and *vice versa*.

As to treatment, before adopting any remedial measures, it was most important to decide the question of syphilis. He denied having had that disease, but, on making an examination, I found a cicatrix on the glans penis and enlargement of the glands in both groins. I ordered him one-sixteenth of a grain of the perchloride of mercury and ten grains of the iodide of potassium three times a day, and at the end of a week I was surprised to find the great improvement that was apparent in his condition. The vomiting, drowsiness, headache, and delirium had left him; his memory was decidedly improved; and his hair, which was previ-

only grey, was fast returning to its natural brown color. There was, however, no improvement in his coordination. Four days later I found him comfortably seated in his chair, and he could stand with his feet widely apart, but could not walk without tottering and falling. A week later I was much pleased to find that he could stand steadily with closed eyes when both feet were brought closely together, and walk remarkably well.

Birmingham.

THE TREATMENT OF DIABETES INSIPIDUS BY ERGOT.

By T. HAMMOND WILLIAMS, L.R.C.P. Ed., etc.,
Senior Assistant Medical Officer to the Town's Hospital and
Asylum, Glasgow.

THE following notes may be interesting as corroborating recent research in the treatment of this previously intractable disease.

During a short period as resident assistant in the Glasgow Royal Infirmary, I had the opportunity of seeing several cases treated with valerian, and with very discouraging results (Trousseau). Galvanism was equally ineffective. Keeping in mind that there must be increased blood-supply to the kidney, and as this is controlled by the inhibitory branches of the sympathetic, the treatment is obviously one of decreasing the blood-supply through that channel. Of the many agents which act thus, ergot in its various forms seems the most potent. Two cases having come under my observation, the feasibility of the above treatment was suggested.

Margaret Mc—, aged fifty-one, widow, washerwoman, was admitted Oct. 21st, 1881. Her trouble commenced about four years ago. She had enjoyed fair health previously, except an attack of small-pox in her youth. Has had seven children. Was rather intemperate in her habits. The first symptom was thirst, of which she took little notice, until the frequent calls to pass urine compelled her to seek advice. When admitted her urine amounted to 280 ounces daily; sp. gr. 1002, clear, limpid; deposit of phosphates; no albumen; no sugar. Her appearance was pale and emaciated. Heart's action weak and fluttering. Complained of shifting pains, which gave her great annoyance. Skin was extremely parched, and spirits much depressed. Appetite voracious. Bowels regular. Two drachms of the fluid extract of ergot were administered thrice daily, combined with digitalis to steady the heart's action. Under this treatment the improvement was marked and striking, the quantity of urine excreted diminishing in three weeks to 140 ounces. This treatment was continued for another month, with the result of further reducing the quantity to eighty ounces; sp. gr. 1015. The pains disappeared after being only a fortnight under treatment. When the patient felt herself so much improved she left the hospital, notwithstanding my efforts to induce her to remain, promising to return if the symptoms were renewed. I have not since seen her.

Mary —, aged forty-nine, widow, hawker. As in the above case, the first symptom which attracted attention was increasing thirst, afterwards frequent nightly calls to pass urine, of about four months duration. When seen her bodily condition was good, appetite fair. Had history of "weak turns" of long standing, and repeated attacks of bronchitis. Heart sounds weak and distant, pulse soft and compressible. Shifting neuralgic pains, with vertigo, were much complained of, which no treatment seemed to benefit. Tem-

perature normal; family history good. Urine: sp. gr. 1005; acid reaction, no albumen, no sugar, a trace of phosphates. Daily quantity of urine passed was 300 ounces. After failures with tannic, benzoic, and phosphoric acids, I again prescribed ergot, also in combination with digitalis, reducing the quantity of urine in twelve weeks to seventy ounces; sp. gr. 1018.

Although the dose of ergot prescribed was large, no ill effects were produced, except constipation, to counteract which an occasional purgative was given. The disappearance of the neuralgic pains during the progress of treatment seems to confirm the general idea of the nervous origin of the malady. The disease in the above cases was not traceable to any assignable cause or hereditary taint.

Glasgow.

FIVE SUCCESSFUL CASES OF TRACHEOTOMY FOR CROUP;

WITH REMARKS ON THE CONSTRUCTION OF THE TUBES AND THE DIFFICULTIES IN THEIR FINAL REMOVAL.

By JAMES L. LITTLE, M.D.,

Professor of Clinical and Operative Surgery, New York Post-Graduate Medicine School; Professor of Surgery, Medical Department of Vermont University, and Surgeon to St. Luke's Hospital, New York.

BUT little attention has been called to the dangers and difficulties of permanently removing tracheotomy tubes after tracheotomy and the re-establishment of the natural respiration. My remarks in this paper will be confined entirely to cases where this operation was performed on patients suffering from croup. During a period of twenty years, though performing it a great number of times, I had but one successful case until the fall of 1879, when it was my good fortune to have four consecutive cases which were successful.

CASE 1.—In this case the operation was performed for diphtheritic croup, and the tube was removed on the sixth day without any unpleasant symptoms.

CASE 2.—In September, 1879, I performed the operation on a boy four years of age, the ordinary fenestrated silver tracheotomy tube being used. Three weeks after, the child being in an apparently good condition, it was thought advisable to remove the tube; the inner one was removed, and the opening of the outer was corked up for fourteen consecutive hours. During this time the patient breathed through the mouth without the slightest difficulty. Dr. Frank Anderson, United States Navy, who had the case in charge, then removed the tube and for two hours and a half no trouble whatever occurred, but at the end of that time the respiration became suddenly obstructed, and in about one minute was completely arrested. Dr. Anderson was fortunately at the door of the room when this happened, but before the tube could be found, it having been mislaid, the child was unconscious. He quickly reintroduced the tube, using some force, as the opening had already contracted, and with the aid of artificial respiration and inflation of the lungs through the tube, the respiration became re-established. Bloody and frothy expectoration took place through the tube during the remainder of the day. On the following day I removed the tube and carefully examined the wound with the aid of the head mirror. Around the external margin a considerable number of exuberant granulations could be seen. The tracheal margin of the wound was inspected with difficulty, as there was considerable thickening of the soft parts over the trachea. A number

of whitish granulations could be seen apparently connected with the upper margin of the tracheal wound. Several attempts to seize them with a slender pair of forceps failed. An attempt was then made to apply subsulphate of iron, Monsel's solution, by means of a feather, as recommended by Jacobi, to these granulations. The tube was kept out for about four minutes, when the child becoming somewhat embarrassed in his respiration, it was replaced. The tube was removed every third day by Dr. F. Anderson, and an attempt made to touch the granulations with Monsel's solution. Symptoms of asphyxia would always occur in a few minutes after the removal of the tube. On November 1st, the tube being taken out by Dr. Anderson in order to make an application of the iron, the breathing again suddenly became arrested and the child became cyanotic before it could be reintroduced. From this time the outer tube was allowed to remain for several weeks without being disturbed. The mucus which was expelled from the opening was almost always stained with blood. On careful and repeated examinations it was found that the fenestra of the tube did not completely enter into the trachea; when the inner tube was removed, reddish granulations could be seen in the track of the wound, protruding into the dorsal opening. For this reason it was thought advisable to try a non-fenestrated cannula, and one was procured, having the lower end beveled from before downwards and backwards, so that the sharp extremity should not impinge against the anterior wall of the trachea. From the time of the introduction of this tube the condition of the wound rapidly improved. The external granulations seemed to dry up, and at the same time the child began to breathe through his mouth, while the mucus discharged from the tube was no longer stained with blood. Four months after this operation, I found the child much improved in general health. He could breathe freely through his mouth, was able to talk in a loud and clear voice, could blow and whistle, the air passing upwards alongside the tube. The edges of the external wound were entirely healed, and the thickening of the soft parts had disappeared. In order to make sure of the child's ability to breathe without the aid of the tube, I closed its opening with a cork, and allowed it to remain about half an hour; during this time the child breathed freely through the mouth. I then determined to remove the tube and watch the result. In order to be ready for any emergency that might arise, I laid out my instruments, and arranged to remain in the room with the child until morning. The tube was then removed, and the wound left uncovered, air passing freely in and out during respiration. The child soon fell asleep in the nurse's arms, and was placed in his bed. Two hours after air ceased to pass through the wound, and it had contracted to a very small opening. The child passed a good night, not waking till morning, his respiration being free and noiseless. From that time no difficulty has occurred.

CASE 3.—On April 8th, 1880, I was called to perform tracheotomy on a patient of Dr. Stronach's, of New York, the case being one of diphtheritic croup in a girl three years and four months of age. I used a non-fenestrated tube of five millimetres in diameter. The child made a rapid recovery; granulations occurred around the margin of the external wound, and, on being treated with occasional applications of nitrate of silver, rapidly disappeared. At the end of five weeks the edges around the external wound had entirely healed; the child breathed naturally through the mouth and her articulation was almost perfect. I removed the tube and the wound closed rapidly, so that at

the end of an hour no air could be detected passing through it.

CASE 4.—On May 7th, 1880, I was called to see a patient of Dr. Griswold's, a girl about four years of age, who had suffered from symptoms of membranous croup for three days. The child was cyanotic and tracheotomy was performed at once. The recovery was rapid and without any unusual symptoms. No membrane was expelled from the tube. Two weeks after the child could not breathe freely through the mouth with the tube closed, and therefore it was allowed to remain *in situ*. In April, 1881, eleven months after the operation, I found that the tube was still in position. The child breathed freely through the mouth, and her voice was loud and clear. I removed the tube, and in two hours no air could be felt coming through the wound.

CASE 5.—In January, 1881, I was called to see a patient of Dr. Cypert's, a girl four and a half years of age, suffering from membranous croup. In this case pieces of the membrane had been expelled from the trachea. The dyspnoea was very severe, and immediate operation was necessary. On the eleventh day after the operation, upon removing the tube for the purpose of cleansing, I found difficulty in replacing it; it was therefore left out and no untoward symptoms occurred. For two or three days before the removal of the tube, the child was able to articulate loudly. Great improvement took place in this respect, however, after the removal of the tube.

In the first case the obstacle to the re-establishment of the natural respiration was due to the presence of granulations around the edge of the tracheal wound, which evidently were held down while the tube was in position. Upon the removal of the tube they formed an obstruction to the passage of air through the larynx as soon as the tracheal wound contracted. Dr. Jacobi, in a paper on "The Pathology and Treatment of Croup," published in the *American Journal of Obstetrics*, May, 1868, called attention to the same condition interfering with the removal of the tube in several patients upon whom he had operated for tracheotomy. Mr. Thomas Smith, in a paper on the "Obstacles to the re-establishment of Natural Respiration after Performance of Tracheotomy," published in the *Medico-Chirurgical Transactions*, vol. xlviii., also relates several cases in which the presence of these granulations prevented the removal of the tube. In Dr. Jacobi's and in my own, a fenestrated tube was used, and I infer from the description given by Mr. Smith that these tubes were used in his cases. In my second case, where a closed cannula was used, and allowed to remain in four weeks, no granulations were seen, though carefully looked for. In my third case, where the tube remained in eleven months, a non-fenestrated tube was also used, and there would probably have been no difficulty in its removal, after a few weeks, if other troubles had not intervened. These cases seem to prove that the fenestra which is found in nearly all the tracheotomy tubes made by American instrument makers, and which is for the purpose of testing the ability of the patient to breathe through the larynx when the tube is closed, is not only useless but injurious, probably causing by its irritation the growth of these granulations. Dr. Lewis A. Sayre reported a case before the Medical Society of the State of New York, in 1864, in which fatal hæmorrhage took place, on the seventh day, after the operation, in consequence of a slough through a large vein in the neighborhood of the wound, caused by the pressure of the edges of the fenestra of the tube.

In the paper already referred to by Mr. Thomas Smith a letter from Trousseau is published, in

which he says, "I advise you whenever you can to leave a closed cannula in the trachea until the child has breathed for ten days in a natural manner. The cannula, with a dorsal opening, is a useless and often dangerous instrument, for, if you compare the calibre of the cannula with that of the trachea, you will see that the section of the trachea is more than double the area of that of the cannula. The air, therefore, can pass freely between them. On the other hand, the tissues project through the dorsal opening of the cannula, and thereby the inflammation is kept up." In my second case, after the granulations had disappeared, the closed cannula was no hindrance to the child's breathing in a natural manner. His voice was as loud and distinct before the final removal of the tube as after; in fact, I could perceive no difference whatever. One other point in connection with this case, which I did not refer to in the history, is this: the first tube which was used had an immovable collar. The non-fenestrated tube had the usual movable collar, which, allowing a considerable degree of motion, prevented a certain amount of irritation during swallowing, coughing and other movements of the patient's neck. In regard to the size of the tube, Mr. Robert M. Parker, in a paper on tracheotomy in *Membranous Laryngitis*, published in the *Medico-Chirurgical Transactions*, vol. lxii., advises the use of the largest tube that can be got into the trachea without actual violence, for the reasons that it will afford the patient a better supply of air, and also allow the tracheal secretions to be removed with greater facility, which feature in the after-treatment of these cases he considers of paramount importance. He also advises the movable collar and the beveling of the extremity of the tube, and recommends that the tube be as short as is consistent with safety; he finally proposes a cannula in which the curve resembles the Gothic rather than the Roman arch. If a tightly fitting tube such as he advises be used, it should of necessity have a fenestra, as the air could not pass between it and the walls of the trachea. In the other cases detailed, the advice given by Trousseau was strictly followed and the tube was not removed until the voice was clear and the child could breathe freely through the mouth. I think the size of the tube should always be smaller than the calibre of the trachea. It should have a movable collar, and the lower extremity should be beveled from before downwards and backwards. I consider that the shorter the tube the better. In order to make these tubes as light as possible, I have had them manufactured for me by Mr. Tiemann, of New York, of aluminium. This does not tarnish nor



corrode like silver. The shape of the tube is here represented. I have never used the Durham tube, which has the advantage of being shortened at will. The excellent tube recommended by Mr. Bryant has this same advantage, combined with a ball-and-socket movement, which imparts mobility to the tube when in the trachea. This tube could be improved, I think, by being made of aluminium.

(9)

The conclusions that I would draw from these cases are—

1. That the tube used should be somewhat smaller than the calibre of the trachea, should have no dorsal opening, and should be made with a movable collar or ball-and-socket attachment.
2. No attempt should be made to remove the tube permanently until the patient is able to breathe freely for some days through the mouth with the tube closed.
3. That granulations around the margin of the tracheal wound will be less likely to occur if no source of irritation exist in connection with the tube.

ON DYSENTERY AND LIVER ABSCESS.¹

By **SIR JOSEPH FAYRER, M.D., F.R.S.**,
President of the Medical Society of London.

THE following example of liver abscess illustrates a form of disease which is not very uncommon among the numerous invalids who return from tropical or subtropical and malarial climates, and is more frequent in those who have resided in India or China than in Africa, the West Indies, or other colonies. I have therefore ventured to bring this case before you under the impression that it may prove of interest, and perhaps help to throw some light on a subject which, I know from experience, is not unfrequently brought under consideration in this city and its suburbs—indeed, throughout the United Kingdom generally, in almost every part of which are to be found old residents of our tropical and colonial possessions, who have returned with the seeds of disease, sown abroad, to be developed at home. Liver abscess, of course, is not confined to tropical countries; it may, and does, occur in our own islands, but is comparatively rare, and when it does happen is generally, if not always, due to septic absorption from some external wound or operation, some ulcer of the stomach, intestine, gall-bladder, or its ducts; in certain cases to ulceration or suppuration in the pelvic cavity, rectum, or ischio-rectal fossa; to fistula in ano; it may be to cancerous ulceration in the bowel or elsewhere, or to suppuration of a hydatid cyst. Such cases are generally to be regarded as of a secondary or pyæmic character, and differ widely from the large, frequently, though not always, single abscess, which, from its frequent occurrence in the tropics, has been termed by Murchison tropical abscess, though they are very similar to, if not identical with, certain dysenteric liver abscesses in which multiple foci of suppuration are due to septic absorption and constitutional pyæmic contamination from the dysenteric ulceration in the large intestine. As you are aware, tropical abscess of the liver is often seen in this country, but it is usually in the persons of those who have contracted the disease abroad, or who have developed it here as the result of disease from which they had suffered in the tropics. Now this form of liver abscess may be of different kinds.

1. The large single abscess, which is etiologically referable to the influences of heat, altered conditions of living, feeding, and the excessive or injudicious use of alcohol in tropical, subtropical, and malarial climates. The abscess is the expression of these pernicious influences, but it partakes more of the character of a local complaint, and is independent of ulceration of the bowel or of disease in any other part of the economy. In such cases the abscess is often large, is solitary, though there may be more than one, and is frequently preceded, especially in the strong and vigorous, by all the

¹ Read before the Medical Society of London, April 30th, 1883.

symptoms of active congestion and inflammation of acute hepatitis. In others, however, it assumes a more insidious and chronic form; with few well-marked symptoms, or such as escape notice, and the abscess is only revealed by unexpected bulging of the thorax, or pointing in the epigastric hepatic region, or by spontaneous evacuation of the contents through the lung, stomach, or bowels; in some rare cases it is not detected until after death, during post-mortem examination. 2. Liver abscess following, or co-existing with, dysentery, by Murchison and others was regarded as of a pyæmic nature, due to absorption of pus or septic matter from the ulcerated bowel, and therefore coming within the same category as liver abscess, originating in this country, and resembling it in its pathological character, and in being multiple. That this is the case in some instances cannot, I think, be doubted, and when the multiple abscess does occur in a dysenteric patient, perhaps no better explanation of its origin can be offered. Such a condition is, of course, one of extreme danger; indeed, it may be regarded as fatal. And here I would ask you to note the true character of these multiple abscesses, which in the outset are really no abscesses at all, but necrosis of small portions of the liver parenchyma, which, if the patient live long enough, become abscesses by suppuration occurring in the congested and inflamed liver tissue around the dead spot, which thus becomes detached and loose like the core of a boil in the centre of the cavity. I have repeatedly seen these so-called abscesses in all stages of development, from the spot of dead tissue or embolic infarct surrounded by its areola of congestion, to cavities of various sizes filled with sanies, puriform matter, and débris of liver tissue, and finally those in which real pus had formed. They are generally numerous and varying in size from a mere speck to a pea, from a marble to a walnut, an orange, or larger, and it frequently happens that they are not confined to the liver, but are found in other viscera, such as the spleen, kidneys, and lungs as well. These cases are truly pyæmic, and are, as I have said, most fatal.

It was thought by some pathologists that hepatitis and dysentery were dependent on each other. Annesley maintained that dysentery is the result of hepatitis; others that the hepatitis is the result of the dysentery. Dr. Budd, thirty-five years ago, put forth the opinion—and his view has met with much support in this country, though not in India—that liver abscess is always due to purulent absorption from the bowel, that, in fact, tropical liver abscess is pathologically identical with the liver abscess of this country. Dr. Abercrombie thought that though they co-existed they were independent of each other. Murchison, Macpherson, Maclean, and others concur in this. Martin and others thought that liver abscess was intimately connected with disease of the cæcum, but this has not been confirmed by post-mortem examination; for of 72 cases where the cæcum was affected in only 22 was there liver abscess. Moore, of Bombay, says that eight observers out of twelve record a percentage of 18, or 295 cases of liver abscess in 1,532 of dysentery cases; four others give a ratio of 39 per cent., or 52 cases of abscess out of 131 cases of dysentery; 18 per cent. is probably the correct ratio. The larger percentage is more likely due to all diseased conditions of the liver that have accompanied dysentery. Recent observations, I think, confirm this view of the relative frequency of hepatic abscess in connection with dysentery, and though in some instances of multiple abscess the condition is due to septic absorption, yet liver abscess generally must be regarded rather as an expression of the general disease than

as a direct consequence of dysenteric ulceration of the large intestine. It would appear, then, that in different climates it is more or less frequent according to circumstances, but that there is a greater tendency to it in India than in other climates. In malarious countries liver abscesses frequently occur in association with remittent fever without any ulceration of the bowel (Morehead). Macpherson gives the comparative frequency of liver abscess in dysentery as varying from 13 per cent. in the General Hospital, Calcutta, to nearly 60 per cent. (according to Annesley) occurring in Madras.

I think it must be admitted that liver abscess and dysentery are often coexistent, or that one may follow on the other very closely, and that in a certain number the hepatic abscess is due to absorption from the diseased bowel, yet that the two diseases occur frequently, may generally, quite independently of each other. Numerous post-mortem examinations have shown that liver abscess was unaccompanied by any signs of present or past ulceration in the bowels, whilst equally numerous cases of death from dysentery were unattended by abscess in the liver.

For the present I exclude from consideration the large single tropical abscess, in which there is no question of a dysenteric origin or complication, and now wish to direct attention to the question of the relations of liver abscess to dysentery when the symptoms of both diseases are present. The case I bring under your notice this evening is an example in point; and I would ask you to observe that although true dysenteric—i.e., pyæmic—abscess of the liver is of not uncommon occurrence, and is to the last degree dangerous, yet that not all abscesses of the liver complicated with dysentery is of this grave form, and that a man may have dysentery and liver abscess too, and still may recover. And here I would remark that, although I regard some of the cases of dysenteric liver abscess as merely the result of a common cause affecting alike, though independently, both liver and bowel, yet that in others I believe the liver abscess may be the consequence of direct absorption of purulent matter through the liver from the bowel; in which case the abscess may be single or double, or triple, but this is a different state of things pathologically from that general pyæmic condition which results from infection of the whole system by absorption of septic matter from the degenerative ulceration; in which cases the mischief is multiple, and often general:—

The relation of liver abscess to dysentery, I should say, might be briefly summarized as follows:—

1. The so-called abscesses which originate in local deaths of parenchyma (pyæmia, embolic deposits, or infarcts) are cavities varying in size from a mere speck to an orange, containing débris, sanies, puriform matter, leucocytes, and, finally, pus. They are seen in various stages of development, and are not necessarily confined to the liver, but occur in other viscera or regions of the body. These are truly pyæmic.

2. There is, I believe, a form of liver abscess co-existent with, and perhaps due to, dysentery, which is the result of direct absorption and transference of pus or septic matter from the bowel to the liver through the mesenteric veins. Such may be solitary, double, or triple. This is also a very dangerous form of the disease, though not necessarily fatal, as it is feared must always be the case in the former variety.

3. Dysentery, malarial fever, and hepatitis may coexist, or supervene on each other as effects of common climatic cause; it seems natural to ascribe the liver abscess in such cases to the dysentery, but it is probable that they are rather coincidences

than consequences of each other, and that the cause which affects the glandular structures of the large intestine may determine the mischief in the liver in certain climates and localities; such are obviously very different from those previously mentioned.

4. Lastly, I may just allude to the ordinary large and most frequently single tropical abscess, which is quite independent of dysentery, though, as just mentioned, it may co-exist with or follow it. Each or all of these forms may be brought under our notice in this country as the result of disease originally contracted in certain climates.

As to the extent to which hepatitis prevails in India the last statistical report gives the following information:—"In the European Army of India, averaging 57,742 men, 28,780 admissions and 1,267 deaths were recorded under hepatitis during the ten-year period 1870 to 1879. This gives an admission rate of 49.8 and a death-rate of 2.19 per 1,000. In the Army of Bengal the admission rate was 47.1 and the death-rate 2.04 per 1,000. In the preceding ten-year period the admission rate was 59.2, and the death-rate 3.31 per 1,000. A considerable reduction has thus taken place in both the admission and the death-rate, and the diminution has been pretty evenly distributed over the different sections of the Presidency. There were 7,417 admissions and 349 deaths from hepatitis in the European Army of Madras during the years 1870 to 1879, an admission rate of 67.2 and a death-rate of 3.31 per 1,000, much higher rates than those for Bengal. During the immediately preceding ten-year period the admission rate from hepatitis was 70.2, so that very little diminution has taken place in the frequency of this disease. During the period 1870 to 1879 there were 4,234 admissions and 177 deaths from hepatitis in the European Army of the Bombay Presidency, the admission rate being 40.9 and the death-rate 1.71 per 1,000, slightly less than the corresponding rate for Bengal. For the years 1863-69 the average admission rate from this disease in Bombay was 26.6 per 1,000. Hepatitis thus seems to have been more prevalent of late in the Bombay Presidency, an experience opposed to that of Bengal and Madras." The eighteenth annual report of the Sanitary Commissioner General of India for 1881 tells us that the admissions for hepatitis per 1,000 men strength for that year were: Bengal 32, Madras 39, Bombay 29. The deaths per 1,000 in the same period were Bengal 1.64, Madras 1.54, Bombay 1.52 from the same cause. It further remarks that "of the chief diseases hepatitis was the only one which during 1881 yielded a higher death-rate than the preceding year—1.60 per 1,000, against 1.34. The increase was, however, very trifling, and the admission rates are nearly identical. In Madras hepatic diseases in former years have prevailed to a greater extent than in the other Presidencies. The returns during the last two years have been very favorable, compared with the preceding ten-year period. Also that after anæmia and general debility the chief causes of invaliding in the army of India were: hepatitis, 2.96 per 1,000; dysentery and diarrhoea, 2.83; phthisis, 2.21." As a great proportion of the deaths recorded under hepatitis were probably due to liver abscess, it will be seen how large the experience of the disease is in India.

With reference to the relative proportion in which liver abscess and dysentery were coincident or combined, Dr. Waring,* in 1854, made the following notes:—

Of 300 cases of fatal liver abscess in India, in only 82 cases, or in 27.3 per cent., was the hepatitis preceded by symptoms of dysentery. Of the 300

cases, the number of abscesses was not stated in 12. Of the remaining 288, 177 had one abscess, 33 had two abscesses, 11 had three, 17 had four, 10 had from five to ten or more, and 40 had more than ten.

Relative Frequency of Hepatitis in different Foreign Stations (Fayrer, Tropical Diseases).

MADRAS.					
Year.	Strength.	Disease.	Admitted.	Died.	In-validated.
1870	9,936	Hepatitis	635	41	131
1871	10,684	Hepatitis	713	41	58
1872	10,892	Hepatitis	586	5	70
—	—	Abscess	43	35	—
CHINA.					
1870	546	Hepatitis	15	0	1
1871	516	Hepatitis	8	0	0
1872	789	Hepatitis	15	1	0
—	—	Abscess	1	1	—
CAPE AND ST. HELENA.					
1870	2,441	Hepatitis	66	4	16
1871	2,473	Hepatitis	24	0	6
1872	2,484	Hepatitis	23	1	3
WEST INDIES.					
1870	1,432	Hepatitis	2	0	0
1871	966	Hepatitis	12	0	0
1872	1,112	Hepatitis	2	—	2
—	—	Abscess	1	0	0
CANADA.					
1870	4,519	Hepatitis	10	0	0
1871	2,383	Hepatitis	12	1	1
1872	1,602	Hepatitis	3	0	9
MALTA.					
1870	4,799	Hepatitis	26	5	6
1871	4,977	Hepatitis	26	2	7
1872	4,855	Hepatitis	27	0	4
—	—	Abscess	2	1	0

I will conclude what I have to say with a few remarks on the question of puncturing liver abscess. In cases of true pyæmic multiple abscess, even should the indications of the locality of these abscesses be clear, I fear no permanent benefit could be anticipated, though I think it is possible that if any one abscess caused much suffering the contents might be drawn off by an aspirating needle, and so temporary relief might be conferred. In cases where there is reason to believe that the abscess is single, and where bulging, pain, spasmodic contraction of rectus, and tenderness on pressure exist, whilst previous symptoms suggest the presence of pus, the condition may be verified by introducing a needle and examining the fluid drawn off through it. If it be pus the sooner it is all removed the better, and if it lie too deep for a free incision, by reason of the danger of cutting through the vascular liver substance, then I recommend you to draw it off through a large cannula, and, having done so, introduce a drainage-tube, taking care to exclude the entry of air; wherever it is possible I advocate a free incision, and a free drain through a drainage-tube, and for cases in which the matter lies deep I have devised a grooved cannula, on which you can enlarge the opening, and having given exit to the pus, introduce the drainage-tube. I may here remark that a certain amount of vascular liver tissue may be cut through to get at an abscess; the hemorrhage will be profuse, but it will soon cease. I believe it is very essential that the antiseptic method of treatment should be strictly attended to, and you may, perhaps, remember a case which I had the honor of relating to you some time ago, in which it was attended with complete success. I advocate exploration to ascertain the presence of pus, early evacuation whenever it can be got at, and early and free opening; drainage, and antiseptic dressing whenever practicable.

* Inquiry into Abscess of Liver. (Memorandum, 1854, p. 125.)

CASE 1. Dysentery and Liver Abscess opening through the Right Lung; Recovery.—A young civil officer, aged twenty-four, of good constitution and temperate habits, had been in India about three years and a half. When with the forces in Afghanistan in Nov., 1881, he was attacked with erysipelas of the head and face whilst suffering from an attack of climatic fever. He was recovering from this at Sibi, when he was attacked with diarrhoea, which soon became dysentery. He was then sent off to Kurrachee, where he arrived early in January, 1882, and remained there under treatment. On Jan. 23rd, having improved in health, he went to Kinari, on the coast, but on the 27th, again feeling ill, with great lassitude, depression, and pain in the side and shoulder, with loss of appetite and sickness (these symptoms supervened, it is to be observed, just as the dysenteric symptoms were subsiding), he returned to Kurrachee, and was again placed under active treatment. He had fever and a temperature of above 100°; exact degree not noted. On Feb. 13th. he was put on board a steamer and sailed for Bombay, where he arrived in three days, much improved by the sea voyage. On the 20th he left Bombay, crossed India by rail, and arrived at Monghyr on March 1st. During the month of March he had frequent recurrences of fever and pain, but contrived to do duty. Towards the end of the month he was seized one day, after riding twenty miles, with severe pain in the left side, which was attended with swelling. This was pronounced by the medical officer to be the result of a muscular strain, the consequence of a long ride on a rough, high-actioned horse. This pain and swelling subsided in about a week. He appears to have struggled on doing his duty as best he could until May, when great depression and utter inability to work came on. The medical officers reported his liver to be then much enlarged, and recommended that he should be sent to England at once. He, however, remained at Monghyr for some weeks. Towards the end of May he appears to have improved slightly, and so he continued till the middle of June, when sharp pain in the hepatic region, with difficulty of breathing, set in. A few days later, after dinner one day, a paroxysm of coughing set in, during which he brought up the contents of a liver abscess through the right lung. There were altogether five or six copious discharges of pus and blood by this channel, profuse at first, but diminishing with each attack. The last occurred on August 20th. On Sept. 4th he left India, and arrived in England in due time greatly improved by the voyage. A week after arrival he got a chill, which brought on a return of the liver pain. He was again confined to bed, and had poultices and nitro-muriatic acid. In October, being much better, he went to the south of England, and remained there till Dec. 12th, when he had a relapse. In January the right lung and pleura became affected, but he recovered (he seems to have had no further discharge of pus from the cavity), and since then has gradually regained his health and strength. In April, beyond feeling weak, he was well, and there is every reason to believe that he may be able to return to his duty by the next cold season.

This case traces in an interesting manner the passage of formation of a liver abscess and its relation to a previous attack of dysentery, which I am inclined to think was not of pyæmic character. It also gives a good idea of the difficulties and vicissitudes to which a patient may be exposed in India, and the vast extent of country over which he may have to travel before he finds relief.

CASE 2. Dysenteric Multiple Abscess of Liver.—G—, a Hindoo, aged twenty-four, was admitted Aug. 7th, and died Aug. 16th, 1880, at the Medi-

cal Hospital, Calcutta. Had diarrhoea and dysentery for a month; great pain over colon; fever; temperature ranging from 96.4° to 102.6°. Had passed sloughs with the gelatinous mucus and blood; no pain in the hepatic region. The post-mortem was made on Aug. 17th, twelve hours after death. Refer to "Tropical Diseases," page 91, for description and for Mr. Doran's examination of the liver, which is now in the College of Surgeons.

ON BEDSIDE URINARY TESTS: DETECTION OF SUGAR IN THE URINE BY MEANS OF TEST PAPERS.

By GEORGE OLIVER, M.D. Lond., etc.

I HAVE just now shown you the qualitative working of the handy tests I wish to bring before you; they belong to the series of urinary test papers which, a few months ago, I proposed as substitutes for the bottles of nitric acid and Fehling's solution at the bedside. The qualitative albumen precipitants I then brought forward have been extensively used by the profession, and I must now publicly and collectively thank many correspondents for their interesting and gratifying communications and reports. It was, until lately, my intention to have next demonstrated the several ready quantitative methods which these test papers provide us; and, after that, to have brought forward the qualitative and quantitative testing of sugar by reagents also on paper. But the pressing request of many of my friends urging me to produce the sugar test papers, and the importance of bringing them forward just now—the professional mind being unusually alive to receive impressions of new methods of clinical inquiry in this direction—have induced me to alter the order of the publication of the urinary matter still to be advanced. I therefore now wish to make a few remarks on qualitative sugar testing by means of test papers, and to reserve the quantitative methods for both sugar and albumen for another occasion. When looking round for a good and at the same time convenient test for sugar in the urine, I was particularly struck with a fact relating to indigo; and that was the presence of this intensely blue substance in a colorless state, when associated with glucose or some similar sugar; for instance, when in the juices of the indigo plants it is combined with indiglucon, which has a chemical formula only slightly removed from that of glucose; or when the dyer mixes indigo with glucose and dilute caustic alkali to produce a colorless solution, in which he immerses his fabrics, which acquire a blue color on exposure to the oxygen of the air. It then appeared to me a reasonable question to ask, Can glucose in the urine be made in some way to discharge the deep blueness of indigo, and thus to tell the tale of its presence? Experiment gave a positive answer: for when indigo was suspended—it did not dissolve—in a weak solution of soda, or in a stronger one of carbonate of soda, a test solution was obtained, which, when heated with a few drops of diabetic urine, underwent a series of remarkable changes of color—from blue to green, then to violet, to red, and finally to yellow. I longed to run the liquid containing carbonate of soda and indigo into filtering paper, and use it as a test paper; because, with carbonate of soda as the alkali, the test papers would have been more durable than with solution of soda. But unfortunately, after deposition on the paper, the indigo would not leave it. I then found in a work by M.

1 Read at the Clinical Society of London, May 11th, 1883.

Méhu a statement to the effect that when the carmine of indigo is heated with carbonate of soda, and a solution of glucose or saccharine urine, the blue color is converted gradually into green, then into red, and finally into yellow.³ Carmine of indigo is the sulph-indigotate of sodium, an intensely blue and soluble salt (solubility 1 in 120 parts water). Sulphuric acid when heated with indigo produces the soluble sulph-indigotic acid, which, after combining with a base (such as sodium, calcium, magnesium, etc.), provides us with insoluble indigo as a reagent in a perfectly dissolved state. When carbonate of soda is mixed with a solution of the carmine the latter is precipitated in a fine state of division; but when shaken this mixture may pass for a solution much like that of Fehling in color and general appearance. A perfect solution of a greenish-blue tint is, however, obtained after heating the liquid. As such it may be employed as a reliable, sensitive, stable, and non-caustic test for sugar in the urine; but on several accounts I give preference to the test papers prepared from its constituents. In their manufacture it is true that great care is required to secure throughout the filtering paper a perfectly even distribution of the sulph-indigotate; but this result has now been accomplished to my satisfaction. The papers offer the following advantages over the liquid preparation:—(a) Every paper is charged with the same definite quantity of the reagents; a uniformity is thus provided for the qualitative testing, which, moreover, becomes a standard of known value for the quantitative estimation. (b) The paper filters out a fine precipitate, so that the alkaline solution of the sulph-indigotate is perfectly transparent,⁴ and of a true blue; but, notwithstanding this fact, the color of any remnant of the reagent left on the paper is completely discharged by the sugar, so that in the quantitative estimation the colorlessness of the paper will be found the guide as to the termination of the completed reaction. (c) The portability, cleanliness, and stability of these handy tests must commend them to your favorable attention. The characteristic reaction which indicates the presence of glucose in the urine, arises shortly after the first simmer of the solution prepared from the papers, a drop or two of diabetic urine having been added before the heating. Then a beautiful violet tint suddenly spreads throughout the bright-blue solution; very quickly the violet deepens, and passes into purple; this in its turn melts into reddish-purple, which gives place to various tints of red, and these as quickly merge into orange-red and orange, and finally the solution becomes of a straw color, which remains without further change, though heated ever so long. At this point you will observe the paper of the same light-yellow color as the liquid. You will note the complete range of this striking color reaction embraces all the prismatic colors, and the order of the appearance of the successive hues is always the same. The reaction is one of great beauty; for the primary colors are not merely pure and sharply defined, but all the transitional and intermixed tints pass quickly before the eye in such rich profusion as one rarely sees in nature herself. Now, on shaking the tube the colors return in the inverse order to that in which they appeared. This remarkable

thing is not due to cooling, but to admitting the oxygen of the air into the liquid; for the varying hues at any stage of the reaction may be caught and retained for days, merely by corking the tubes full of the solution, and the return of the colors, when the test-tube is at rest, always appears first at the surface, and slowly spreads downwards, so slowly that after putting aside for some hours at least the lower half of the solution will still retain its acquired color. Experiment has shown that the tint reached in any particular observation depends on the quantity of glucose added to the test liquid—e.g., the reaction may stop at violet, purple, red, etc., and, when it thus halts, it can be easily made to proceed to the final stage by adding more of the diabetic urine, the liquid the while being kept warm. This suggests a principle on which to found a quantitative analysis. The method I propose to myself is a very simple one; it is based on the complete removal of all the colors below the pale yellow, except when the sugar exists in such small quantities as are not gaugeable by any known procedures, then the delicate scale provided by the different colors may be available.

If confirmation of the presence of sugar be further desired my series of test papers provides it. For when the mercuric chloride paper—otherwise required by one of the several methods for the quantitative determination of albumen—is dropped into the solution while still hot, after the complete development of the indigo reaction, there is produced immediately a blackish-green precipitate. No such precipitation occurs when a drop of non-saccharine urine is under examination by the indigo test, then the blue solution is merely turned into a transparent green one. Mercuric chloride, however, when added to a hot solution of mere carbonate of soda containing a drop of saccharine urine is not a test for sugar; it is only so after the full development of the indigo reaction on glucose. This final stage of the testing appears to me to clinch the presence of sugar beyond doubt.

The mode of testing is important. One of the papers should be dropped into an ordinary half-inch test tube, and as much water poured in as will just cover the upper end; a column one inch in height and half an inch in diameter will thus be produced, and the solution obtained will always acquire the same concentration. Then not more than one drop of the suspected urine is let fall into the tube from a pipette, and heat is applied. After the first change of color it is advisable to move the tube away from the flame, and merely keep its contents hot, not boiling, in the higher part of the column of heated air above the flame; then all the colors will follow in the order I have given, without disturbance from ebullition, until straw-yellow is reached, providing the amount of glucose present is sufficient to develop all the prismatic colors, if not, another drop of urine should be added. The results of the working of this test by the side of Fehling were briefly as follows:—(a) On always submitting one drop of urine to the indigo test, and the presence of sugar being shown, confirmation was invariably provided by Fehling used in the ordinary way. (b) On the other hand, whenever one drop of urine gave no reaction with the test, Fehling's solution did not give a precipitate. (c) On, however, taking more than one drop of urine a different kind of experience was opened up. Then with various urines a deep violet or purple tint would strike up on the addition of the second, third, fourth, fifth, sixth, or more drops, and Fehling employed in the usual way gave negative results. But I am inclined to think in the cases in which from two to four drops

³ L'Urine, par Dr. C. Méhu. Paris 1880.

⁴ Since coming to town I find that a perfectly clear solution cannot be obtained from the papers heated in the London drinking water, while, on the other hand, in distilled water it is as transparent as when the Harrogate drinking water was used. The larger proportion of salts in the London water, especially sodium chloride, which I know impairs the solubility of the carmine of indigo, is the probable cause of the difference. The characteristic reaction of the test is, however, precisely the same.

developed the partial reaction, that Fehling, when applied as follows, showed such a suspicious change as to almost suggest a very minute quantity of sugar; a few drops of the urine were added to a little more than the same quantity of the solution, the true blue remaining intact, and well boiled, when, though no precipitate was visible, the blue quickly turned to a decided green tint, contrasting strongly with the pure blue of the solution held by it in another test tube. I do not assert that this change of color from blue to green was a proof that sugar slightly over the normal was present, but to my mind it is suggestive, for I could not detect such a distinct color reaction with urines that, guided by the indigo test, I should class as normal in respect to sugar, or whatever is the cause of the reaction in such urines.

In all these cases there was unquestionable derangement of the liver, and in some there were decided or suspicious indications of gout, especially in those forms which are sometimes grouped under the somewhat indefinite term, "suppressed gout." They were just the cases in which it is clinically interesting to detect a little more sugar than the normal. In one case now under observation sugar has been detected at odd times during the past two years by Fehling used in the ordinary way; now, however, though Fehling gives no precipitate, but only the distinct green color just referred to, the indigo test affords a very pronounced and beautiful purplish-red reaction with the second drop of the urine. So far as I can at present decide, though I feel that further experience must be appealed to, normal urine, as a rule, gives a distinct violet tint after the addition of the fifth or sixth drop. From these observations I am inclined to believe that the indigo test provides us with an accurate and very sensitive means of detecting and gauging the normal sugar, and, furthermore, those variations which probably fill in the gap between the small quantity of sugar consistent with good health and the larger amount which characterizes ordinary diabetes. I therefore strongly suspect this test may open up an interesting field for clinical observation which has not been compassed by the reagents hitherto employed. May it not bring within our clinical vision some new facts in relation to sugar as a symptom of several disorders, perhaps especially those of the vaso-motor nervous system and the liver?

Observation likewise leads me to believe the indigo test possesses the following advantages over Fehling:—1. It will detect sugar in any proportion in the presence of albumen, blood, pus, or bile, and as readily as in ordinary diabetic urine. In the case of albuminous urine it is therefore unnecessary to precipitate the albumen and filter. It is well known when there is much albumen and little sugar—as in this urine—the latter may be overlooked by Fehling. 2. It gives no play of color with uric acid, though the latter can slowly discharge the color of the test. It is well known how this constituent in the urine breaks up Fehling. 3. Alkaline sulphides (so apt to be present in stale albuminous urine) do not, so far as I have seen, affect the indigo test applied as I have suggested. 4. The stability of the test is one of some promise, and if proved by further experience—and I know nothing to cause me to doubt it—it will be a great comfort in sugar testing. Moore's, Trommer's, and Böttger's bismuth tests are all inferior in delicacy.

The conclusions to which I am led by my observations are—(1) that the indigo test, as here presented, is a detector of glucose in the urine which possesses several points of advantage over all the old tests; (2) that it is the most sensitive of

all the reagents I have tried by the side of it; and (3) that it is less liable to fallacy than the others, even though special urines—such as albuminous, purulent, and bloody ones—are not prepared for its operation by the separation of albumen, etc. As yet I have not met with anything in the urine besides glucose which brings out the characteristic play of colors. A good qualitative test should have as one of its working properties the power to easily display the coarser variations of quantity; for these are far more useful, as a rule, to practitioners than the discovery of fine gradations, which are little more than the refinements of the laboratory. This property the test before us possesses, as you will discover after putting it on its trial, and becoming acquainted with its behavior; for, as with any new instrument, we can only discover all about it by practice. Diabetic urine for this purpose should be diluted with water—and still only one drop should be examined as before; or after the development of the complete reaction the fresh addition of a paper, or a portion of a paper may be made, when perhaps the straw-yellow will fail to appear. But each one will doubtless discover his own way to similar results. I have abstained from referring to the claims of picric acid and caustic potash, introduced by Dr. George Johnson, as compared with those of the test I here bring forward; because both—in the forms in which they are presented—are new, and their respective merits must be decided by facts and observations which can only be gathered, and trustworthily relied upon, after long and patient inquiry.

P.S.—Since reading this paper I have found that Dr. Ralfe has lately made some experiments with ordinary indigo as a test for glucose. Dr. Ralfe informs me his results were gratifying; but, desiring to use the reagent as a test paper, he found, as I had likewise done, this idea impracticable, and for the time relinquished the matter. He informed me the test, as a liquid, was used in Germany (see Neubauer and Vogel, Sydenham Society's Transactions), and about thirty years or so ago grape sugar, he believed, was employed by manufacturers to quantitatively determine samples of indigo. If so, how unwittingly one may sketch out the opposite side of the same fact, or rather may approach it from the other side; for, instead of estimating indigo by glucose, my proposition is the reverse.

FATAL CASE OF POISONING BY TERCHLORIDE OF ANTIMONY.

By R. BARRINGTON COOKE, B.A., F.L.S.,

Consulting Surgeon, Royal Northern Sea-Bathing Infirmary, Scarborough.

A FATAL case of poisoning by butter of antimony (or "butyr," as it was formerly written) is of extremely rare occurrence; indeed, the number of cases that have occurred during this century of which any record is given may be numbered upon one's fingers. The case I am about to narrate is, I believe, unique, both from the rapidity of the action of the poison after being swallowed, and from the absence of some of the post-mortem appearances usually found as the results of a corrosive fluid of this nature.

S. H—, aged forty, the wife of a farmer in this neighborhood, consulted me at various times during the past year, subsequently to which her husband took one of Lord Downe's farms at Ruston, and they removed to that village. The poison apparently travelled with them, as it appeared in evidence that it was purchased in Scarborough,

from a well-known druggist, more than a year ago, by a brother of the deceased, for the treatment of some sheep suffering from "foot-root," a common usage of this article in the North of England. I was sent for to see the deceased on the Thursday before her death (25th January last), when her mental condition was found to be unsound. It was decided to have her removed to an asylum, and great care was enjoined upon the relatives to watch her; but notwithstanding she attempted to drown herself in the "beck" the next day (Friday). The necessary steps for obtaining a second certificate were gone through, and Dr. Lowe, of Hutton Buscel, was requested to see her, which he did on Sunday, about noon. He told the coroner that her physical health appeared to be good, though her mind was unsound. After Dr. Lowe's visit at noon the family, including the deceased, her husband, her sister, and the children ate a hearty dinner of roast beef, Yorkshire pudding, and potatoes, which was not concluded before 1.30 P.M. Shortly afterwards, whilst assisting her sister to wash the dishes, etc., she vomited several times at the kitchen sink, also went to the privy in the yard, from which she walked upstairs to her bedroom, where, underneath the mattress, an empty four-ounce bottle and cork were subsequently found. The medical man who had previously seen her that morning was again summoned, and on his arrival, at 2.30, found her lying on her back, unconscious, and very livid in the face and neck. She was retching, and emitting from the mouth a frothy mucous fluid, mixed with vomit (no blood) of a brown grumous color; breathing was labored and spasmodic; pulseless; the body cold and clammy. She expired at 3.30, or about one hour and a half after the first attack of vomiting. Immediately after dinner I am informed by her sister that she went into the coal cellar, and it is presumed that she there swallowed the poison, but the precise how, when, and where remains in doubt. There can be no question that it must have been taken after the dinner, and not before. The husband swore that the deceased had never been left for one minute from her attempt to drown herself on the Friday night till her death, and the empty four-ounce bottle, with the cork beside it, were found between the mattresses of the bed upon which the woman died, and which her sister swore she had examined. From the time of getting up in the morning at 7.30 or 8 o'clock until her death the deceased was twice upstairs in her bedroom, where the bottle was found, once after breakfast (about 10) to make the beds, and again about 11.30 to shut the windows, on both occasions accompanied by her sister. The dinner hour was about 1 P.M., before which Dr. Lowe had seen her for the first time. He was summoned again at 2.30, and saw her die in less than an hour afterwards. There was no appearance on the mattress as if any of the contents of the bottle had been spilt or run on to the mattress. The bottle was labelled "Butter of Antimony, poison," and was from Mr. Eccles, Scarborough.

Jan. 30th.—*Post-mortem examination, about forty-four hours after death.*—Rigor mortis well marked. Cadaveric lividity. No marks of external violence. The cranium, thorax, and their contents were apparently free from disease. On opening the abdomen the following appearances were noted:—Great fulness of the vessels of liver, stomach, and omentum, especially of the vessels of the cardiac half of the stomach looking blackish through its mucous and peritoneal coats. Uterus healthy and unimpregnated, and an agglutinated appearance of the omentum to the subjacent parts; all other viscera appeared healthy. The stomach was then removed, both ends being tied, and a section was

made into it in the presence of the coroner, when the whole of the inner surface of the mucous membrane and subperitoneal covering was seen to be more or less intensely congested, of a dark, almost black, color. The stomach and its contents, together with some vomit, which had been secured on the day of death, and preserved by Dr. Lowe, were handed over to Inspector Dove for transmission to Mr. Fairley, the analyst for the North Riding. The larynx and trachea, down to its bifurcation, was examined. It contained a small portion of semi-fluid material, apparently vomit from the stomach, probably post mortem. False teeth were noted fitting to the upper jaw. *There was no corrugation of the tongue, or inner surface of the mucous membrane of the mouth, and no appearance of the action of a corrosive upon the lips, fauces, or mucous membrane of oesophagus.* The dress, which had been worn, was not then examined by us.

The following is Mr. Fairley's report:

"I have subjected the stomach, with adherent fluid and solid matter, to careful chemical analysis. Their total weight was about ten ounces (avoirdupois). A portion of the stomach (about two ounces) contained compounds of antimony, equal to 1.68 grain of metallic antimony, and a smaller quantity of arsenic, amounting to about 0.02 grain; so that the entire stomach contained at least eight grains of antimony and 0.1 grain of arsenic. Eight grains of antimony are equivalent to nearly forty grains of tartar emetic and to nearly fifteen grains of chloride of antimony—quantities much in excess of a fatal dose for an adult person. These compounds are the most common soluble forms of antimony. Arsenic is frequently present in compounds of antimony as an impurity, but the poisonous action in this case is mainly or actively due to antimony. The contents of the stomach have also been subjected to analysis. The same poisons were present in very large quantities, which would have been more than sufficient to cause death if directly administered. There was therefore absorbed in the tissues of the stomach a quantity of antimony much in excess of a fatal dose when taken in a soluble form; and also in the contents of the stomach a quantity of antimony which had not been absorbed into the body, but which would have been amply sufficient to cause death had it been so absorbed. The symptoms and appearances, as stated to me by Inspector Dove and by Drs. Lowe and Cooke at the post-mortem, agree with those which have been noted in previous cases of poisoning by compounds of antimony."

Christison says in "Treatise on Poisons," p. 486: "It is rarely met with as the cause of poisoning, and scarcely deserves notice here were it not that its effects differ widely from those of tartar emetic and other antimonials."¹ Taylor² has collected three cases of poisoning with it which show that it is a powerful corrosive and irritant. In two of these cases recovery took place, the dose in one being four or five drachms taken by mistake for gingerbeer, and in the other a similar quantity was taken by mistake for antimonial wine. The third case was that of a surgeon, who took intentionally between two and three fluid ounces, and died in ten hours and a half afterwards. The whole inside of the alimentary canal was black and charred from the mouth to the jejunum, and the mucous membrane seemed to have been removed along the whole of the extent of the canal,

¹ Of the preparations of antimony, emetic tartar and butter of antimony are the only salts of this metal which have corrosive properties. The former when taken in overdoses is generally rejected by the stomach.

² Manual of Medical Jurisprudence, p. 209.

and the submucous and peritoneal coats were so soft as to be easily torn with the fingers. Orfila mentions only one, and that an instance which occurred more than 200 years ago. Pereira, Trill, and Caspar mention none, Guy only those recorded by Taylor. On referring to "Neale's Medical Digest" (New Sydenham Society's latest edition), which covers a space of more than thirty years past, there is no mention of any case of poisoning by "butter of antimony." Woodman and Tidy recount the cases before alluded to, and some others, differing, however, from the Ruston case in material points. The nearest approach in point of time is one recorded in their analyses of cases, strange to say, by a namesake of mine, the late Mr. Weeden Cooke.

Peculiarities of the Ruston Case.—First, the rapid death from the time the poison is presumed to have been swallowed, at most in *less than two hours afterwards*. Secondly, the absence of charring or corrosion of the mouth, fauces, and œsophagus as compared with the post-mortem appearances of the mucous membrane of the stomach, which was dark and livid, almost black. The poison was probably swallowed immediately after the meal, and possibly the alimentary passage was in great measure protected from its action (on its way to the stomach) by the greasy food which had just been taken.

Butter of antimony is used for the treatment of foot-rot in sheep, and can be easily procured from any druggist or oil and colorman for that purpose. The now prevalent use of it among farmers for foot-rot may lead to more frequent cases of poisoning by this compound of antimony in the future, unless its sale be restricted or placed under more stringent police regulations. The evidence of the husband showed that he had no knowledge of its poisonous properties.

The Government have recently declared, through Mr. Mundella,¹ their intention to introduce "a Bill for the Amendment of the Sale of Poisons Act," which will include provisions respecting the sale of so-called patent medicines of a poisonous character. It is to be hoped that the attention of the Legislature will be called to the importance of placing some restrictions upon the sale of butter of antimony, which it appears is a highly corrosive and dangerous poison. I am not even aware that butter of antimony is scheduled under the list of articles deemed poisons, though tartar emetic, a far less powerful irritant, is so classed.

Dr. Pritchard (the poisoner) at one time lived at Hunmanby and Filey in this neighborhood, and I became acquainted with him. I have been told by an agent of one of the wholesale druggists that he was in the habit of purchasing compounds of antimony (notably tartar emetic) in large quantities, for what purpose may be inferred from the diabolical use which he made of it among the members of his own family after he had removed to Glasgow. It is within the knowledge of one medical man, at least, in this locality, that the treatment of his patients was very unsatisfactory, and their illnesses were generally of a protracted character. When a consultation was proposed the patient usually died; the inference being that tartar emetic was systematically employed for his vile purposes. I have sufficient evidence, apart from that by which he was convicted when on his trial for the murder of his wife and mother-in-law, to show that his unscrupulous use of compounds of antimony, through which he ultimately was brought to the gallows, need scarcely be matter of surprise.

My warmest acknowledgments are due to Dr. Wood (the coroner), to Mr. Fairley, and to Dr. Lowe, as well as to Dr. Thomas Stevenson, of Guy's Hospital, for the kind assistance they have rendered me in the examination and investigation of this case.

Scarborough.

ON THE IMPROPRIETY OF THE INVERSION OF PATIENTS IN APPARENT DEATH FROM CHLOROFORM, DROWNING, ETC.

By HENRY R. SILVESTER, M.D., B.A. Lond.

THE LANCET a short time ago contained an interesting article by Dr. Eben Watson, of the Glasgow Royal Infirmary, entitled "Remarks questioning the Propriety of the Inversion of Patients in the Chloroform Syncope," in which he submits on physiological grounds that this proceeding is injurious to the patient in the first place, because it has a tendency to increase the engorgement of the right side of the heart and large vessels, a condition which is known to exist as one of the most striking effects of the employment of anæsthetic agents; secondly, that this practice is useless as a means of forcing on the general circulation, for, as everyone knows, the blood must pass through the right side of the heart and through the lungs before it can be sent to the body generally; but since the heart is powerless to act on account of the difficulty which exists in the lungs, the further congestion occasioned by the inverted position of the body merely aggravates the existing evil; and, thirdly, that the venous blood in the neck and arms which gets to the brain, in consequence of the depression of the head, only deepens the coma which already exists. Now, there is no doubt that the treatment of drowned persons by inverting the body is very ancient. The attempt to restore from drowning by inverting the body is depicted on the Egyptian monuments. The exploits of Rameses the Great in Assyria are represented in the sculptures on the tomb of Osymandyos; some of the defeated enemy are carrying the corpse of their chief, who was drowned in the river Euphrates, and are in vain endeavoring to restore life by holding the head downwards to expel the water which was believed to have entered the body. It is probable that this kind of treatment continued down to comparatively modern times; for in the year 1774 the Royal Humane Society ordered that the body should not be carried on anyone's shoulders with the head hanging downwards, nor rolled upon the ground, nor over a barrel, nor lifted by the heels, and it is added that "these methods are injurious, and often destroy the small remains of life." Seeing, then, how injurious and apparently useless this method of treatment appears on physiological grounds, may it not have been revived with another object in view—namely, that by this means the heavy vapor of chloroform might be thus poured out from the lungs by gravitation? It is, however, very doubtful whether the vapor of chloroform, still less that of ether, at the temperature of the body, can be ejected from the lungs in this way, for some time since I performed a series of experiments in order to ascertain whether it would be possible to remove water (which is much heavier than the vapor of chloroform) from the lungs of drowned persons (supposing for the sake of argument that it had gained admission there) by placing the body in any of the positions which have been recommended for the attainment of this object. I injected small and large quantities of water into the lungs through the windpipe by a forcing syringe,

¹ See Hansard, Mr. Mundella, March 9th, 1883. The Bill will be introduced in the House of Lords.

and then endeavored to remove it by placing the body in various positions, such as reclining on the face, rolled from supine to prone, held up by the feet, etc., but without success, although there was less difficulty with regard to fluids in the stomach; but this is not of much consequence, as the water swallowed is usually vomited on the return of consciousness.

In the treatment of the apparently dead the following positions of the body have had their advocates—namely, resting horizontally on the face, on the side, on the back, alternately prone and supine, inverted, sitting up, bent forwards and bent backwards. Dr. E. Watson recommends the "supine and horizontal;" but experience appears to teach that the most suitable position, is that of lying on the back, the body inclining a little from the feet upwards, the shoulders and head slightly raised and supported on a firm cushion. The position is favorable for the relief of congestion of the heart and head, and both sides of the chest are free to expand, and this affords the best chance of restoration from apparent death.

Clapham Common.

ON A METHOD OF CONTROLLING HÆMORRHAGE IN AMPUTATION AT, OR EXCISION OF, THE HIP-JOINT.¹

By JORDAN LLOYD, M.B., F.R.C.S. Eng.,

Casualty Surgeon to the Queen's Hospital, Birmingham.

LET me ask my hearers after listening to this paper to judge it, not by the novelty or boldness of the proceeding which has furnished me with a subject, but by the amount of traditional uncertainty and difficulty it may tend to remove. The dread of hæmorrhage felt by a surgeon about to amputate at the hip-joint is no mere fancy. It is a matter of great importance, and the means by which the blood-loss can be safely and completely controlled are questions of supreme moment to him. It does not follow because a problem has been found difficult of solution in the past that it may not at some future time be solved in a simple manner; and it by no means follows that because the forthcoming solution is simple it is also unreliable. The present subject furnishes a case in point. All of us must remember how a few years ago, and indeed even to-day, the anxious surgeon carefully applied the gigantic horseshoe tourniquet to the abdomen of his unfortunate patient, and how gratified he was when it was ascertained that pulsation had stopped in the femoral artery; the admiration and enthusiasm of his onlookers were raised to their highest pitch; the proceeding being regarded as a marvellously skilful and wonderful surgical attainment. Under the plan I have adopted all this glory vanishes; the same end is gained by what may be considered a very commonplace procedure.

On June 17th last I performed amputation through the hip-joint on a boy, ten years old, at the Queen's Hospital, Birmingham. I then employed a method of controlling the hæmorrhage which had not, so far as I am aware, previously been used in this particular operation. The plan is, I think, simpler and safer than any of its predecessors. The amputation was practically bloodless, the hæmorrhage being as completely restrained as in operations through the lower part of the leg. The limb was removed in the manner recommended by my colleague, Mr. Furneaux Jordan. The case was one of hip-joint disease,

where excision six months previously had been followed by acute osteo-mylitis of the femur. The boy made a rapid recovery after the amputation, and left the hospital in six weeks.

The method I am about to describe contains no new principle; it is an adaptation of the well-known plan of circular elastic constriction which we owe to Professor Esmarch. The limb about to be operated upon should first be emptied of blood by elevation. This will occupy only a few minutes, and may be executed during the administration of the anæsthetic. Elevation combined with gentle friction towards the trunk renders parts as exsanguineous as the at times undesirable Esmarch's roller. A strip of black indiarubber bandage about two yards long is to be doubled and passed between the thighs, its centre lying between the tuber ischii of the side to be operated on and the anus. A common calico thigh roller must next be laid lengthways over the external iliac artery. The ends of the rubber are now to be firmly and steadily drawn in a direction upwards and outwards, one in front and one behind, to a point above the centre of the iliac crest of the same side. They must be pulled tight enough to check pulsation in the femoral artery. The front part of the band passing across the compress occludes the external iliac and runs parallel to and above Poupart's ligament. The back half of the band runs across the great sacro-sciatic notch, and, by compressing the vessels passing through it, prevents bleeding from the branches of the internal iliac artery. The ends of the bandage thus tightened must be held by the hand of an assistant placed just above the centre of the iliac crest, the back of the hand being against the surface of the patient's body. It is a good plan to pass the elastic over a slip of wood held in the palm of the hand, so as to diminish the pain attending the prolonged pressure of the rubber bandage. In this way an elastic tourniquet is made to encircle one of the innominate bones; checking the whole blood-supply to the lower extremity. The elastic bandage may be secured above the iliac crest in the usual manner with tapes, and may be prevented from slipping downwards by being held with a common roller tied securely over the opposite shoulder. Experience has shown, however, that no mechanical means answer so well as the hand of a trusty assistant. When the band is once properly adjusted, the assistant has only to take care that it does not slip away from the compress or over the tuber ischii. The former is prevented by securing pad and tourniquet together with a stout safety pin; and the latter by keeping the securing hand well above the iliac crest, or even more safely by looping a tape beneath the elastic near the tuber ischii, passing it behind under the sacrum and having it held in that position. The solid rubber tourniquet may be used instead of this bandage. I prefer, however, the bandage. The soft parts are less damaged by reason of its greater breadth and it is less likely to roll off the compress placed over the external iliac.

The ligature, being altogether above the limb, is out of the way of the surgeon in any operation at or about the hip-joint. The great trochanter is fully exposed; the hip being free upwards as far as the iliac crest and inwards to the perineum. The plan is equally applicable in amputation by transfixion or in excision of the joint, as in the case above alluded to. All previous operators have controlled the blood flow during hip amputations by an apparatus adapted in some manner to the abdomen, except in the case of the ingenious rectal lever recently introduced to the profession by Davy. Esmarch himself says in his *Surgeon's*

¹ A paper read before the Midland Medical Society, March 21st, 1883.

Handbook "aortic pressure must be employed for disarticulation and excision of the hip." He recommends either Pancoast's or his own abdominal tourniquet; both instruments being similar in principle. He describes several methods of compressing the aorta by a circular elastic bandage applied round the loins, and of these Brande's is undoubtedly the best. The latest and probably a better procedure than any of the above is Davy's plan of compressing the common iliac artery by means of a wooden lever introduced into the rectum. The following advantages are claimed for it by its inventor over all apparatus which acts upon the aorta through the abdominal parietes:—

1. There is less disturbance of the general circulation, as that of the affected limb only is interfered with.
2. There is no interference with abdominal respiration; a very important gain in patients under anæsthetics.
3. There is less danger of injuring the abdominal contents.
4. Less pressure is required to control the blood stream through the common iliac artery than through the aorta.
5. The instrument is less likely to get displaced.
6. It is more rapidly and easily manipulated.
7. It is cheaper and more durable.

All these advantages hold good in the case of Esmarch's bandage as I apply it, most of them in a greater degree than when the lever is used. The bandage has, however, the following additional claims over the lever:—1. The simplicity and certainty of its application; no previous experience being necessary to compress the vessels there is no possibility of going wrong. 2. The security with which the vessels are controlled, regardless of the movements of the patient or manipulations of the operator. 3. The freedom from danger of injury to the rectum or abdominal contents. (Davy related a case at a recent meeting of the London Clinical Society, in which he himself had wounded the rectum with his lever; the patient dying on the following day of peritonitis.) 4. Its applicability to cases in which the rectal lever could not be employed, as in strictures of the bowel, intra-pelvic growths, and arterial abnormalities. 5. It requires no special apparatus.

I have adopted the method in a case where I stretched the sciatic nerve; the operation, being bloodless, became extremely easy. I have used it with similar advantage in investigating an obscure case attended by the presence of chronic sinuses about the great trochanter; caries of the outer surface of the innominate bone was detected as the cause. I have applied it in a recent case of excision of the hip. Venous hæmorrhage of a trifling amount occurred in this case; it proceeded, however, from the tissues below the ligature, and was due to the limb being imperfectly emptied of blood before the band was adjusted.

My colleague, Mr. Bennett May, kindly gave me an opportunity of employing the method in a case of amputation at the hip-joint on Dec. 17th. The patient was five years old, and was suffering from acute osteo-mylitis of the upper end of the femur. Disease had extended to the joint, and was threatening death by the foulness and profusion of the discharge. The limb was thoroughly emptied of blood by elevation and friction. A double layer of Esmarch's bandage was used in the manner above described. About two drachms of blood escaped from the posterior flap only. The band was in position for nearly fifteen minutes, all visible vessels being secured before relaxing it. There was no arterial spurt throughout the operation. The child, already in a desperate condition before amputation was performed, died from shock about ten hours afterwards.

By the kindness of my friend Mr. Spofforth, of Kidderminster, I was afforded an opportunity of

trying the plan at the Kidderminster Infirmary on Oct. 8th. The case was one of amputation at the right hip-joint for morbus coxæ. The patient was a man twenty years of age. After Esmarch's bandage had been rolled from toes to groin I applied the elastic in the manner above described. The hip-joint was first explored through a 5-in. incision made above and behind the trochanter, with a view of performing excision if the state of the bones would allow of it. Affairs were so bad, however, that Mr. Spofforth at once proceeded to amputate by Furneaux Jordan's method. The time occupied from the first incision to the ligature of the last vessel was twenty minutes, and the amount of blood lost was about three ounces. This loss, greater than I had previously seen, came entirely from the hinder part of the exploratory incision, and was due to the posterior half of the bandage being insufficiently tight. This was readily remedied by firmer traction, and the bleeding completely restrained. The patient made a rapid recovery, and left the infirmary in five or six weeks. This patient, being a well-built adult, I was led to use the elastic band in three folds instead of two, thinking, perhaps, that the latter would not exert sufficient pressure. It is quite unnecessary, however, to use more than two layers to control any bleeding efficiently; a greater number has the disadvantage of acting extremely painfully upon the hand which is holding them. The circulation throughout the largest vessels may be controlled by slighter pressure than is generally adopted. Esmarch's bandage and tourniquet are, as a rule, put on unnecessarily tightly. Arterial walls are soft elastic tubes, and a very moderate pressure is sufficient to check the current through them.

I submit this method to the profession feeling every confidence in its reliability, having applied it in seven operations—viz., three amputations at the hip-joint, one excision, one nerve-stretching, and one exploratory. Some of these cases were in the practice of my friends; it has pleased them equally with myself.

P.S.—Since writing the above I have had a fourth case of amputation at the hip-joint in a girl aged twelve years. The operation was performed on April 7th. Scarcely any blood was lost, and she is now nearly convalescent.

A CASE OF TUBERCULAR PERICARDITIS.

By W. JULIUS MICKLE, M.D.,

Medical Superintendent of Grove Hall Asylum, London.

On account of the rarity of tubercular pericarditis, the particulars of a case not long ago under my care may possess some interest. My remarks refer more especially to the pathological aspect of the subject. *THE LANCET*, in one of its leading articles, has dealt with a few of the points involved.

By some it has been held that in pericarditis with tubercle the tubercles were the result of the inflammation, and were situated in the inflammatory false membranes. On the other hand, Sir G. Burrows long ago maintained that the tubercles were the cause of the inflammation, and were primarily situated in or under the serous layers of the pericardial sac. Cases actually observed appear to show that the affection may be tubercular from the onset; and, on the contrary, in other cases, that what was originally a simple pericarditis may subsequently become associated with tubercular growth. Nevertheless, it is not unlikely that the former of these is the usual condition in order of time. Cases are on record of tuberculosis of the pericardium, as well as others of tubercu-

losis of the heart muscle, without inflammation; and the possibility of the existence of pericardial tuberculosis before any pericarditis has made its appearance is also confirmed by examples of acute miliary tuberculosis of the pericardium in cases of acute miliary tuberculosis more or less generalized in character, and affecting the serous membranes more particularly. The tubercles in tubercular pericarditis have been written of by some as if always found in the false membranes, as well as in the pericardial layers themselves. This, however, is not a universal rule; in some examples no tubercles exist in the false membrane, while they are well marked in the layers of the serous membrane itself, as in the case by Dr. T. B. Peacock. It seems probable that tubercles most frequently form at first in or beneath the pericardium, especially its visceral layer, and occasionally associated with these are tubercles in the muscular substance of the heart itself. There are indubitable examples of this on record. May not the miliary granulations of the pericardium in some of these cases have been secondary to the caseous masses in the heart muscle? Then, again, with reference to some of the cases of so-called tubercle of the heart, reported now a long time ago, the suggestion will intrude itself that the masses described as tubercular were perhaps syphilitic nodules in reality. The true tubercles, however, sometimes attain considerable size, as in a case reported by Dr. Bristowe. Although rare in those who have no tubercle elsewhere, tubercle of the heart or pericardium is not exclusively limited to cases with tubercle in other parts, as has been erroneously asserted. Thus in one of Dr. Peacock's cases no tubercle was found in any other organ, and in another none was found save in the bronchial glands. Other observers have reported a few similar facts. Tubercle being thus occasionally found nowhere except in the heart or pericardium and bronchial and mediastinal glands, Cruveilhier held that in some examples of this kind tubercle of the heart was probably primary, and the affection of the bronchial or mediastinal glands secondary thereto. This view has been opposed on what, with due deference, I think to be inadequate grounds. By Bauer tubercular pericarditis is said to be accompanied with more or less abundant exudation into the pericardial cavity, referring apparently to liquid exudation; yet Dr. Vailard, whose case was summarized in *THE LANCET* and accompanied with some general observations, speaks of the pericarditis as being dry in the large majority of cases. More knowledge is also desirable as to the few examples of undoubted liquid effusion, inasmuch as one observer makes it a diagnostic element in examples of tubercular pericarditis of this kind that the effusion is not of very large amount, whereas, on the contrary, in the view of others, an abundant effusion, by its very abundance, favors a conclusion as to a tubercular origin of the pericarditis.

In the case I will mention the age was greater than that more usual to patients with tubercular pericarditis, the great majority of these being under the age of forty, although examples have been observed even in somewhat advanced life. The patient, D. P., an old soldier, died at the age of fifty-four, mainly of bronchitis, after having been for many years insane, hemiplegic, and aphasic. Death was preceded by occasional vomiting, a general convulsion, and coma. The seats of tubercle were the pericardium and the pericarditic pseudo-membranes, the right lung, and very slightly, especially on the right side, the bronchial glands. The first-named of these parts suffered the most severely; for the layers of the pericar-

dium were universally and closely conjoined, and adherent by thick intervening dry false membranes, and both of the serous layers, but especially the neo-membranous formation, were thickly strewn with numerous embedded tubercular nodules of dirty-whitish hue. The cardiac valves were healthy; the left coronary artery was highly atheromatous, the right slightly so, the aorta net. The left ventricle was contracted and empty; the other cardiac chambers were gorged with dark fluid blood. The weight of the heart, with pericardium, was 10½ oz. In the left lung was general bronchitis, and it was entirely covered by old close pleuritic adhesions, and posteriorly by old inflammatory thickening of the visceral pleura. The right lung exhibited adhesions posteriorly, and patches of pleuritic thickening capping the apex, and situated over the lower part of the posterior and the middle part of the external surface. At the summit were minute greyish subpleural granulations, at the inner side of the apex a partly putty-like, partly cretaceous nodule, surrounded by dark cicatricial fibroid growth, and in the pulmonary tissue a few small nodules or granulations. Some bronchitis and pulmonary congestion were noted. The other lesions need not be described in detail, as they have been published elsewhere, with a clinical history of the case, particularly with reference to aphasia. Briefly, the other changes were large destructive lesion of some convolutions of the left cerebral hemisphere and of the adjacent white substance, and a similar, but much smaller, lesion in the right cerebral hemisphere, to which were added secondary cortical atrophy, and secondary descending degeneration and atrophy coursing through the left crus, pons, medulla oblongata, and the right post-lateral columns of the spinal cord, the antero-internal part of the left anterior column being also atrophied. Finally, the kidneys were slightly granular and cyst-containing.

Since writing the above I have made a necropsy in the case of J. C., of the 5th Brigade Royal Artillery, for several years suffering from chronic mania, and who died at the age of thirty-one. After admission the heart's apex beat was two inches and a half below, and half an inch within, the left nipple. Slight signs of pulmonary phthisis were followed four months before death by sinistral pleurisy with gradually accumulating fluid effusion, finally causing dyspnoea and cardiac displacement. Owing to the terror and plunging about of the patient the chest was aspirated with most extreme difficulty; and eighty-four ounces of clear sero-fibrinous fluid were removed with very great relief to the symptoms. Only very partial reaccumulation took place, and the patient's alarm now made re-aspiration impossible. The pulmonary signs became more marked; death by gradual asthenia. There were firm old general pericarditic adhesions, the false membranes being vascular and organized. Scattered here and there over the whole surface of the heart were flattened, firm, whitish plates, of fibro-caseous appearance; with some of these both the false membranes and the visceral pericardium separated; with others only the false membranes. Besides these, there were some transparent miliary granulations on both the visceral and parietal layers of the pericardium, but apparently limited to the neo-membranes and not embedded in the pericardial layers themselves. Five ounces and a half of fluid in the left pleural cavity; thick fibrinous deposits on both pleural layers; some pleural granulations. Small cavities, tubercular granulations and clusters in both lungs. Caseous bronchial and mediastinal glands, one of the latter, impinging on the left sternal edge, being

much softened. Caseous lumbar and mesenteric glands; some tubercular ulcers of small intestine.

ON THREE SUCCESSFUL CASES OF NEPHRECTOMY;

WITH REMARKS ON THIS OPERATION.¹

By J. KNOWSLEY THORNTON, M.B., C.M.,

Surgeon to the Samaritan Hospital.

AMONG the recent advances in surgery the operations on the kidney hold a foremost place. For some of these operations the lumbar section is alone suitable; but for the most serious of all, nephrectomy, it is still an open question which is the best incision. Carefully recorded cases and results will in time settle this important matter, and I offer the record of these three cases with the certainty that they will be found interesting. The first has already been published in *THE LANCET* (1880), but it will be useful to recall its leading features.

CASE 1.—The patient was a delicate undersized child of seven, and had been known to have some swelling of the abdomen since she was two years old, and probably it had been there from birth. I was requested to see her by Dr. Day, when, having diagnosed renal tumour, I suggested an antiseptic aspiration to make sure as to its nature and contents. This operation I performed, and removed six pints and a half of rather dark and slightly cloudy urine. In two months the tumour had refilled, and I removed the left kidney, making the incision in the median line to the left of the umbilicus. The operation was a long and difficult one, the enucleation requiring great care, as the tissues were very delicate and contained many large vessels. The child also took the bichloride of methylene badly, straining and retching. The renal artery and vein were tied separately, and then by a third ligature round the whole pedicle. There was no distinct ureter, merely a thin fibrous cord where it should have been. There was much exposure of the intestines and peritoneum generally to the spray and sponges, and the former got into the way and increased the difficulty of the operation. The patient was very sick and restless during the first twenty-four hours, and the temperature ran up to 101·6°; pulse 150; respiration 32. The urine was scanty and then bloody for about the same period. Then the pulse and temperature steadily fell, and normal urine was freely secreted. The bowels acted on the fourth day; the sutures were removed and the wound entirely healed by first intention on the sixth day; and the patient was running about the ward on the fourteenth day. Last year I showed her to the members of the International Congress—a fine, strong, healthy child, and no longer small for her age.

The points I would call special attention to here are the difficulty caused by the intestines getting in the way, and the general exposure of the peritoneum to the spray, sponges, blood, etc.; the simplification and diminished danger caused by the impervious condition of the ureter.

CASE 2.—M. D—, aged twenty-six, married two years and mother of two children, was placed under my care by my colleague Dr. Prickett, at the Samaritan Hospital, in February, 1882. She was hectic, emaciated, and in great suffering. Miscarriage of a six months' foetus occurred a year after marriage; a boy was born in September, 1880, and

a girl on Nov. 4th, 1881. The first was a natural labour, and the health was good till she became again pregnant, when pain in the right loin began. The urine during the whole period of gestation was thick, and had a slimy deposit. The labour was a long one, and was followed by a sharp flooding. On the eleventh day inflammation in the right iliac fossa set in, and seven or eight days later the left leg became painful and was very much swollen. She was in bed for six weeks. She never lost the pain in the right side, and latterly had noticed a swelling there. The pain was at times spasmodic, and very severe, shooting down the course of the ureter towards the right thigh. On examination I found a fluctuant tumour of considerable size in the right loin, with the colon curving round its inner border. The urine was loaded with pus, ammoniacal, and offensive. Pulse small and quick, tongue and breath foul, hectic flush on cheeks, no appetite, frequent vomiting, and high fever in the afternoon and evening.

As it seemed impossible to decide whether the case was one of scrofulous pyonephrosis or calculous pyelitis, I determined to cut down upon the kidney through the loin, and explore it. The operation was performed with full Listerian precautions on Feb. 4th. There was considerable hæmorrhage from the tissues cut through, and from the kidney when cut into, and the points that struck me, as in the two other nephrotomies which I have performed, were: first, the much greater amount of hæmorrhage, as compared with the abdominal section; second, the very imperfect knowledge to be obtained as to the condition of the kidney. I could find no stone, and nothing to account for the condition—merely a sacculated kidney with very offensive pus. I accordingly introduced two large red-rubber drainage-tubes, sewed up the greater part of the incision, passing two of the sutures through the upper and lower angles of the incision in the kidney, and dressed with the usual gauze dressing. I did not think that the offensive odor of the pus necessarily implied sepsis (for reasons which it would take too long to enter upon here), and I therefore used a very large gauze dressing, as I knew from previous cases that the discharge would at first be very great, and I was specially anxious, both for the present safety of the patient and for the future of the case, to make it aseptic if possible. The temperature rose within a few hours of the operation to 104·6°, and the pulse, which was very feeble, to 108; the first urine from the bladder was loaded with pus, the second still contained some, and the third was clear and normal. The temperature remained high for the first three days, and the patient was very weak and ill, though she took fluid nourishment well after the first thirty-six hours. On the second day after the operation the bladder urine was free from albumen. The operation had then demonstrated the healthy condition of the other kidney. The urine soon showed signs of carbolism, and on the fifth I changed to eucalyptus gauze. The result was satisfactory so far as the state of the urine went; but in a very short time putridity became manifest, and pus, which had soaked through sixteen layers of the gauze, teemed with all kinds of bacteria. I am not at all sure that it was ever an aseptic case; indeed, I think the temperature and general condition of the patient are against the supposition, but it was not until after the use of the eucalyptus that I became absolutely certain. Ultimately the wound healed fairly well, the sutures were removed, first one tube and then another withdrawn, and for a time the patient improved greatly, and there seemed less pus from the opening. The evening temperature remained, however, about

¹ Read before the Medical Society of London Nov. 13th, 1882.

100°, and in three weeks pain in the course of the ureter, which had never entirely ceased, increased again. The evening temperature began to run up, and the morning temperature was rarely under 99·4°; appetite failed, and there was fresh pain over the surface of the kidney. I therefore decided to remove the kidney by abdominal section, making the incision along the outer border of the rectus abdominis, as recommended by Langenbück, of Berlin, in the discussion on nephrectomy at the International Congress. I also decided to use the loin opening for drainage, as I could hardly hope to remove the kidney without fouling the wound to some extent with the septic matters escaping freely at the loin opening.

The operation was performed on March 11th, 1882, with the usual Listerian precautions. In order to destroy the exciting sepsis as far as possible, I commenced by passing a catheter into the kidney through the sinus, and flooding it out with a large quantity of iodized water. I then made a six-inch incision along the outer border of the right rectus abdominis, and found that the hæmorrhage from the parietes in this situation was even less than in the usual median incision. The peritoneum was easily recognized and opened without seeing omentum or intestines, and the kidney at once exposed. I scratched a hole through the peritoneal covering, and enucleated down to the vessels with but trifling hæmorrhage; I tied them as in the first case, separately, and then with a third ligature round the whole pedicle. The ligatures were nearly an inch from the aorta, and yet left a sufficient distal stump after division of the pedicle. The remainder of the organ was enucleated with difficulty, especially round the loin opening, and up towards the liver, where I was obliged to leave a portion of capsule, in which a large artery spouted, and was secured with difficulty. Several vessels in fat and capsule were tied, in all cases with fine carbolized silk with the ends cut short. As soon as the kidney was free I drew it up, and seizing the ureter in two places near the kidney, with strong Wells forceps, divided it between them, immediately cleansing the bladder end with an iodized sponge and then tying it, had it held outside the wound. Immediately the kidney was removed, I passed a sponge soaked in tincture of iodine from above down and out through the loin opening. As there was a good deal of oozing among the loin muscles which the iodine failed to check, I applied perchloride of iron. I then passed a red-rubber drainage-tube from the lower angle of the abdominal incision across the wound, and out at the loin. The incision was closed up to the tube with the usual carbolized silk sutures, and the end of the ureter was brought outside and fastened by a pin. I believe this is the first case in which the ureter has been so treated, and I think it is of great importance. In most cases the ureter is dilated and diseased (it was very markedly so in this case), and contains putrid material, and if its bladder end be tied and dropped into the wound, it must be a dangerous source of sepsis. The kidney after removal weighed 1 lb. 2½ oz. The temperature the night before the loin nephrotomy was 101·6°, and the evening after operation 104·6°; it was high for many days, and only once or twice touched 98·4° in a morning up to the falling back before the nephrectomy. The night before the nephrectomy it was 102°, and the evening of the operation was 101·4°, but only the second day it fell in the afternoon to normal and never rose again above 99·2°. In the first operation the loin wound was bathed with the kidney contents, while in the second it was rendered thoroughly aseptic by the precautions taken, as its after-progress proved. There

were eighteen ounces of good urine in the first twenty-eight hours after operation, and thirty-eight ounces in the next thirty hours. After this she was able to pass her own urine, and the quantity varied from fifteen ounces to a pint daily. Both wounds remained aseptic, and there was but little sero-sanguinolent discharge from the loin opening. The drainage-tube was removed through the upper opening on the fifth day. The sutures were removed on the seventh and ninth days. The bowels acted naturally on the tenth day. Both wounds healed completely on the same day, the eighteenth, after operation, and she went home well on the thirtieth day. I should have mentioned that the urine during the first twenty-four hours after operation was slightly green and contained one-tenth of albumen. Later there was at times some coloring of the urine, and, as she had after the first operation shown symptoms of carbolism, I dressed with boracic lint as soon as I thought it safe to leave off thorough Listerism. When she left the hospital she was passing daily from a pint to a pint and a half of healthy urine.

The special points to which I would direct attention in this case are—1. The temporary benefit and after failure of the nephrotomy. 2. The greater difficulty of operation and smaller command of the kidney in the loin incision, as compared with the lateral abdominal one. 3. The smaller amount of constitutional disturbance attending the latter operation. 4. The fact that even with the septic condition pre-existent, it was yet possible by care and the free use of tincture of iodine to have aseptic wounds. 5. The method of dealing with the ureter.

The kidney was found after removal to contain a large number of small dark calculi, consisting of pus, epithelium, oxalate of lime crystals, and blood, the latter forming a cake over their exterior. It seems not improbable that they were formed after the nephrotomy, and that the original opinion that the case was one of scrofulous pyonephrosis was correct.

CASE 3.—M. P.—, aged fifty-eight, widow, an enormously fat woman, with much color and a feeble circulation, was transferred to my care at the Samaritan by Mrs. Atkins, of the New Hospital for Women. The amount of adipose tissue rendered examination very difficult, but the presence of a large fluctuant tumour could be distinctly made out in the right side of the abdomen, and the colon could be traced along its inner (left) border, and also a small clear area between its upper margin and the liver. Increasing size was noticed sixteen years ago, with loss of appetite, sickness, and "matter" in the urine. She was in the Women's Hospital, Soho-square, and Dr. Protheroe Smith told her that she had a tumour of the right kidney. This illness began with a sudden discharge of pus in the urine, after sickness and pain in the loin. For some years periodical attacks of diarrhoea gave her relief. In November, 1879, the tumour was very large, and she went into the New Hospital for Women, where it was aspirated, and a quart of very thick pus removed. Aspiration was repeated on March 6th, 1881, January 19th, 1882, and in February, 1882, when sixteen, eight, and three pints of pus were withdrawn. When I first saw her she was suffering much from chronic bronchitis, and the cough was still troublesome at the time of operation. She had a fair pulse (92) and an evening temperature nearly two degrees higher than the morning one. The urine was pale and thick, with muco-pus, sp. gr. 1015, and slightly acid. Though the patient was not a very favorable subject for nephrectomy, encouraged by the increased facility af-

forded by Langenbück's incision, and knowing that aspiration was ceasing to afford even temporary relief, I determined, with her full consent, to attempt the operation.

I operated on March 15th, 1882, commencing, as in Case 2, with a 6-in. incision to the outer side of the right rectus abdominis, and reached the kidney with little trouble or hæmorrhage. Finding the peritoneal capsule mobile over the kidney I enucleated a small space, tapped the kidney, and removed twenty pints of pus, taking great care that none was spilt over the wound or peritoneal surfaces. I closed the puncture by a plug of iodized cotton-wool before proceeding with the enucleation, as in the course of it the successive aspiration punctures were found surrounded by a deposit of caseous lymph, each was freely scrubbed with tincture of iodine. The renal vessels were reached with difficulty, my arm being up to the elbow in the abdomen. I found it impossible to distinguish the vessels and tie them separately, I therefore scratched a passage round them with my finger, and so passed a ligature. I cut the kidney away, securing the openings of the vessels in the kidney by a pin and twisted suture, as I had learnt from Case 2 that the hæmorrhage from this source might be very serious. The kidney was then enucleated from its capsule; an immense number of fine silk ligatures were used, and a horrible-looking mass of torn capsule and fat returned into the loin, when the enucleation was complete. I treated the ureter as in Case 2. Fearing that some fluid might accumulate in the large capsule remaining, I put in a short glass tube, and brought it out through the centre of the wound. This proved quite unnecessary; and nothing coming from it, I removed it on the second day. After all the sutures were fastened, a sponge was missing, and I had to remove some to search for it. I found it in the bottom of the capsule. This accident, and the exhaustion and refilling of the spray, prolonged the operation, which lasted three hours. The sac, after removal, weighed four pounds seven ounces, and consisted of two large chambers, with a round opening between them. The cause of all the mischief was a small umbrella-shaped stone, its point being firmly wedged into the mouth of the ureter.

The patient had been passing about a pint and a half of urine in the twenty-four hours before the operation, and in the first twenty-four hours after it nineteen ounces were drawn off, the last specimen being of a clear amber color, with light mucous cloud, and free from albumen. The temperature in the night before the operation was 101.4° and the pulse 84; after the operation the highest temperature was 100.4° and the quickest pulse 104. The sole complication was a sharp attack of bronchitis on the second and third days. The treatment consisted of digitalis in the beef-tea injections, chlorate of potash, citrate of potash, and, later, carbonate of ammonia by the mouth, with poultices to the chest. On the third day the temperature was 98.6°; pulse 96; and the urine free and loaded with urates. On the seventh day the bowels acted freely and naturally. On the ninth day putrefaction had spread from the end of the ureter, and the surface of the wound was red and irritable; it had healed by first intention, and all the sutures were removed. On the fourteenth day the wound round the ureter gaped a little, and, in spite of red lotion and various stimulating applications, did not heal. Recognizing the fact of her long residence in hospitals, I advised her to go home, and there, under the kind care of my friend, Dr. Basil Morison, of Canonbury, whose patient she had previously been, the wound healed rapidly. She went home thirty-four days

after operation, and a month later I saw her strong and well.

The special points in this case are—1. The long-standing disease and frequent aspirations, leading to the expectation of serious adhesions. 2. The age of the patient, and bad general health. 3. The prolonged operation, due to the difficulties arising from the fatness of the patient, extensive adhesions, and accidents already referred to. 4. The perfect and rapid recovery without fever.

The three cases taken together seem to me to demonstrate the advantage of the lateral over the median incision. The perfect suitability of the abdominal operation to all cases in which nephrectomy, and not mere nephrotomy, is the end aimed at; the capability of the peritoneum to dispose of large quantities of effused fluid under aseptic conditions, without the aid of the drainage-tube, and without serious constitutional disturbance arising from the absorption of the effused fluids, even after the removal of such an important eliminator as the kidney. The great differences in the ages of the patients, seven, twenty-six, and fifty-eight, and the varying diseases for which the operations were performed, make the records of especial value. The operation of Langenbück with the extra-peritoneal treatment of the bladder end of the ureter, seems so surgically perfect that I cannot conceive any case presenting itself in which I should care in the future to face the difficulties and uncertainties of the loin incision. Indeed I should be inclined to recommend an exploratory incision by the lateral abdominal section, with careful Listerian precautions, in any case in which it was of importance to thoroughly examine the kidney and ureter.

I think there can be little doubt that the impaction of some of the minute calculi found after the second operation in the kidney in Case 2 originated the disease, and the last two cases thus illustrate how small a stone may set up mischief which ends in the destruction of the kidney. A loin nephrotomy or nephro-lithotomy would probably have failed in either, as it would have been impossible to reach the stone in Case 3, and some of the minute stones would have been sure to escape detection in Case 2, as they were scattered through the sacculi, and not all in one place. I failed to detect any of them when exploring the kidney at the first operation.

SCARLATINA EVOLVED FROM DIPHTHERIA.

By JOHN MEREDITH, M.D.

THE question of evolution of scarlet fever from a correlative morbid condition appears as yet in the air rather than among the accepted tenets of the profession. Still the probability of such a development is being asserted, particularly from a diphtheritic condition. That there is a great intermixing of scarlet fever and diphtheria in certain localities is apparent to all readers of sanitary officers' reports, and it is also acknowledged that there is frequently met with an inflamed condition of the throat having decided characteristics of neither, yet showing undoubted resemblance to each of them. The explanation of the unusual prevalence of these during a great part of last year and the commencement of this is sought in meteorological conditions—for example, the excessive moisture and rain lately experienced. Meteorological conditions, taken in their widest sense, are equivalent to changes of latitude and isothermal areas. It is this, the climatic condition, that influences, not necessarily the part of the earth dwelt upon. When therefore climatic conditions

prevail at a place different from the conditions usually prevailing at it, this difference must of necessity influence every biological state, and life course has to adapt itself to altered and altering circumstances. In general these alterations are all but imperceptible, if not altogether so, as far as our capacity for perceiving goes; but occasionally it is otherwise, a tangible variety is evolved, which we, seeing only a portion of the course of action, put down as an exception; or it may be in regard to disease as sporadic. This, I take it, is the state of things through which evolution operates. Thus, some of the ordinary continued fevers of this country perplexed not a few of our profession when they had first to deal with them in tropical countries, and this may be said of other diseases besides continued fevers. Any of those perplexed observers would have had no difficulty in recognizing the true character of the fever or other disease if he met with it in the country where he first learnt to diagnose it. It has been more the habit to study disease as an entity with firmly fixed specific characters than as a mode of motion always showing variations, and these differing according to the character of the subject and the surroundings thereof.

A paper full of interest, and exceptionally suggestive, was read by Mr. K. W. Millican before the British Medical Association at Worcester last August, and afterwards published, on "The Etiology of Acute Specific Diseases." In this paper Mr. Millican brings forward certain facts relative to diphtheria and scarlet fever, and argues that the one disease may, and at times does, give rise to the other. Before the appearance of Mr. Millican's paper I had had occasion to think that the morbid condition which we recognize as diphtheritic sore-throat was capable of inducing by infection in another a scarlatinal disorder, and this in its turn, in a third person, a case of pure typical scarlet fever. The circumstances which led me to form this opinion were the following. Towards the end of June, 1882, cases of illness of undoubted diphtheritic character occurred in this district (Wellington, Somerset). There was no case of scarlet fever, nor had there been one for many months. Some of the earlier cases of diphtheria passed by—ending in recovery without coming under medical observation. To this variety belonged the case of a housemaid in a family which I have to refer to. This girl went out for an afternoon one day towards the end of June; where she went to I did not learn until some months afterwards, when it transpired that she went to see her father living a few miles from her place of service, and in the country. He was suffering at the time from a severe sore-throat, but the specific nature of it I am not able to state, as the man was not attended by any medical practitioner. The girl, a few days afterwards, was noticed to be looking ill; sallow, with a peculiar facial expression, or, perhaps, absence of expression; did not take her food as usual. She made no complaints, and did not give up her work; and before long recovered; before this came about her fellow servant, the cook, was noticed to be ill, complaining of sore-throat, and when examined this was found to be due to several diphtheritic patches on the tonsils. She complained of great languor, severe headache, a gush of perspirations at times, and a peculiar physiognomic appearance. She was treated with tincture of iron, nitric acid, and chlorate of potash gargles. The diphtheritic exudations soon disappeared, and recovery followed in due course. The two servants occupied the same bed. In the house there were three children, whose ages were eight, seven and six, and their intercourse with the cook was pretty constant usually, but this was stopped as soon as

the character of her illness was discovered. However, on the 1st of July, the eldest, a girl, was not well. She complained of headache, and was sick several times. At first this was put down to her having eaten some unripe fruit in the garden. The child was also hot and feverish. The throat when examined showed no diphtheritic exudations, but it had a peculiar florid appearance such as I have since often seen in cases of diphtheritic character. The cook had a similar appearance when examined some days before, but she had no skin rash. The child soon showed this, although at first it did not appear particularly characteristic, and I was more inclined to ascribe it to gastric irritation than anything specific. Another day's observation clearly showed that the case was one of scarlet fever; the rash was well out over most of the body and the case progressed favorably but not without showing some peculiarities, particularly in regard to the secretions of the kidneys. She often complained piteously of pain in the back in the region of the kidneys. The urine was frequently examined both by Mr. Kidgell, who kindly attended the case with me, and by myself, but without discovering any albumen, at all events nothing beyond a faint trace. It gave an alkaline reaction, the specific gravity was low, and there was frequent desire to pass it, and the passing was attended with some irritation and pain. There was, as mentioned, considerable gastric irritation; for several days nearly everything taken was rejected. After a time signs of improvement were observed, general desquamation followed, and the little patient made a good recovery eventually.

On July 2nd the youngest child, a girl aged six, complained of being ill. Her head and right ear ached. She was sick and very feverish. Her throat was red, with no diphtheritic patches. Her condition in most respects was similar to that of her sister, only the scarlatinal rash was much more general and the body temperature higher. An abscess formed in her ear, and discharged, and continued doing so for weeks. The other symptoms were milder in this than in the first case, yet there appeared to be something unusual about it.

On the 6th the third child, a boy aged seven, was seen to be ailing, complaining of headache. He had been isolated from his sisters for five or six days. This course was taken as soon as the nature of their illness was suspected to be anything specific. It was not his habit to be as much with the cook as his sisters, consequently it may justly be inferred that he derived his illness from one or other of them, and not from the servant. He complained of sore-throat, but not very much, and in due course the scarlatinal rash came out well all over his body in quite a typical character, differing a little in this respect from his sisters' cases. He had no complications, and his illness proved an exceptionally mild one, and was succeeded by free desquamation. At the time he was taken ill his mother sickened, her sickness beginning with a rigor, and a feeling of aching discomfort. She felt chilly, sick, and prostrate. The temperature of the body rose some two or three degrees above normal, and remained so for several days. Her head ached, and she had a heavy expression of countenance. Free perspirations set in at intervals, which were followed by a feeling of exhaustion, and continued for several days. The throat had a reddish blush, nothing else. There was no rash over the body, nor any subsequent desquamation. The illness appeared to me to have been diphtheria without the characteristic tonsil exudations that are usually looked for. The patient had had scarlet fever in early life.

As I have already to some extent stated, I made

every inquiry I possibly could in order to ascertain if there had been any communication between these scarlet fever cases and previous ones elsewhere, and the result was that I could not find any clue implying contact either directly or indirectly. Such, in brief, is an outline of my thesis. My object has been to note leading features rather than close details, and I have formed the opinion that the scarlatinal disorder was an evolved one—a correlative outcome, and not the immediate result, of contact, on the following among other grounds:

1. There was no reason to infer contact with scarlet fever, but there was with diphtheria.

2. The accession of the illness in the case of the eldest child was in some respects unusual, taking the symptoms as a whole; the great irritability of the stomach, with the headache and the way the rash appeared, presented marked difference from those of the boy who was taken ill a week later.

3. The behavior of the urinary secretion—its alkaline reaction, low specific gravity, frequent desire to void it, and the passing being accompanied with pain and discomfort. There was no albumen nor any sign of dropsy; but there was, I may add, a little arthritic swelling and pain at the wrists and in one ankle, lasting for a few days. Now, I have again and again met with persons suffering from such symptoms as these during diphtheritic disorders, but not in scarlet fever. The course of the disease in the case of the youngest child was not attended by as much urinary irritation as in that of the eldest, but as a set-off she had a fetid discharge from her ear, following the abscess mentioned, lasting all through the period of desquamation.

4. The form of illness which manifested itself in the case of the mother seems to have a significance. It presented as much the character of diphtheria as most cases I have seen, except that it showed no decided throat exudations. This I fancied was partially, if not wholly, due to her freely and frequently using antiseptic gargles. That she contracted the illness from one or other of her daughters, while attending them, appears to me to be beyond a reasonable doubt. But their illness was scarlatinal, and gave rise in their brother to what I may term a benign case of the like nature, while the same source of origin induced in the mother a diphtheritic form. It may be that this was only an instance of reversion, adaptation to its surroundings on the part of the morbid force, the receiving body not being suitable for a scarlatinal manifestation.

Wellington, Somerset.

IODOFORM IN OPERATIVE SURGERY.

By A. F. MCGILL, F.R.C.S.,

Assistant-Surgeon to the Leeds General Infirmary.

THE use of iodoform in operative surgery is comparatively recent, and at present is by no means general, as many surgeons are deterred from using it by the supposed risks of iodoform poisoning. Several deaths have been reported from this cause, and toxic symptoms have been by no means unfrequent, but when we learn that surgeons have been in the habit of packing from eighty to three hundred grammes of iodoform into newly made wounds, this is perhaps not to be wondered at. After six months' experience of its use, I have come to the conclusion that its dangers have been much exaggerated, and that when properly used it is a most valuable agent.

Iodoform may be applied with advantage in four different classes of cases: (1) In old septic wounds, the result of inflammation or of traumatism; (2)

in recent wounds, in the infliction of which it is impossible for the surgeon to adopt full antiseptic precautions; (3) in wounds near any of the natural orifices of the body; and (4) as an external application combined with other antiseptic dressings.

1. It has always been a matter of extreme difficulty to render putrid wounds aseptic: in some cases, as, for example, in large abscess cavities, it is well nigh impossible; when, however, the wound is of comparatively small size, iodoform may be used with great advantage. Owing to its great insolubility, its antiseptic action continues for a long time, and thus is very efficacious in destroying organisms. The following case is so remarkable that it seems worth recording:—

A child, aged five years, was brought to see me at the Leeds Public Dispensary on Dec. 6th last year. The mother stated that the child had been ill for five weeks, that the left leg had been much swollen till a fortnight before, when it burst, and discharged a large quantity of matter. On examination the leg and lower part of the thigh were seen to be much enlarged, and a red blush extended from the foot to above the knee; there was an opening which would admit the finger tip on the outer aspect of the leg at the junction of the middle and lower thirds, which was discharging unhealthy-looking fetid pus. On passing a probe, dead bone was detected. A pair of small sequestrum forceps were passed through the wound, and a sequestrum, which involved the whole shaft of the fibula for about an inch, was removed in fragments. The wound was then filled with iodoform, and dressed with a large pad of salicylic silk. This dressing was not removed for a week. The wound was then almost closed, the redness and cedema had entirely disappeared; the dressing was renewed as before. In another week the wound was perfectly healed, and the child practically well.

2. In private practice, and more especially in country practice, it often happens that it is impossible to adopt antiseptics in their entirety, and the spray is often of necessity omitted. Under these circumstances it is important to use an antiseptic whose action is prolonged for a considerable time. It is in this class of cases that poisoning caused by the absorption of iodoform is most to be feared; the drug must therefore be employed sparingly, and rubbed with the finger over the whole of the raw surface; indeed it is unnecessary to use a large quantity, as a small amount seems to answer every purpose. I have not as yet seen any evil arise from its use when applied in this manner. It might be supposed that healing by the first intention would be prevented, but this is not the case, as I have seen many cases treated in this way heal immediately in whole or in part. The treatment of small abscesses, whether connected with enlarged lymphatic glands or simple in their origin, is much facilitated by an iodoform dressing. The abscess having been opened its cavity is filled with the powder and a salicylic silk dressing applied; this need not be disturbed for a week, when it can be renewed if necessary. The advantages of this method of treatment in out-patient hospital practice are obvious; the results obtained are excellent.

3. Ordinary antiseptic dressings are, as is well known, inapplicable in operations near any of the natural orifices of the body, and also in the operation of colotomy and others of a like nature. In these cases iodoform may be used either in powder or mixed with glycerine in the proportion of one part to eight. In a patient on whom I recently opened the colon in the left lumbar region this use of the drug was found of great service. In another case, after tying a large mass of hemorrhoids, I found that separation was delayed beyond the

usual time; but the putridity which usually occurs under these circumstances was entirely prevented by painting with the mixture of iodoform and glycerine mentioned above.

4. Iodoform may be used as an adjunct to other antiseptic dressings in two ways—either to purify the skin, or to increase the antiseptic power of the dressing employed. The importance of having the skin surgically clean cannot be too strongly insisted upon, the presence of organisms on the skin being one of the most frequent sources of wound infection. This has been particularly insisted on by Dr. Ogston, who has shown that micrococci are found in great numbers in the ducts of the sweat-glands, and that dangerous consequences may supervene owing to micrococcal infection. With the object of reducing this risk to a minimum I have lately used a thin iodoform ointment or pomade, using it as an inunction to all parts in the neighborhood of the wound. By adding tragacanth powder to glycerine, in the proportion of twenty or thirty grains to the ounce, a convenient basis is obtained, to which iodoform can be added in any desired proportion; a drachm to the ounce seems to answer every purpose. With the object of increasing the power of the dressing employed, iodoform may be used freely external to the wound. The dressing is applied in the following manner:—The operation having been completed with the usual antiseptic precautions, a strip of gauze is dipped in carbolized water and sprinkled thickly with iodoform; this is applied to the edge of the wound over the sutures. A handful of salicylic silk is then taken, and about a teaspoonful of iodoform is poured upon it; this is placed over the end of the drainage-tube. If it is probable that the discharge will be large in amount, the skin is powdered with iodoform. A pepper-box may be conveniently used for this purpose, and silk freely used wherever it is expected that discharge will collect. A pad made of silk placed between gauze, and large enough to overlap the wound for eighteen inches in every direction, is then fixed to the part with gauze bandages; the edges are secured with elastic webbing or with strapping. A first dressing applied in this manner need not usually be disturbed for from five to eight days, and subsequent dressings may be left even longer. This mode of treating wounds is in practice found to answer admirably, and this is what we would expect on theoretic grounds, for it fulfils two conditions of primary importance: it keeps the wound and its discharges aseptic and enables it to be kept at rest. An enlarged experience may possibly make me change my opinion as to the value of iodoform; at present I consider it a perfectly safe and reliable antiseptic.

Leeds.

ON A CASE OF HÆMORRHAGE FROM THE MOUTH, NOSE, AND LUNGS.

By WM. O'NEILL, M.D., M.C., M.R.C.P. Lond.,

Physician to the Lincoln Lunatic Hospital, etc.

I THINK the following case of hæmorrhage, from its rarity as well as from the several interesting features which it possesses, is worth recording. I therefore venture to narrate it in as brief terms as the case will admit.

On February 2d, 1881, I was asked to see a man whom I had previously attended, and who had for some months indulged rather freely in tippling. On this occasion he was suffering from nervous symptoms as well as from a cough, the result he said of a cold caught some days before. He came of a healthy stock; all his brothers and sisters as

well as his father and mother were living; the father has, however, of late years suffered from chronic rheumatism and from occasional attacks of bronchitis. The patient, who was married, was thirty-six years of age, and in comfortable circumstances. He looked ill, had lost flesh and strength, and was much depressed in spirits. His cough was troublesome, and his expectoration was frothy and slightly tinged with blood. A physical examination of the chest disclosed some râles at the apices of both lungs, especially at the apex of the left lung, over which there was a little dulness on percussion. The sounds of the heart were normal; the pulse was 80 in the minute, and weak; the temperature of the body was a little under 100°. The temperature and the pulse did not vary much for the first few weeks; but when the prostration was great the pulse increased in frequency, especially on exertion or on emotion. The urine was healthy, but the whole digestive system was much deranged. The patient's food consisted for the most part of beef, mutton, bacon, bread, tea, and coffee. Sometimes he ate a little vegetables on Sundays, but he told me that he was "no vegetable man." On the 6th my attention was drawn to the patient's mouth in consequence of his complaining of pain and tenderness in it. On examination I found the mucous membrane of the gums and mouth, extending to the pharynx, red and swollen. Spots could be seen on the gums and on several parts of the mouth darker and more congested than the surrounding parts, from which a little blood was escaping. The bleeding slowly but persistently increased, and, to make matters worse, the mucous membrane of the nostrils about the 12th of the month assumed the same kind of hæmorrhagic action. From this time the hæmorrhage from the mouth, nose, and lungs continued almost uninterruptedly, without increasing or diminishing to any great extent, until the 28th, when it received a check, but the hæmorrhage in its gradual decline lasted ten or twelve days longer. The blood which escaped from the patient's mouth was diluted with a watery fluid, as if ptyalism was taking place at the same time. The blood from the nose, although watery, was richer in red particles than that coming from the mouth; nevertheless, it rarely formed clots, even when the nostrils were plugged. It was difficult to ascertain with exactness the amount of blood which came from the lungs, but it was not great. The greater quantity flowed from the mouth, and the loss of blood from it was chiefly instrumental in producing anæmia, which from day to day became more pronounced. This was not a case of hæmophilia, as neither the patient nor any of his immediate relations has at any time been subject to recurrent hæmorrhage. From the dislike the patient had for vegetable food it might naturally be supposed that he was suffering from scurvy, and to a certain extent this probably was the fact. Still the affection differed from well-marked scurvy in the absence of bleeding from the stomach, bowels, bladder, and kidneys, and also in the absence of ecchymosis and petechiæ on the skin. The disease differed also in some respects from scurvy in the length of time the bleeding continued; for if the affection had been scurvy pure and simple, the hæmorrhage would hardly have been so rebellious to treatment. The bleeding was the outcome I believe of three causes, which had been operating on the patient at the same time—namely, a consumptive cachexia, an alcoholic cachexia, and a scorbutic cachexia, all these states of the system combining to produce a morbid condition of the blood conducing to hæmorrhage. Cases resembling this, doubtless, were frequent enough when hard drinking of un-

diluted stimulants was more the fashion than it is at the present time, and when scurvy was prevalent in the land; but since scurvy, like ague, has almost disappeared from the country the examples of hæmorrhage of this kind which present themselves are few and far between.

In a case similar to the one under consideration, in which a suspicion exists of a scorbutic taint, great attention should be paid to the proper selection of kitchen physic. This patient was ordered to take in the way of food broths, beef-tea, bread-and-milk, mashed potatoes with butter, green vegetables, and milk or lemonade for drink. I consider there are no better antiscorbutics than good potatoes and milk. I have observed that those who live for the most part on potatoes, milk, butter, and eggs, and who partake of flesh meat perhaps once a week, are healthy and robust, and singularly free from skin disease. I think a dietary of this kind preferable as a giver of health and strength to one composed of bread, tea, coffee, and fat bacon. People who live much on tea and coffee would do well to eat frequently with these beverages potato-cake, a most delicious tea-cake when properly made and cooked; a palatable cake suitable for diabetic patients can also be made by treating grated raw potatoes in a way that removes the starch from the gluten. In some skin diseases potato-juice diluted and flavored is of considerable value as a therapeutic agent.

In the way of treatment by drugs, the patient took at the outset gallic acid and fluid extract of ergot in a mixture. This failing to stop the bleeding, he next took the liquid extract of vinca major and tincture of larch. Anæmia coming on, he was ordered in succession iron, alum, solution of the pernitrate of iron, and a mixture composed of tincture of muriate of iron, chlorate of potash, and quina. This combination answered well, and was taken for several weeks. Lastly, he took for a month or two chloride of calcium in a mixture. He used several astringent gargles; but the gargle that answered best was a solution of perchloride of iron, glycerine, and water. This solution was also used for plugging the nostrils.

In conclusion, I may add that the patient was under treatment for about three months, and at the end of that time he seemed to be in fairly good health; and in this state he continued till he had occasion to leave home a short time ago, when, one morning, in the town to which he had gone, he was found dead in bed. A post-mortem having been made, the lungs presented a most engorged appearance; the heart was enlarged and very flaccid, being quite empty of blood; the left lung was thoroughly adherent to the walls of the chest, the right lung partly so; and the bowels much inflamed.

Lincoln.

BOOKS FOR PATIENTS IN HOSPITALS.—An appeal for books, magazines, and other light literature for the use of adult patients in our metropolitan hospitals, and for toys, children's books, etc., for the use of occupants of the children's wards in the same institutions, has been issued. The request is worthy of attention, but the statement that many of the books are given away by the patients to their friends on visiting days is surely an error. The books are given to the hospital, not to the patients, and are, or ought to be, the property of the institution and not of an individual. In some cases, too, there may be risk of infection being carried in this manner from wards to the outer world.

A Mirror OF HOSPITAL PRACTICE BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendia, nisi quamplurimas
et morborum et dissectionum historias, tum aliorum tum proprias
collectas habere, et inter se comparare.—MORGAGNI *De Sed. et
Caus. Morb.*, lib. iv. Proœmium.

ST. THOMAS'S HOSPITAL.

INTESTINAL OBSTRUCTION COMING ON FOUR YEARS
AFTER THE OPERATION OF OVIARTOMY; ABDOMINAL
SECTION AND FORMATION OF ARTIFICIAL ANUS BY
ATTACHMENT OF LOWER END OF ILEUM TO WOUND;
RELIEF; DEATH FROM EXHAUSTION TWENTY-TWO DAYS
AFTERWARDS.

(Under the care of Mr. SYDNEY JONES.)

For the report of the following notes we are indebted to Mr. W. H. Battle, surgical registrar.

E. J.—, aged forty-three, married, was admitted on June 21st, 1882. In 1878 Mr. Knowsley Thornton removed tumours of both ovaries of papillomatous character, and also a small solid growth from the broad ligament; a similar one was left behind in Douglas's pouch. The woman made a good recovery, but she continued to have trouble with the bowels. For the first two years the constipation was almost constant, amounting once or twice almost to actual obstruction, relieved by the administration of atropine and morphia; but for seven months before admission there had been almost incessant diarrhoea, and the woman had not passed a single formed motion during that time. She had lost flesh considerably. For the last five weeks she had been troubled with frequent attacks of severe cramping pain in the abdomen, attended with marked movements of the intestines. During this time she was able to take very little food at all. About three weeks before admission she had for two days a violent attack of retching and vomiting, and at that time passed a great deal of blood-stained mucus from the bowel. On June 19th she had a more severe attack of pain than usual, and from that evening at six o'clock until admission there had been no action of the bowels, and the pain had increased. At twelve o'clock on the 21st she had a very violent attack of pain attended with vomiting, the ejected matter being brown and very offensive.

When admitted the patient was emaciated and pale, with an anxious look, and complained of the pain in her abdomen and of sickness. The abdomen was much distended, and the outline of some intestinal coils was clearly marked and large. There was the line of cicatrix remaining from the previous operation, but it was quite healthy. On examination per rectum a tumour could be felt behind the uterus, filling up Douglas's pouch. The vomiting had temporarily ceased; the tongue was moist, and her temperature was 98° 6". She was accordingly ordered a pill containing half a grain of powdered opium and one-third of a grain of the extract of belladonna to be taken every three hours, milk in small quantities and ice only being allowed, and an application of belladonna and glycerine placed over the abdomen. She was twice sick during the night; the vomit was not offensive, though brown. The patient did not sleep, but was fairly free from pain, though at intervals she had sharp bearing down pains. Next morning (June

22nd) the tongue was rather furred, but moist. She was given a pill containing one-fourth of the extract of belladonna every three hours.

June 23rd: The abdomen was less tense. She had had no sickness since the 21st. Had passed much flatus by the bowel, but no solid feces. She had no pain. On the 27th the patient was much better; had lost the anxious look, and was in good spirits; bowels acting pretty freely. At her own request she was allowed chicken, which she ate next day (28th) at dinner time. In the evening she was seized with severe pain in the abdomen, which she referred to the region of the umbilicus. The abdomen was distended and tympanitic, and she became considerably collapsed, frequently vomiting offensive fluid, though the odor was not fecal. The face looked pinched and livid, whilst her pulse became rapid and weak; and it was evident that operation was advisable now if anything was to be attempted. Accordingly, at 10.30 p.m., with antiseptic precautions, Mr. Sydney Jones made an incision in the median line, about four inches in length, between the umbilicus and pubes. The peritoneum having been divided on a director, the finger was introduced, and a considerable quantity of sero-sanguineous fluid escaped. A largely distended coil of intestine appeared. No band was discovered, though there was much scattered deposit over the peritoneum. The incision was enlarged upwards, and a band was found passing from near the umbilicus towards the left iliac fossa. This, however, did not appear to constrict any definite portion. By this time a large amount of intestine was exposed, a good deal being out of the wound, and greatly hampering further search from its distended condition. It was, therefore, tapped, and a large amount of pale-colored thin fluid drawn off. The intestine having collapsed to some extent permitted a further search to be made, and it was found that there was great matting of the ileum in the neighborhood of the cæcum, binding it down, and, doubtless, causing the obstruction; it was quite impossible to free this. It was also found that the band before mentioned compressed the ileum above sufficiently to prevent feces passing through. This was therefore divided between a double ligature; it was very thick, but was quite imperforate. The intestine had been tapped a short distance above the obstruction. The part which had been tapped was retained outside, the opening enlarged and stitched to the abdominal wall so as to form an artificial anus in the median line. The carbolic spray was used throughout, but the usual full dressing was not employed; the wound was dressed with lint soaked in carbolic oil, and a pad of salicylic wool placed over the opening. The patient suffered much from shock. A brandy enema and a subcutaneous injection of ammonia were given towards the end of the time.—29th: After the operation patient was sick four times between 1 a.m. and 5 a.m.; but she rallied rapidly and took nourishment in the form of Brand's essence and brandy-and-soda in small quantities all through the night. She had six minims of morphia subcutaneously, but had very little pain at all. At 5 a.m. her temperature was 99°2'. At this time the fecal matter came away from the artificial anus for the first time. At 4 p.m. she was quite comfortable, taking her nourishment well. Fæcal matter was coming away freely. Temperature 99°8'; pulse 95; tongue fairly moist. Eight ounces of urine drawn off at 10 a.m. She perspired a great deal, and was somewhat drowsy, but much relieved. The temperature rose to 100°8' during the night, and the patient was restless and in much pain; but she slept at intervals, though never for long. On the following morning she was evidently weaker. Pulse feeble

and respiration shallow and with some difficulty. Tongue red, dry, and sore; bowels were much relaxed in the night; perspiring freely. She became quiet and composed after the administration of five minims of morphia subcutaneously. Nutrient enemata were commenced and continued every four hours. They were composed of three ounces of beef-tea, the yolk of an egg, half a drachm of brandy, ten grains of pepsin, and three grains of pancreatin.

On July 1st the patient passed a comfortable night after injection of morphia; was stronger and breathing was easier. Complained chiefly of soreness of her tongue; ordered borax and honey. On the 2nd, as the nutrient enemata were returned, they were discontinued. Tongue clean, of raw ham appearance and fissured; soreness relieved by application. Free from pain, only complained of occasional faintness. No distension of the abdomen, though a good deal of tenderness. The wound looked well, and there was free discharge from the opening. Urine drawn off by catheter since the operation. Pulse 120, of fair strength. Is taking champagne, brandy, and beef-jelly. In the evening she became worse and frequently vomited, and only slept about an hour during the night; she was ordered half a grain of opium pill three times a day.—On the following morning a mixture containing carbonate of bismuth and dilute hydrocyanic acid was given three times a day; and as everything given by the mouth was rejected, the nutrient enemata were again tried, but were only retained about an hour and a half. There was less fecal discharge from the artificial anus, and the patient was decidedly weaker, and the temperature subnormal, 97°6'. There was no sickness after 10 p.m. Only a little iced brandy-and-water allowed by the mouth, and the enemata were continued. Temperature 99°2'. On the 6th she had a slight return of the sickness, and was allowed nothing more by the mouth; had slept fairly after injections of morphia. Temperature 97°4'; was without pain. Wound redressed; stitches removed; union not good; parts supported by strapping. On the 10th the tongue was still furred and rather glazed; she had vomited again; there was a free discharge from the artificial anus, and the patient appeared fairly well. Temperature 98°8'; pulse 120, stronger. Enemata every three hours; these were retained fairly. On the 14th, though she had slept fairly well, she was weaker and unable to retain the nutrient enemata. A little claret by the mouth was tried, but it caused vomiting. Small quantities of fecal matter passed from the wound. Pulse 120, weaker. Temperature 99°2'.—15th: Pulse 120; temperature 98°. Tongue dry and rather glazed. No vomiting. Slept in snatches, and her mind was not so clear as usual.—17th: Much weaker. Pulse 108, feeble. No pain. Nutrient enemata not retained longer than an hour. Temperature 96°2'.

On the 18th she had slept well, and was somewhat better, though the pulse was 120, and still feeble; had retained one enema, but only takes a little brandy and soda-water by the mouth. Temperature 96°4' to 98°.—19th: During the day there was increasing weakness, the evening temperature rose to 102°4', and she died soon after midnight. Before the operation the temperature varied from 97°4' to 99°2'. The evening temperature after operation was 98°6'. Next day it reached 100°8'; but did not again exceed 99°6' until the evening of the 19th, when, as before mentioned, it was 102°4'. The morning temperature was usually subnormal, and on one occasion was only 96°.

A post-mortem examination was made a few hours after death. There were a few adhesions at the apex of the right lung; thoracic organs other-

wise healthy; the kidneys and spleen normal; the liver small, friable, and adherent to the under surface of the diaphragm; gall-bladder much distended. The coils of intestine were slightly glued together; there was recent peritonitis. The artificial anus had been established in the small intestine twenty-nine inches from the ileo-cæcal valve; the gut above was quite patent and filled with bilious fluid fæces as far as the orifice made. The lower part of the ileum and the cæcum were matted together by glandular and inflammatory infiltration. The rectum was compressed and adherent to the posterior wall of the uterus and upper part of the vagina. On separating them a small abscess cavity containing about four ounces of pus was found. In Douglas's pouch were three or four papillary growths about the size of filberts. They were hard, nodular, and seemed to spring from the region of the left ovary and broad ligament. The position of the left ovary was occupied by a firm mass of fibrous cicatricial tissue from which grew one of the papillary growths.

SHEFFIELD PUBLIC HOSPITAL AND DISPENSARY.

NOTES ON A CASE OF IMPACTION OF A FOREIGN BODY IN THE AIR-PASSAGES; TRACHEOTOMY; RECOVERY.

(Under the care of Dr. KEELING.)

For the following notes we are indebted to Mr. G. F. Gubbin, house-surgeon.

W. P—, a boy, aged three years and a half, was brought to the hospital on Dec. 11th, 1882, by his mother, who said that whilst at school another boy had attempted to make her son swallow a bead.

On admission there was considerable dyspnoea, with cough and hoarseness, but a little while afterwards a marked remission of the symptoms occurred. Dr. Keeling performed laryngo-tracheotomy, but was unable to discover any obstructing body in the larynx; the lips of the wound in the trachea were separated, and the child was sent to bed. Examination of the chest made it quite evident that there was an obstruction to the entrance of air into the left lung. On Dec. 14th (the third day after the accident) a violent attack of coughing came on, accompanied by much dyspnoea, and it was supposed that the foreign body had become dislodged; consequently a pair of dressing forceps were introduced into the wound in the trachea in order to still further dilate it, and directly afterwards an expiratory effort expelled the foreign body through the wound. Slight inflammation at the root of the left lung followed, but this soon disappeared. The wound in the trachea healed readily, and the patient was discharged from the hospital on Jan. 1st, 1883. The foreign body proved to be a pear-shaped glass pendant, with a loop of brass wire attached to it, weighing fourteen grains; it was considered to be a portion of an earring.

GUY'S HOSPITAL.

THREE CASES OF COMPLICATED FRACTURE.

(Under the care of Mr. BRYANT.)

CASE 1. *Fracture of Tibia and Fibula; Division of Tendo Achillis to correct Displacement; Recovery with good Limb.* (Reported by Mr. Paliologus.)—Walter W—, aged twenty-five, was admitted on May 19th, 1881, into Accident ward. The patient, a plate-layer, was employed at his work relaying a sleeper, when a passing engine caught the end of the sleeper, drove it against his leg, and knocked him over.

On admission, there was a simple fracture of the tibia and fibula of the left leg about the middle of the lower third. The fracture was oblique in direction from above backwards and downwards. The leg was put up in a back and two side splints, and an ice-bag applied.

May 22nd: Lower fragment projecting forwards. Splints reapplied.—27th: Fragments still in bad position. Under chloroform, the tendo Achillis was divided and the bones brought into a better position, but the lower fragment still projected upwards and inwards. Wound sealed with tincture of benzoin.

June 8th: Fragments in good position. A pad of cotton-wool has been placed on the outer side of the upper fragment and inner side of the lower.

July 6th: Fragments in very good position, so that the line of fracture cannot be made out.—9th: Splints removed. A slight wound due to the pressure of the splints was found on the back of the calf, and the whole leg was a good deal swollen.—18th: Bavarian splint put on. Very good position.

CASE 2. *Fracture of Lower End of Humerus; Occlusion of Brachial Artery; Relieved.* (Reported by Mr. Winter.)—Jas. H—, aged fourteen, was admitted into Accident ward on July 13th, 1881. The boy was playing in a field with some other boys when he fell on his hand, the arm being outstretched. The fall caused him a good deal of pain, and soon afterwards he noticed a swelling and that his arm was becoming red. It was comparatively free from pain when at rest, but caused acute pain when moved.

On admission the elbow was very swollen and inflamed. There was no pulsation of the radial artery and the hand was cold. The arm was placed in a flexed position and kept so by sand-bags and an ice-bag was applied.

July 14th: A faint pulsation can be felt in the radial artery.—15th: The olecranon process can be felt to be displaced backwards. There is a good deal of swelling round the joint, and the skin is bluish over the injured part. The pulsation in the radial is still faint, but more distinct than yesterday. No pulsation can be felt in the swelling at the elbow.—18th: Swelling subsiding, some oedema of wrist.—19th: The internal condyle is quite distinct, and can be moved by grasping it.—22nd: No pulse to be felt in radial artery.—24th: The arm was flexed to a little more than a right angle and an internal angular splint applied.—26th: Discharged.

CASE 3. *Compound Subastragloid Dislocation inwards of Foot; Fracture of head of Astragalus; Removal of Head of Bone and Reduction; Recovery, with some Movement of Limb.* (Reported by Mr. Winter.) Michael C—, aged thirty-seven, a laborer, was admitted into Accident ward on Aug. 11th, 1881. The patient fell some ten or twelve feet upon his feet.

On admission there was considerable laceration on the outer side of the left ankle, through which the head of the astragalus projected, the whole of the foot beneath the bone having been displaced inwards. It was at first thought by some that the case was one of dislocation of the astragalus. The patient was taken immediately to the theatre, when the head of the astragalus was found to be crushed at one point, and reduction was impossible. Part of the head of the astragalus was therefore sawn off, and reduction effected. There was very little hemorrhage. The wound on the outer side of the ankle was about three or four inches long, with clean cut edges. These edges were brought together with two or three silver sutures. The joint was well washed out with

iodine lotion. A drainage-tube was put in and the foot was put upon a posterior splint. The wound was dressed with terebene and oil.

Aug. 14th: Parts round the wound are red, glazed, and cedematous.—17th: Had a slight attack of delirium tremens last night.—18th: Red blush around the wound diminished.—22nd: Redness decreased. The discharge is somewhat serous in character; there is no burrowing.—23rd: Redness disappearing; discharge healthy.—31st: There was some redness and tension above the external malleolus, as if there were some inflammation extending up the sheaths of the peronii muscles. An incision was made about half an inch above the external malleolus to relieve tension.

Sept. 7th: Wounds granulating; rather more discharge of pus.—20th: Wound enlarged to give vent to pus.

Oct. 5th: There is cedema extending to the upper half of the leg, and considerable swelling about the ankle-joint. The wound does not discharge, and has a healthy appearance.

Nov. 1st: Drainage-tube discarded.—2nd: There is great swelling of the ankle on inner side; the incision is healed, but in front and behind there is a rounded, soft, elastic swelling, like that seen in pulpy disease. A drainage-tube is inserted above the malleolus, and here there is some redness of the skin, and cedema extending half way up the leg.—9th: Much less swelling of the leg.—15th: Wounds are now quite healed up.—25th: A constant current was ordered on Oct. 15th to be applied to the left arm, as the patient had some wasting of the muscles due to some old injury. Under this treatment the muscles have increased in size, and the patient has more use of the limb.

Dec. 9th: A Bavarian splint was applied.—17th: Discharged.

QUEEN'S HOSPITAL, BIRMINGHAM.

NEPHROTOMY FOR RENAL CALCULUS; NO STONE FOUND;
RECOVERY; REMARKS.

(Under the care of Mr. JORDAN LLOYD.)

CATHERINE S—, aged twenty-nine years, married, was admitted on Dec. 19th, 1882. She dated her illness from an attack, ten years ago, characterized by the sudden onset of pain in the right loin of excruciating severity and attended with vomiting; this lasted for about a fortnight. Shortly after this she noticed that her urine smelt badly and contained a yellow deposit. This persisted at the time of admission. She came first under Mr. Lloyd's care in February, 1881, her chief symptoms being lumbar pain, increased by exertion, fetid urine, and frequent micturition. Under ether her bladder, uterus, and rectum were examined, but nothing wrong was found. She had no lumbar swelling. Her urine was acid and contained pus. The bladder was washed out with an injection of dilute nitric acid.

In January, 1882, she had an attack of pain of neuralgic character in the neighborhood of the right tuber ischii which lasted three months. On Dec. 10th Mr. Lloyd was asked to see her in consultation with Mr. Hugh Thomas, who was then her attendant. She complained of supra-pelvic pain and tenderness; frequent micturition, and the same lumbar pain as before. On examining the right loin something was felt to slip from under the fingers, she at the same time complaining of a sharp stabbing pain. The urine was fetid with a deposit of pus and ropy mucus.

On admission it was recorded that she was a healthy looking woman, and with the exception of her present illness had always been well. She complained of severe pains in the right loin, which

extended from the groin into the labium, and also down the back of the thigh; they were increased by exertion and prevented her walking any considerable distance. Her urine was faintly alkaline, sp. gr. 1014; it contained a small quantity of albumen and gave a reaction to the guaiacum blood test. There was a deposit of pinkish ropy mucus and pus. Microscopically triple phosphates, mucus, pus, and shrivelled blood-corpuscles were seen. She got thinner and all her symptoms slowly became worse.

Dec. 26th, 1882: Under ether Mr. Lloyd exposed the kidney through an oblique four-inch incision about three-quarters of an inch below the last rib. The centre of this incision lay a little behind Allingham's line for the colon, and was directly over the kidney. The gland was not fixed, but moved very freely up and down with respiration. It looked quite healthy at its lower half, which presented in the wound. No resistance could be felt in it. It was punctured in three places with an acupuncture needle, a gritty sensation attending the last insertion. The presence of a stone being doubtful, an excision was made through the kidney substance and the whole pelvis explored with the finger, but nothing was found. The hæmorrhage was small in amount and ceased spontaneously almost directly. A drainage-tube was inserted to the bottom of the wound and its lips brought together with silver sutures. There was not more than two ounces of blood lost throughout the operation, which was conducted on Listerian principles except that the lotions were more freely diluted.—27th: Passed a fair night, free from pain; was sick for several hours after the anæsthetic; has passed water containing hardly a trace of blood; wound dressed, the dressings being soaked with thick red fluid; no urea could be detected in the discharges. Evening temperature 103°; pulse 120; respiration 30.—28th: Dressed; she feels comfortable; menstrual flow came on to-day. Temperature at night 104°.—30th: Sutures removed, the wound being healed except at drain. There was a free watery discharge at first. Antiseptics were discontinued until Jan. 22nd, 1883, and two days later she left the hospital, having experienced none of her old pains since the operation. Urine: reaction neutral; sp. gr. 1010; trace of albumen; a few pus and mucous corpuscles and crystals of triple phosphates; there was a slightly fetid odor.

On March 8th, 1883, Mr. Hugh Thomas wrote that his patient was going about her work as usual and has had no return of the painful symptoms, but that her urine continues rather unpleasant.

Remarks by Mr. JORDAN LLOYD.—Since no stone was found in this case I am at a loss to account for the patient's symptoms. That she has a lesion attended by the discharge of pus into her urinary tract there can be no doubt. The chronicity of the pyuria, with the character of the pain, shooting from the loin into the labium and down the thigh, the exaggeration after exertion, the pain on pressure over the right kidney, and the trace of blood in the urine, together led me, so it has turned out, into a wrong diagnosis. I digitally examined the whole surface of the bladder for ulcer, stone and fistulous opening, on two different occasions and found nothing. The rectum and uterus gave negative results to the most elaborate and careful investigation. The at times intensely fetid urine suggested a possible communication between the intestinal and urinary tracts at some part of their course. There has not been the slightest traces of fæces or gas, however, in the urine. Whatever her disease is, I feel sure it is situated somewhere between the bladder and the kidney substance, and is out of the reach of surgical investigation. It is curious that the operation appears, up to the

present, to have relieved her painful symptoms. Similar effects have been previously reported. I have within the last three months assisted at three other kidney operations—a nephrotomy, a nephrolithotomy, and a nephrectomy, and have been struck by certain facts common to all of them. First, the reliability of Allingham's line as a guide to the gland. Secondly, the distinctness of a layer of fascia which is found really in the kidney fat, lying deeper than the well-known layer which passes in front of the quadratus lumborum muscle. It may easily be mistaken for peritoneum. Thirdly, the mobility of the gland during respiration. Fourthly, the rapid cessation of hæmorrhage from the wounded viscus. In my own case also I was struck by the distinctness with which I could recognize the entrance of the needle into the cavity of the pelvis of the kidney, and in both nephrectomies I was surprised by the almost entire absence of blood from the urine passed after the operation. The conclusions I have arrived at with this personal experience, which is strengthened by the published cases of others, is that these operations are not only justifiable, but are fairly simple and tolerably safe, and that kidney surgery is for the future an established fact.

CLAYTON HOSPITAL, WAKEFIELD.

CASE OF OCCLUSION OF THE VAGINA FOLLOWING PARTURITION, CAUSING RETENTION OF MENSES; EVACUATION; CURE.

(Under the care of Dr. HOLDSWORTH.)

FOR the notes of the following case we are indebted to Mr. D'Arcy B. Carter, resident surgeon.

Alice H—, married, aged twenty-five, presented herself for examination in the out-patients' room on April 5th, 1881, with the following history:—Nine months ago she was confined of her first child; the labour lasted thirty-six hours, and was a very tedious one, forceps not being used; the child was full term and still-born. Catamenia quite regular up to the commencement of pregnancy, but have never reappeared. There was no dyspareunia before pregnancy, but since her confinement she has been unable to live with her husband. A month after her confinement, at the time corresponding with her menstrual period, she felt very sick and had pains in her back and down her legs, which lasted five or six days, but she did not see any menstrual fluid. These symptoms have reappeared every month at the time corresponding with her former menstrual period, but have gradually got more severe each time.

She was admitted on April 14th, 1881, about the time corresponding with her menstrual period. It was noted:—She is a well-developed but anæmic-looking woman. The breasts are well formed, and there is abundance of hair both in the axillæ and on the vulva. On examination per vaginam an obstruction can be felt at about the lower third of the vaginal canal, completely obliterating the external orifice; the obstruction is tense and elastic, and is continuous with the walls of the vagina. On examination per rectum an elastic swelling can be felt anteriorly, partially blocking up the canal. She has had no difficulty with her water, but has had difficulty in keeping her bowels regularly open. The catheter was passed, and about two ounces of normal urine drawn off. On the evening of admission the swelling was punctured with a No. 2 trocar and cannula, which immediately allowed to escape a dark treacley, grumous-looking fluid; a vessel was placed under the cannula, and the fluid allowed to escape gradually.—15th, 9 A.M.: About fourteen ounces of fluid have

escaped during the night, and she feels more comfortable; temperature 98.4° F. 4 P.M.: About three ounces more of the fluid have escaped during the day. It was now decided to enlarge the opening a little. A probe having been passed through the cannula, which was then withdrawn, a hollow sea-tangle tent was then passed over the probe as it was drawn out. The tent was then secured outside the vagina to prevent its passing through into the vagina on the inner side of the obstruction.—16th, 9 A.M.: The tent removed, and a larger sized one replaced. There has been a little discharge through and by the side of the tent during the night; temperature normal. 7 P.M.: There is still a small quantity of fluid escaping. The tent was removed and replaced by one a size larger. She has no feeling of sickness or headache; temperature 101° F. The discharge not offensive.—17th, 9 A.M.: The tent removed. There is now an opening large enough to admit the finger. The obstruction seems to occupy the whole of the middle third of the vagina, and is firmer at the external orifice, having an inclination to readily break down internal orifice. Temperature 100°; no nausea or headache. To be syringed out every four hours with Condy's fluid and warm water by means of a Higginson's enema syringe and a long tube passed through the obstruction.—18th: There is very little discharge; injections to be continued; temperature 98.4°.—19th: The obstruction was notched on both sides with a curved probe-pointed bistoury, and an ordinary-sized rectal bougie passed, which was to be passed daily. Temperature normal.—24th: The bougie does not cause much pain, so ordered to be increased in size. On digital examination, the os uteri feels soft and open.—30th: Two fingers can now be readily passed through the obstruction.

May 7th: Discharged with instructions to take precautions that the obstruction is not allowed to grow up again.

September 7th: She presented herself at the out-patients' department, and says she feels a new woman altogether. Has menstruated three times since she left the hospital; has no dyspareunia.

November 21st, 1882: She again appeared in the out-patient room carrying a child of which she had been delivered two months previously.

ST. BARTHOLOMEW'S HOSPITAL.

A CASE OF CYSTICERCUS IN THE EYE.

(Under the care of Mr. BOWATER VERNON.)

FOR the following notes we are indebted to Dr. W. J. Collins, ophthalmic house-surgeon.

A. F. R—, aged six, a fair-haired, blue-eyed child, the daughter of a laborer living at Holloway, was recently seen at the hospital. The following notes were taken:—She has been suffering, according to the mother's account, from severe headache and night screaming for the last six months, and it has been noticed that the child squinted with the right eye, and has been in the habit of rubbing or covering that eye with her hand. Has not had any fits. The external appearance of the eyes is normal, with the exception of slight external strabismus of the right eye, but she can fix an object with either eye. The media are clear, the tension normal; the vision of the left eye = 5-5, of the right 5-50. On examination with the ophthalmoscope a brilliant white reflex from the posterior pole of the right eye is at once discerned, and on closer examination a sharply defined subglobular mass, about six or seven times the size of the optic disc, is made out, set in the fundus to the outer side of the disc, but projecting into the vitreous and overlapping and obscuring the inner third of

the area of the optic papilla. The outline of the mass is more or less circular everywhere, except at the upper and outer part, where it is rectangular. Along the outer and lower border is seen a crescentic area of a greenish-grey color, but shading off into healthy fundus, and over which small vessels run, and then dip down to pass beneath the white mass, under and through which a very tortuous artery can be seen. Again, at the lower and inner part the retina is raised and detached over a small area of hemispherical shape, as if stretched over some subjacent mass. The optic disc is in a state of intense hyperæmia with effusion, and exhibits a striated woolly appearance; while its vessels are large and tortuous, and in parts buried by the effusion and proliferated fibres through which they run. The diameter of the cystic mass is estimated at nine or ten millimetres, and it is in a plane anterior to the retinal vessels. Nothing, certainly, resembling a head, hooklets, or suckers can be made out, and no spontaneous movements have been observed during any of the many examinations which have been made of it. The remainder of the fundus is healthy, with the exception of two or three hyaline, streaky, and slightly pigmented patches in the choroid. The fundus of the left eye is natural. The child has suffered from threadworms, but there is no history of tapeworm, and a dose of male fern failed to bring any away. The girl has no special predilection for pork, but has partaken of it at various times.

Remarks by Mr. VERNON.—There is not much room for doubt as to the diagnosis, although the movements of the cyst, or the display of the creature's head, which have been relied upon in the previously recorded cases were wanting to make it perfectly clear. No movements were noticed, although the child has been for some weeks under close observation, and the only indication of a head was afforded by a portion of the cyst being more opaque than the rest. Neither could the exact relation of the cyst with the retina be determined; no vessels could be traced upon its surface, although one retinal vessel could be seen through the transparent portion of the projecting vesicles. The general aspect, however, gives one the impression of extensive adhesion to the coats of the fundus. The history of nearly all the cases on record warrants the conclusion that sooner or later this child will lose her eye. The parasite as it grows and shifts its position is likely to excite more or less irritation, soon to be followed by choroidal changes and disorganization of the vitreous humor, entailing the loss of the globe. Vision would probably be destroyed at an early stage, and even the safety of the other eye threatened; so that all treatment should be directed to the removal of the cysticercus by an operation. In cases where the animal has been situated in the anterior portion of the eye or was visible within the pupil, so that it could be reached from the front, the method of operating was tolerably clear; but when it is situated in the fundus as well as firmly attached there, the steps of an operation are not so clear or so well laid down. In more than one case on record a cysticercus has been removed through an opening far back in the sclera. Of the remarkable instance published by Liebreich as occurring in his own practice, unfortunately all details are wanting. In von Graefe's cases (and the great oculist's experience appears to be altogether exceptional), the results were such that he laid down rules for guidance in the future, indicating his opinion that the extraction should be attempted through an enlarged pupil subsequently to the removal of the lens. In all the recorded cases where an operation was performed, the diagnosis of the case admitted of no doubt whatever;

the parasite could be seen to project considerably, and to move within the vitreous chamber; and in nearly all of them there was considerable pain and irritation. In the case of this child, not one of the indications for interference is present, and the operation of making an incision of some extent in the sclerotic, followed by the introduction of forceps or hook, even if the cyst were grasped and removed, would in itself be so full of danger to the eyeball that it should not be attempted save in the last extremity. Probably the time will come when such a proceeding would be indicated, but at the present moment it does not appear to me justifiable. At a later stage there may be a more promising prospect for an operation; but if the eye should become painful, and the safety of the other eye be threatened, it is open to question whether the better plan would not be the enucleation of the entire globe.

LEEDS GENERAL INFIRMARY.

CASES OF CHOREA; VIOLENT MOVEMENTS; TREATMENT WITH LARGE DOSES OF SUCCUS CONII.

(Under the care of Drs. CLIFFORD ALLBUTT, EDDISON, and CHURTON.)

FOR the following notes we are indebted to Mr. J. F. W. Silk, house-physician.

CASE 1. (Under the care of Dr. Clifford Allbutt; from the notes of Dr. A. G. Barrs, late house-physician.)—Joseph W., aged sixteen, admitted on Feb. 15th, 1882. Has had acute rheumatism four times, each attack being followed by chorea. The last attack of acute rheumatism was in December, 1881, and the present choreic condition is of three weeks' duration. The patient is a well-grown, well-nourished lad, the subject of movements of a typically choreic character, affecting the limbs and face, and not more marked on one side of the body than the other.—21st: Has been getting rapidly worse; the movements are now most violent; he cannot be kept in bed; the skin over the bony prominences is becoming chafed; there is slight lividity of the lips; much emotional disturbance, and he has to be fed with nutrient suppositories.

March 1st: Since the administration of the conium on the 21st a steady and uninterrupted amelioration of the condition has set in, but the emotional character continued.

April 25th: Discharged, vastly improved in every respect; the movements, except on excitement, only slight, but he is easily excited. The heart sounds throughout have remained clear.

Between February 15th and 20th the solution of arsenic was prescribed, increased up to thirteen minims every four hours, and, in addition, on the 19th, chloral hydrate (fifteen grains) three times during the day. On February 20th, between 9.30 A.M. and 11.45 P.M. four doses of one-third of a grain of morphia were injected hypodermically. He was somewhat quieter after each of these and subsequent injections, but the improvement was only transitory. On February 21st, between 3 A.M. and 9 P.M., two doses of one-third of a grain of morphia and two of half a grain were exhibited. At 11 A.M. he commenced taking half an ounce of the succus conii every three hours. On the 22nd, between 5.30 A.M. and 9 P.M., three injections of half a grain of morphia were given. The hemlock was continued in the same dose, half an ounce, throughout the day, and was discontinued on the morning of February 23rd. From February 28th to April 20th he took the solution of arsenic up to twelve minims three times a day. This lad was readmitted with a return of the chorea on January 15th 1883, but it was of a much milder type and yielded to ten minim doses of solution of arsenic.

CASE 2. (Under the care of Dr. Eddison; from the notes of Mr. J. H. Naylor, medical assistant.)—Sarah G—, aged nineteen, a servant, admitted Feb. 23rd, 1883, had rheumatic fever six years ago, and again two years ago. After the first attack she had severe general chorea, from which she has never since been entirely free, but which has been more marked during the last month, probably on account of exposure and want of food. The patient was an anæmic, ill-nourished girl. Choreic movements very violent, affecting the arms, legs, face, and body universally. Speech blurred and indistinct; peculiar spasmodic guttural sounds, uttered involuntarily every few minutes. Loud blowing systolic bruit heard over apex of heart, and conducted towards the axilla. Other heart-sounds normal. Amenorrhœa for two months.

March 4th: The patient is getting much more violent; clothes cannot be kept on her bed; she is constantly springing up with an expression of abject terror; has hallucinations about her sister; is fed with difficulty; and sleeps only a few minutes at a time. At 5 p.m., 10.30 p.m., and 2 a.m. of the 5th, one-sixth of a grain of morphia was injected hypodermically, but improvement only slight and transitory.—5th: She commenced taking succus conii in doses of one drachm every hour. After the fourth dose, as no improvement was noticed, it was increased to two drachms, and twenty grains of bromide of potassium added, to be taken every two hours. Some slight improvement followed, and she slept for some few hours at a time; but the movements were still very violent.—8th: At 12.30 p.m., half an ounce of succus conii was given by itself; she fell asleep almost immediately, and slept well and quietly until 6.30 p.m., when the dose was repeated, and she fell asleep again until 5.30 a.m. the following morning. No toxic symptoms were observed, and the drug was continued at intervals until 12.30 p.m. on March 10th; a dose being given whenever the movements showed the slightest tendency to become violent. In all she took six doses of half an ounce each between 12.30 p.m. March 7th and 12.30 p.m. March 10th, when solution of arsenic was substituted.—16th: Movements becoming violent again, half ounce doses of conium every four hours.—24th: In the evening very noisy; movements violent; hallucinations. Conium to be given every two instead of every four hours; immediate improvement.

April 10th: Movements hardly perceptible; has been taking conium (half an ounce) three times a day since March 29th, and is going out in the course of a day or two. Is now menstruating.

CASE 3. (Under the care of Dr. Churton; from the notes of Mr. J. H. Naylor, medical assistant.)—Emily W—, aged twenty-two, weaver, admitted March 9th, 1883. No history of acute rheumatism or other severe illness, and there is no discoverable cause for the present condition. Choreic movements commenced in her left hand at the age of eight, and rapidly extended to the whole of her left side. Between the ages of eight and twenty the chorea was confined to the left side, she was never quite free, but the movements increased during the summer and became much less during the winter months. From the age of twenty until the commencement of the present attack a fortnight ago has been quite free from spasmodic twitchings of any kind. Can think of no determining cause for the present attack, but she knows, and has associated with, Case 2. Is a robust and well-nourished girl of powerful but coarse build. Choreic movements, well marked and universal, of about the same intensity as in Case 2. Muscles of speech and deglutition likewise affected; there is also some reddening and slight excoriation of the

skin over the bony prominences. Heart sounds, menstrual, and other functions, normal.

March 13th: Movements more violent. Succus conii, one drachm, every hour for four doses, then increased to two drachms, twenty grains of bromide of potassium added, and given every four hours.—17th: No improvement, if anything worse. Since midday of 15th has been taking two drachms of conium by itself every two hours, fourteen doses in all. At 9.30 a.m. dose increased to half an ounce every four hours, and at 10 p.m. every two hours. After the dose at midnight she slept well, and on the following morning the movements had been greatly reduced. The drug was given every two hours during the day (18th), and by the evening the movements were hardly appreciable. The improvement was most marked.

April 3rd: Took conium every two hours during the daytime until March 25th, when it was taken every four hours; and the 27th reduced to three times a day, and this morning iron and arsenic were substituted. No toxic effects were ever noticed.—10th: Seen as an out-patient, there is hardly a vestige of any choreic movement left.

Remarks.—These are good examples of the class of cases occasionally met with, in which the choreic movements become so violent as to endanger life. Their chief interest, however, centres upon the use of succus conii, these cases seem to show: 1. That the drug, to be of any service, must be given in large doses. 2. That its action must be sustained by frequent repetitions of the dose at short intervals. The uncertainty of the action of given specimens of succus conii necessitates great care in its administration, and militates against its general adoption. But cases in which neither chloral nor morphia have any effect may arise, and in which, as in the above, succus conii may prove efficacious.

ABERDEEN GENERAL DISPENSARY.

EXTERNAL HÆMORRHOIDS IN A NEW-BORN CHILD.

(Under the care of Dr. FRANCIS OGSTON, junior, and Mr. GEORGE VINCENT.)

At the beginning of February a child three days old was taken to the dispensary by its mother, who stated that she had noticed the child cried very much when its bowels were moved, and that it had a red projecting tumour at the anus.

On examination a bright-scarlet tongue-shaped tumour was seen to spring from the point of union of the mucous membrane of the anus with the skin. It was situated at the left side. At the front part of the anal border a second flatter tumour of the size of a split pea was also found. After a few days' treatment with boracic acid ointment the inflammatory redness had in a great measure subsided, and the larger tongue-like tumour had now changed into a club-shaped unmistakable hæmorrhoid with a narrow pedicle; and the second flatter projection had greatly diminished. A day or two afterwards the larger tumour was removed by surrounding the pedicle with a loop of thread.

Note by Dr. OGSTON.—The earliest case of hæmorrhoids which I can find record of occurred in a child of four months of age, but this seems to have been existent at birth or a few hours after it. It is difficult to account for such a phenomenon thus early in life, for the bowels had all along been moved freely and the stools were of normal color and consistence, a fact which was verified by the bowels being moved while I was examining the child. The icterus neonatorum had never been present. The liver seemed on palpation of normal

size; and the umbilicus cicatrized in a healthy manner. Thus none of the usually given predisposing causes of hæmorrhoids—portal congestion, liver disease, and overloading the rectum with hard feces—were present. The labour, the sixth, had been a perfectly normal one, with head presentation.

PETERSFIELD COTTAGE HOSPITAL.

CASE OF POPLITEAL ANEURISM; FAILURE OF COMPRESSION; ESMARCH'S BANDAGE AND GENUFLEXION; LIGATION OF FEMORAL ARTERY; RECOVERY.

(Under the care of Dr. A. W. LEACHMAN.)

G. A.—, aged thirty-eight, a farm laborer, was admitted on June 3rd, 1882, complaining of pain in the left leg and a swelling behind the knee. His family history was good; he had enjoyed excellent health, had never had syphilis, gout or rheumatism, but had drunk beer freely. Nine or ten weeks ago he was helping to lift a cart wheel out of a rut, when he felt a sudden pain in the calf of the left leg. This passed off in a few days, but two or three weeks afterwards he noticed a swelling behind the left knee which gradually increased in size, and ten days before his admission he was obliged to give up work on account of the pain and swelling of the limb.

On admission a tumour, about the size of a hen's egg, was felt in the left popliteal space with very visible pulsation, and communicating to the hand a rasping thrill. With the stethoscope a rough systolic bruit was heard. The veins over the tumour were swollen, and the leg and foot œdematous. The leg could not be completely flexed or extended. The posterior tibial artery could not be felt at the ankle. Compression of the femoral artery at Poupart's ligament stopped the pulsation in the tumour. The circumference of the sound limb at the knee was 13½ inches, of the affected leg 15 inches. The patient had great pain in the knee, had little appetite, and slept badly. The urine was free from albumen. Perfect rest in bed was enjoined, and iodide of potassium in tengerain doses three times a day, and a diet limited to twelve ounces of solid and half a pint of liquid daily were ordered.

June 18th.—An attempt at genuflexion causing such tension in the aneurism as to threaten rupture, compression of the femoral artery in Scarpa's triangle was kept up by Signoroni's tourniquet and by the fingers alternately for ten hours. The pain caused by this treatment was so severe that chloroform was administered during the last two hours and a half. On discontinuing pressure pulsation returned in the aneurism but in a less degree. Next day Esmarch's bandage was applied tightly from the toes to the lower border of the aneurism, then across the patella to its upper border, whence it was carried for a distance of two-thirds of the length of the thigh, the elastic ligature was then tightly fixed round the thigh, and the bandage removed, the limb being enveloped in cotton-wool and flannel. The ligature was kept on for two hours and a quarter, the patient being under chloroform. Before removing the ligature a compressor was applied to the femoral above it with a few readjustments (during which digital compression was kept up) and retained there for seven hours. On removing the tourniquet pulsation returned in the tumour, which, however, was smaller, felt more solid, and on auscultation communicated a less rough bruit to the ear. After this date compression was kept up by the patient himself. This was effected either by a (5 lb.) shot bag, by Signoroni's tourniquet, or

by the fingers, the methods being varied according to the patient's inclination. After a week of this treatment the aneurism became smaller and more solid and its impulse less heaving. The œdema of the leg subsided and the patient was free from pain. Compression was now supplemented by genuflexion at night, the leg being now capable of being bent to such an angle as to arrest pulsation in the tumour.

On Sept. 25th the aneurism seemed almost cured, pulsation being at times scarcely perceptible. The collateral circulation was well established. The articular arteries could be distinctly felt pulsating.

On Nov. 17th, on consultation with Messrs. Cross and Ticehurst, it was decided to tie the artery, prolonged compression having failed to effect a cure. This Dr. Leachman did on the 20th. The patient being under ether the femoral was tied at the apex of Scarpa's triangle with carbolic catgut, the wound sponged with carbolic lotion, and the edges brought together with silver wire sutures. No other antiseptic precautions were adopted. After the operation the temperature rose above the normal on one occasion only; otherwise it remained subnormal for some days. Slight pulsation was felt in the aneurism on the 25th; but it gradually ceased, and on the 30th the wound was healed without any previous suppuration.

On Jan. 6th, 1883, the patient was discharged well, and went to work.

Remarks by Dr. LEACHMAN.—In this case compression was continued for an unusually long period. Successful cases of even more lengthened compression (eight months), quoted by Holmes, seemed, however, to warrant a prolonged trial of this treatment before subjecting the patient to the risks of Hunter's operation; and I believe that the long-continued compression, by giving time for the thorough establishment of the collateral circulation, reduced to a minimum the principal danger of the operation—gangrene. The rapid healing of the wound without suppuration in the absence of antiseptic precautions is also noteworthy.

GUY'S HOSPITAL LYING-IN CHARITY.

CASE OF DOUBLE CONGENITAL HYDROCELE; SUPPURATION; DEATH.

For the following notes we are indebted to Mr. H. Poole Berry, M.R.C.S., senior resident obstetric assistant.

B. M.—, a primipara, had been in labour thirty-six hours, and had become exhausted. On the evening of March 2nd bow-forceps were applied by Mr. H. T. Sells, the junior resident obstetric assistant. She was then quickly delivered of a well-developed male child. Nothing unusual was observed in the condition of the child's scrotum. On March 10th the mother died of exhaustion, following an attack of puerperal mania. On the same day the attention of Mr. Miller (extern obstetric attendant) was drawn to the condition of the scrotum of the child, which was red and swollen. Hot fomentations were applied. On the following day, at noon, the child, then nine days old, was brought to the hospital. It was stated that it had not passed any urine since 5 A.M. on the previous day. The whole of the scrotum was much swollen, red, glistening, and somewhat tense. The possibility of extravasation of urine at once presented itself; but the fact of the inflammation being strictly confined to the scrotum, neither the penis, perineum, nor abdomen being in the least degree affected, seemed strongly to negative this view. As phimosis existed the prepuce was stretched with dressing forceps, and poultices were ordered to be applied over the pubes. In-

structions were given to the nurse that the child should be brought to the hospital again in the evening if no urine had passed. At 9.30 p.m. the child was again brought, in much the same condition, but looking pinched and ill. It had been very fretful, but was now quieter. The inflammation was strictly limited as before, but was more intense in character, the whole scrotum looking more angry, giving the impression that sloughing might soon supervene. A No. 1 gum-elastic catheter was passed, and about two drachms of urine were drawn off. The child was taken home, and about ten minutes afterwards died.

A post-mortem examination was granted by the father, and was made the following afternoon (March 12th). The bladder was found to be empty, and the urethra normal. On cutting into the scrotum nothing abnormal was noticed until the serous membrane, on the left side, was incised, when pus freely escaped. In this cavity the testicle lay bare, and from it a probe passed freely into the peritoneal cavity. The peritoneal opening was distinctly perceptible to the finger, examining through an incision made through the abdominal wall, but was not sufficiently patent to admit its tip. The same condition existed on the right side. There was no diffuse peritonitis existing, though possibly some early peritonitis may have been present around the immediate neighborhood of the rings. This was not certainly ascertained, as small an incision as possible having been purposely made into the abdominal cavity.

Remarks.—It seems possible that in somewhat analogous cases, where no post-mortem has been made, a similar condition may have existed, and that death may have been assigned to erysipelas, or to some other more or less superficial inflammation of the scrotum, the ante-mortem appearances in this case being certainly to some extent calculated to support such a view. A somewhat similar case has occurred recently at this hospital in which the inflammation being not so strictly limited, the idea of extravasation of urine was entertained, when, post mortem, a condition similar to that just described was found to exist.

SHEPPEY UNION INFIRMARY.

CASE OF ATTEMPTED SUICIDE BY CUTTING THE THROAT; ASPHYXIAL ATTACK; RECOVERY; REMARKS.

(Under the care of Mr. GEORGE BLAND.)

On January 17th last a negro named B— was discovered almost insensible in a garret in his house at Sheerness, with a large gash across his throat, and his wife, a white woman, in a room downstairs partly burnt, with her head and face battered about, and her windpipe, right common carotid artery, and internal jugular vein completely severed. Her son, by a former husband, stated B— had attacked him also and inflicted several wounds, one penetrating the upper and anterior part of the left lung. He was seen by Dr. Arrol, who recommended his removal and accompanied him to the infirmary.

On admission he was in a state of extreme prostration. A large wound extended across the throat, higher and deeper on the left than on the right side. It severed the larynx, slicing off the anterior part of the cricoid cartilage and lower portion of the left side of the thyroid, penetrating backwards into the pharynx. The edges of the opening into the latter were much retracted, and would easily have permitted the passage of a good-sized plum. Hæmorrhage having ceased, stimulants and nourishment were administered by

means of the stomach-pump. There was some difficulty at first in introducing the tube, for, owing to the altered position of the parts, the point of it impinged on the severed edges of the œsophagus. This was overcome by introducing the finger into the pharynx through the wound, feeling through the top of the œsophagus and so guiding the tube into it. The finger could readily be passed behind the thyroid cartilage and under the tip of the epiglottis, which could be distinctly felt flapping up and down, sometimes even it could be seen when the head was thrown well backwards and one looked up into the wound. After a couple of days the secretions increased greatly, large quantities of glairy ropy mucus and saliva giving considerable trouble. So tough was this mixture that it had to be extracted by winding it round the head of a small mop like a cable round a windlass. No air entered the mouth, breathing being carried on through the external wound. The hyoid bone, thyroid cartilage, etc., were drawn up beneath the root of the tongue, causing the wound to gape immensely.

On Jan. 19th, about ten minutes after the patient had been fed, his head fell forward and he became convulsed and gasped. Mr. Bland was standing a few yards off, and as he got to B—'s side he gave another struggle and an abortive gasp or two, a look of intense agony passing over his face, after which he collapsed and lay back apparently dead. No pulse could be detected at the wrist. As a forlorn hope, Mr. Bland threw back the man's head and passed the tip of a finger into the windpipe, pressing outwards, while with the other hand he pressed the ribs, as in artificial respiration. A very faint attempt at inspiration followed. A teaspoon being close at hand, the handle was inserted into the trachea, and the breathing began to improve, though still very slow and faint. A couple of hairpins were bent to a right angle, passed one at either side of the trachea, and used as retractors. In two or three minutes breathing was re-established. The severed cricoid cartilage had collapsed, while the divided edge of the left cricothyroid muscle got tilted over and acted as a valve. This was subsequently snipped off.

Nothing particular occurred for some days, when Mr. Bland was hurriedly summoned to the patient. He was breathing with great difficulty, a large quantity of mucus having got into the air-passages was gurgling to the top of the trachea at each expiration and then being sucked down again. The opening was too large to favor its expulsion. The insertion of a tracheotomy tube at once had the desired effect, the constriction of the opening concentrated the expulsive force, just as a choke-bore gun barrel does, and he shot out an immense quantity of stuff through the tube, upon extracting which the trachea was found quite clear. An important point in treatment had now to be decided upon. The wound in the laryngo-pharyngeal septum was still very large, and presented no prospect of closing—that is to say, though the edges appeared to be healing a large opening would remain; in short, it would heal as a pierced ear does. For all practical purposes the larynx was destroyed, and even were it possible for it partially to unite in front, the epiglottis as a safeguard would be next to useless, as air and mucus, and perhaps food eventually, would come down the pharynx and enter the trachea through the fistula already described. Besides this, inside the wound there was great cedema, large portions of mucous membrane being raised up and looking, and feeling to the touch, like hæmorrhoids. It was decided to retain the tube and not permit the external wound to heal, for it was felt had this been attempted, asphyxia, either instantaneous or gradual, would

result before long. After about a month the man was able to swallow solid food perfectly and liquids partially. Even at this length of time it was easy to see a piece of bread pass down; it would stop for a moment at the fistula, and then suddenly disappear.

Remarks by Mr. BLAND.—This is a good example of the chief dangers in cases of cut-throat after the first shock is over. These are chiefly due to oedema and mucus trickling into the trachea, slowly asphyxiating an exhausted patient. Should difficulty of breathing arise from the former, I do not think there can be any second opinion as to propriety of performing tracheotomy; let the second be overcome, and scarcely any case need be regarded as hopeless, no matter how severe it may appear at first, provided the surgeon is prepared to give it plenty of attention. He must visit it frequently, and administer food and stimulants with the stomach-pump two or three times daily, seeing at every visit the wound is kept clean. As no two wounds are exactly alike, the detailed treatment of each must be regulated by circumstances, but I think it may be safely laid down that the old plan, not to sew up a penetrating wound, is perfectly sound, and that this plan of treatment may be carried further, especially in the early stages, and no attempt made to close the wound by keeping the head forward. The shock causes partial paralysis of the muscles of the throat, which is not recovered from for several days, and may permit the entrance of mucus into the passages. Food can only get there by neglect, as the use of the stomach-pump can always prevent this. Enemata will probably have to be frequently administered. In the above case so sluggish were the bowels that he never had a motion for over a month without one. Attention, of course, must be paid to the general treatment; but I think the chief points have been already indicated. Five weeks after the injury the external wound was somewhat larger in area than a shilling, while the opening in the laryngo-pharyngeal septum still existed. On Feb. 24th he was committed for trial, and I accompanied him to Maidstone gaol, handing him over to the charge of the prison surgeon. The tracheotomy tube was still in use, as I had not modified my opinion as to the propriety of not permitting the external wound to close. Most probably we shall hear of him again, as, in the event of his being convicted and sentenced to death, the question must arise as to the humanity of executing a man in his condition.

CARDIFF INFIRMARY.

VERTICAL DISLOCATION OF PATELLA.

(Under the care of Dr. VACHELL.)

For the following notes we are indebted to Mr. P. Rhys Griffiths, M.B., B.S. Lond., house-surgeon:—

Michael E—, aged thirty-one, a laborer of strong build, was admitted into the infirmary on the night of Feb. 13th, 1883. He said that when assisting some men to push a trolley his legs were jammed between the trolley and a long iron bar called "The David." The pain he experienced was intense—he described it as "wrenching." After the accident he was unable to move.

On examination the left leg was found to be fully and forcibly extended, and the dislocation of the patella was evident. The patella had been rotated on its vertical axis, the convex anterior surface was directed forwards, inwards, and slightly upwards. The outer slightly concave half of the posterior surface of the patella was plainly seen and easily

felt, the skin being very tense. The right border of the patella rested apparently in the small depression immediately above the inter-condylar groove. To the inner side of this border immediately there was a well-marked depression, in which the ridge to the inner side of the articular surface of the internal condyle of the femur, as well as a part of the smooth condylar surface, could be felt; a portion of the external condylar surface was also felt. The tendon of the quadriceps extensor was very tense, and could be plainly seen as two strong bands. The patella was slightly movable on the right border as axis. Attempted flexion of the limb was accompanied by acute pain. The patient complained of pain only over the inner side of the knee-joint.

The patient was put under the influence of ether, and as soon as the quadriceps muscle relaxed, with a very little lateral pressure on the margins of the bone the dislocation was easily reduced by Dr. Vachell.

Remarks—This is about the twentieth case which has been placed on record. As a rule, these dislocations are caused by muscular spasm; in this case there can be no doubt that it was caused by the pressure of the iron bar directly upon the patella itself, the spasm of the quadriceps retaining it in its abnormal position. The reduction, which in many cases has been most difficult, was in this very easily effected. After the reduction a back splint was put on, and this on the following morning was replaced by a plaster case.

EYE INFIRMARY, GLASGOW.

REMOVAL OF EYELASH FROM ANTERIOR CHAMBER FOUR WEEKS AFTER INJURY, RESULTING IN GOOD VISION.

(Under the care of Dr. CRAWFORD RENTON.)

J. D—, aged thirty, gamekeeper, was admitted on Oct. 18th, 1881. He was suffering from an injury to his right eye, caused by the splintering of a percussion-cap two weeks previously. On examination, a slight abrasion of the cornea was observed; the iris was irregular, and across the lower and inner side of the pupil a minute foreign body seemed to be lying, but owing to the presence of iritis, it was difficult to be certain that it was not pigment or lymph. Fomentations and atropine solutions were recommended to soothe the pain and subdue the iritis. On Oct. 28th the eye was quiet, the pupil had yielded, and it was now more apparent that a foreign body was present, and that it was either a very fine splinter of the cap, or, as the resident surgeon, Dr. Hunter, suggested, an eyelash.

On Nov. 2nd Dr. Renton made an incision through the lower and outer aspect of the cornea, and removed with a fine pair of forceps the foreign body, which proved to be an eyelash.—18th: Pupil did not yield freely after the operation, but it gradually improved, and the patient was dismissed with good vision.

Jan. 6th, 1883.—The patient is reported as having found his eye as useful as formerly during the whole shooting season, and no trace is left of the inflammatory attack or ill effects from the injury.

INSPECTOR GEN. ALEX. DAVIDSON, M.D., who died at Cheltenham on March 31st, was one of the oldest members of the Royal College of Surgeons. He was born in 1796, and was admitted a member of the College in September, 1818. He entered the East India Company's Service as assistant-surgeon in 1819, and had seen a great deal of active service.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Occlusion of Vessels by Oil.—Adeno-Sarcoma of Testicle and Abdominal Viscera.—Sarcomatous Ulcers of Back.—Hypertrophy of Limbs.

THE ordinary meeting of this Society was held April 17th, Mr. Arthur Durham, Vice-President, in the chair. The material which the Society had to deal with was greatly in excess of the time at its disposal. Many card specimens of interest were exhibited. The chief part of the evening was taken up with the reading and discussion of some cases of tumours of doubtful affinities.

Dr. Wilks introduced Dr. Handfield Jones with the view of permitting the latter gentleman to bring forward some interesting microscopic specimens which seemed to show that the smaller cerebral vessels might become blocked by globules of oil as the result of atheroma of the larger. The patient was a man, aged forty-eight, who had been under the care of Dr. Broadbent at St. Mary's Hospital. He had suffered for some time from mental aberration, of which restlessness and excitement were the chief features. In former years the man had drunk a great deal. The urine contained about one-third of albumen, and there was general oedema. At the autopsy the heart was found to be hypertrophied, and weighed twenty-five ounces; there was no valvular mischief; the pleurae and peritoneum contained an excess of fluid; the liver was enlarged; the kidneys weighed seven ounces and a half, were slightly granular on the surface, and were well pronounced examples of morbus Brightii. Examination of the vessels showed that the large basal arteries were the seat of atheromatous changes. In the small vessels about two or three removes from the capillaries oil drops, plugging the lumina of the arteries, were to be seen. Sometimes these oil drops existed alone, at others they were associated with fatty molecular matter. The oil plugs were spherical or cylindrical, with rounded ends; sometimes elongated and pyriform. The oleaginous masses seemed to be inside the vessel, and blocked the whole channel; some were of great length, as much as one-nineteenth of an inch. In many specimens some blood-clot was entangled and mixed with the oily material. The question necessarily arose, whether these globules of oil originated *in loco*, or were transferred from the more proximal branches of the artery affected. Where the plug of oil existed without any molecular matter either in the vessel or its wall, it was probable that it had originated at a distance, and was of the nature of an embolus; otherwise it was legitimate to regard the material causing occlusion as having developed at the site affected. The material was regarded as of an oleaginous nature, because of its general appearance and its association with atheroma of the large arteries, and because it for the most part gave a black coloration when treated for a long time with osmic acid. The plugs showed some preference for projecting angles of the affected vessels. The atheromatous process was regarded as a primary fatty degeneration: no inflammatory exudation cells could be detected. Ziegler had described fatty changes in the cells forming the capillary wall occurring in the first place close to the nuclei, and which led to the narrowing of the capillary channel. Cornil and Ranvier made no mention of such changes as Dr. Handfield Jones described. Four other cases had since been examined, and the conclusion was ar-

rived at that marked atheroma of the larger vessels might be detected without any accompanying change in the capillaries. Drawings illustrating the microscopical appearances, as well as the actual sections, were exhibited.—Dr. Wilks thought the specimens of sufficient importance to demand the benefit of a report by a special committee. To this the meeting and Dr. Handfield Jones assented.—Dr. Cavafy inquired whether the serum had been examined; if it had been found to be milky, this condition of lipemia would tend to throw light on the nature of the vascular plugs. The blood had, however, not been specially investigated.

Mr. Victor Horsley showed a specimen of Cystic Sarcoma of the Testicle, with secondary growths in the other viscera. The case was also of interest from the association of many congenital defects of structure. The man was a spare built individual, aged thirty-one, height about five feet four inches; the foramen ovale was widely patent, measuring an inch and a quarter at its longest diameter; it was divided by a median trabecula. No trace of a Thebesian valve could be found; there was partial atresia of the pulmonary orifice, and the segments of the pulmonary valve were adherent and formed a fibrous cone; the tricuspid valve and chordæ tendinæ were thickened and puckered. The right testicle was ill-developed, the kidneys and spleen were unusually lobulated, and there was a congenital inguinal hernia. Eighteen months ago the patient was kicked in the left testicle; the growth of the tumour followed at a short interval. On admission into the hospital, a rough systolic murmur, loudest at the third left cartilage, was heard, and a very remarkable venous pulse was noted, the pulsation extended down to the veins at the elbows. In the neck a powerful double pulsation was detected, which consisted of two series of alternating beats; one was synchronous with the radial pulse, the other was a little before it. Tracings were taken of this mixed carotid and jugular pulsation by Marey's tambour; the respiratory rhythm was traced by Burdon-Sanderson's stethograph. It was demonstrated, apparently without flaw, that the second pulsation was synchronous with, and probably due to, the auricular systole. It was certainly too late to be an exaggerated diastolic wave. Its rhythm proved that it was independent of respiration. The diseased testis measured 3 in. by 1½ in.; the tunica albuginea was thickened; the body was riddled with small cavities; the stroma was enlarged, and was seen under the microscope to be made up of fibrous tissue and masses of sarcomatous tissue. Round cells, varying in size from a red disc to a leucocyte, were seen, and many hemorrhages had occurred both into the cysts and into the solid structure. The smaller cysts were lined with columnar epithelium, the larger with flattened cells; much mucin was also present. Masses of secondary nodules riddled the liver in every direction; there were a few in the lungs. But none of the visceral nodules presented a cystic structure; they were merely sarcomatous. Extravasations were seen in the hepatic growths. The only other nodule was seen in the left side of the wall of the bladder. The venous radicles and lymphatics were free from disease. The injury was probably the exciting cause of the tumour of the testis; the other new growths probably developed in the various parts as the result of a defective state of the general health. Mr. Horsley was inclined to think that his case lent some support to the doctrines of Cohnheim and Leopold—viz., that residues of embryonic tissue were the probable foci of development of the various tumours; this view was believed to receive some confirmation from the fact that numerous congenital defects were present in the case narrated.—Mr.

Butlin said that as far as he had understood, Mr. Horsley wished to ascribe the tumour of the testis, and all the secondary growths, to the injury which the man had received eighteen months previously. He could not agree with the suggestion that the case supported the teachings of Cohnheim. He might see some reason for associating the new growths with the congenital defects if the former had occurred at or near the site of the latter. He was disposed to regard the sarcocele as one of lympho-sarcoma with cysts which probably originated from the tubuli seminiferi. It was an extraordinary circumstance that such tumours of the testicle gave rise to no secondary affection of the lymphatics.—Mr. Victor Horsley, in reply, said the kick was merely regarded as determining the growth of the testicle. The amount of small-celled growth was small compared with that of the fibrous tissue, and there was very little reticulum; for these reasons he did not consider the case one of lympho-sarcoma. The growths in the liver and lungs were detected during life after the removal of the testis; their progress of growth was watched over the six weeks which elapsed before death.

Mr. Davies Colley showed specimens removed from a single woman, a cook, aged twenty-nine, who in September, 1881, came under his care. The family history was good, there was no history of syphilis, the previous health was faultless. Eighteen months previously two small tumours the size of walnuts appeared on either side of the lumbar spine. These were treated, and disappeared; six months ago a tumour grew from the left gluteal region and one from the right lumbar region, the former increased without pain, and at the time of admission into Guy's Hospital measured four or five inches across. It had ulcerated; its upper border had a crescentic shape, the lower border was elevated, and the neighboring skin was of a livid-red color. It thus seemed to be spreading at one part and healing at the other, very much like a severe tertiary syphilitic ulceration. The lumbar tumour had a bossed outline; measured five inches across each way and was raised about an inch; the surface was smooth and glazed. Iodide of potassium and mercurials gave no improvement. The general health began to suffer, and the patient died from exhaustion in November, 1881. Shortly before her death a similar tumour appeared in another part of the left gluteal region above the old ulcer. The post-mortem examination was made by Dr. Goodhart, who detected an infiltrating soft fleshy growth spreading into the subcutaneous tissue of the growing edge of the ulcer; this tissue on section showed yellow tawny colored areas, and was sharply defined towards the neighboring connective tissue. Both psoas muscles were affected. The third lumbar vertebra was softened, but no deposit of cheesy matter was seen. The microscopical appearances of all the growths were similar. There was a delicate misty-looking reticulum of connective tissue, enclosing large numbers of round nucleated cells like leucocytes, and some small colored masses like myeloid cells. There was no appearance as of the conversion of round into fusiform cells as occurs in gummata. There were no tubercles in the internal viscera. The sharp definition of the tumour was different from ordinary lympho-sarcoma. It was certainly difficult to exclude the diagnosis of mere chronic inflammatory growth.

Dr. Frederick Taylor read a somewhat similar case. The man, a gardener, aged forty-two years, first came under treatment for symptoms of nervous origin; there was no history of syphilis or gonorrhoea. The previous history was good, except for the occurrence of small-pox some years

before. The nervous symptoms had been present for six weeks only. A patch of unilateral alopecia was observed six months before. There was staggering gait, tremor of hands, and difficulty of speech, probably due to a disordered action of the tongue. Under the use of iodide and mercury the nervous symptoms improved. In October two swellings appeared, one on the inside of the right knee and the other on the back. These swellings increased in size, so that the one on the back measured five inches by four in December. There was partial ulceration with scabbing on both tumours. The one on the lower extremity gradually subsided. The tumour on the back began to slough, and assumed a greenish appearance mixed with pale pink areas of granulations. Mr. Durham then saw the case, and advised calomel and vapor baths. Iodide of potassium had been given without effect; it was even thought that the eruption might have been due to this drug. At Christmas, 1882, fresh lesions appeared; numerous oval, red, thick, raised patches of erythema appeared nearly all over the cutaneous surface. Some of those on the legs began to slough, others ulcerated and formed scabs, whilst others subsided. The large tumour on the back also further sloughed, and left a broad area of granulations. A hard, firm, swelling, the size of a Barcelona nut, appeared on the front of the chest, and looked like a sebaceous tumour; this spontaneously disappeared. In January, pyrexia, albuminuria, and oedema of the legs set in, followed by laryngitis and death from oedema of the lungs in February. At the autopsy the skull was found thickened, the pericranium red and thick in two places, each the size of a shilling, the larynx was ulcerated, and the cartilage was laid bare; there were the signs of acute pericarditis; also large white kidneys. Many of the cutaneous tumours were like boils on section, others were seen to be in various states of sloughing. The epididymis was quite smooth and densely white, as if in a condition of chronic inflammation. The border between the tissues of the tumours and the surrounding structures was ill-defined, the small round cells of the growth infiltrated the intervals between the nerve and muscle fibres in the neighborhood. Syphilis was naturally thought to be the cause of these appearances during life, but no trace of a gummatous tumour was to be found; the body of the testis was normal; there were no signs of tubercle. The rapid course and extensive distribution of the disease were remarkable.—Mr. Durham was very much struck with these cases; they were of a non-descript type, and might be regarded as forming a group of tumours intermediate between inflammatory new formations and genuine tumours. He mentioned an anomalous case which happened in a young woman; the cervical glands became enlarged and ulcerated, the surrounding subcutaneous tissues were infiltrated, ulceration and sloughing extended, and the patient died. At the autopsy glandular enlargements were found in the abdomen. Another case was instanced; this occurred in a man, aged fifty-six years. A pimple formed on the right leg, ulcerated and scabbed, and finally fell off; a little tumour, however, appeared at the same place, and gradually developed, and subsequently a number of small tumours arose in various parts—legs, ankles, and arms. The tumours increased in size, some became confluent, others remained isolated; ulceration occurred in some, in others sloughing. The patient died. No visceral complication was found. No important glandular enlargements were detected.

Mr. Pye Smith narrated the case of a man who presented a series of Small Tumours, which at their first appearance looked like purpura, but

ultimately took on the character of sarcomata; they affected the skin and subcutaneous tissues, and seemed to be secondary to a tumour of the colon. Dr. Hilton Fagge had collected a number of such cases, and had contributed a valuable article in the *Guy's Hospital Reports*.—Dr. Stephen Mackenzie remembered a case under the care of Dr. Andrew Clark, fourteen years ago, in which masses of glandular tissue had developed and become ulcerated in the front of the chest; this was regarded as an example of lymphadenoma. A second instance occurred in a patient the subject of anæmia with retinal hæmorrhages; there were hundreds of tumours all over the body, varying in size from a pea or nut to a Tangerine orange; there were typical lymphomata. The viscera also showed similar changes. In this case there was no ulceration, though it was reasonable to suppose that ulceration might have set in had the patient lived.—Mr. Bendall mentioned a remarkable case of disseminated tumours which Mr. John Clay, of Birmingham, had published in *THE LANCET* last year. The patient had several attacks of erysipelas. The tumours affected only the cutis vera, and infiltrated the neighboring tissues.—Mr. Butlin said that the tumours under discussion ought probably to be given a place to themselves. They were between infective tumours and ordinary new growths. He suggested the possibility of the dependence of lympho-sarcomata and other new growths on the presence and development of micro-organisms.

Mr. Eve showed specimens of Congenital Hypertrophy of Limbs. The foot was affected in a girl, aged twenty-four years. The skin of the sole was enormously thickened, and although there was general hypertrophy, the plantar integument was enlarged out of proportion to the other tissues. In this case there was also an asymmetrical enlargement of the left side of the head, which showed itself also in the brain and tongue. The limb had been noticed to be enlarged from birth, but a rapid increase had occurred during the last seven months. Another specimen was from a man aged thirty-four years. The enlargement of the hand was seen at birth; but only a year before admission to the hospital the extremity began to increase much more rapidly. The lymphatic channels and spaces were enlarged. This was not, however, regarded in the light of a casual connection. Altogether, forty-six such cases had been recorded. Mr. Eve mentioned what he believed to be a unique case; there was no enlargement at birth; the whole hypertrophy had developed in four months. In those cases in which there was a congenital history, the tumours tended to be similar to dermoid cysts in their nature, whilst in the rarer kind the tumours agreed with the new growths which developed in later life. In one instance fatty tumours, fibroid tumour of the parotid, fibrous epulis of lower jaw, osseous outgrowth of the patella six inches and a half long, exostosis of the os calcis and first metatarsal bone, all in the left side, were associated with hypertrophy of a limb. These congenital hypertrophies were liable to a peculiar form of ulceration, not epitheliomatous.

Dr. Lediard, of Carlisle, showed two card specimens: (1) Dry Caries of Knee-joint; (2) Melanotic Spindle-celled Sarcoma and Gland. Dr. Taylor showed a card specimen of Intestinal Obstruction resulting from adhesion of the ileum to the mesentery. Dr. Savage showed, for Dr. Strahan, of Northampton, Symmetrical Tumours of the Dura Mater, and Atrophy of one Lateral Lobe of the Cerebellum. Mr. Watson Cheyne demonstrated some Tubercle Bacilli. Dr. Abercrombie exhibited a Heart showing complete atresia of the right ventricle. A Cancer of the Pancreas, with sec-

ondary affection of nearly all the viscera, was exhibited by Dr. Percy Kidd. Two recent specimens were also shown: (1) a Syphilitic Intestine, by Mr. Victor Horsley; (2) Laryngeal Phthisis, by Dr. Morison.

The ordinary meeting of this Society was held on Tuesday, May 1st, Mr. J. W. Hulke, President, in the chair. The discussion on diabetes was concluded. Dr. Dickinson and Dr. F. Taylor showed a large number of microscopical specimens of organs from diabetic patients, and the President intimated that, in accordance with the wish of Dr. Dickinson, a committee would be appointed to examine and report upon these, and other similar preparations.

Mr. R. J. Godlee read the report of the Morbid Growths' Committee on Mr. Clutton's specimen of Tumour of the Scalp, in which Mr. Clutton's view that it was an Alveola Sarcoma was corroborated.

Discussion on Diabetes.

Dr. Seymour Taylor remarked that he had recently had opportunities of making or witnessing the post-mortem dissections of four cases of diabetes. All four were typical, and in each the usual form of coma supervened shortly before death. He examined the kidneys carefully of three of the cases, not with any idea of finding a primary lesion, but with a view to ascertain if there were any, and, if so, what secondary changes. These organs presented to the naked eye the usually described vascular engorgement. Microscopically the glomeruli showed marked extravasation of blood, hence they were of a pale-yellowish tint. The epithelium of the tubules, however, was remarkable. The cells were large, of a yellow-brown color, and their nuclei failed to take the logwood stain. The most characteristic feature was the tendency for the epithelium to come away from its basement membrane *en masse*, so that in parts the kidney presented a mere skeleton outline of its normal condition. This shedding of epithelium was not in the form of a cast, as there seemed to be no fibrinous exudation to form the basis of a cast; it was merely a well-marked necrosis, and as such was entirely a secondary change. Dr. Taylor could corroborate Professor Frerichs' observations as to the method of staining diabetic kidney sections by means of a weak solution of iodine, which acts upon the glycogen; in order to obtain good results, it was necessary to harden the organ in absolute alcohol, and not in an aqueous solution. The liver presented a similar congested state, the cells being atrophied from pressure of exuded blood. As regards the central nervous system, the positive evidence of structural change was almost nil. Dr. Taylor observed he could find no morbid change in the brain, the medulla, the spinal cord, or in the sympathetic ganglia, with the exception of the hyaloid thickening of blood-vessels, noted by Dr. Stephen Mackenzie. Some of the sections exhibited bore a great resemblance to the so-called changes in chorea; but he thought he had seen similar conditions in brains and spinal cords which were considered healthy. He was sceptical of some of the so-called lesions of nervous system, and was inclined to think that many appearances we regard as morbid might be due to our method of preparation and of cutting. Since Bernard's remarkable discovery as to the production of glycosuria by injury to the fourth ventricle we seem to have been working with this observation as a centre. We have taken a physiological experiment as the basis of a supposed pathological fact. He looked upon the disease with our present light as a functional one.

Mr. Victor Horsley had examined the medulla oblongata in three cases of so-called typical diabetes mellitus, each case dying comatose. In none was any morbid condition to be found, save congestion (no hemorrhage). In one of these cases the liver and kidney showed well-marked cloudy swelling. The secondary importance of this condition is proved by late experiments in which glucose injected into the system (rabbits were the animals employed) caused cloudy swelling and disintegration of the renal epithelium. In view of the extreme variation among the results of research into the morbid anatomy of diabetes, it was suggested that no distinct disease existed, but that abeyance of function, acting not only centrally but peripherally, would bring about the symptoms supposed to indicate a special disease.

Dr. Frederick Taylor had paid attention chiefly to two points in connection with diabetes—the morbid anatomy of the nervous system and the fatal termination of the disease. He had, some years ago, in conjunction with Dr. Goodhart, published the results of an examination of the central nervous system in nine cases of diabetes, and they were unable to find in them the morbid changes described by Dr. Dickinson. Dr. Taylor now exhibited a number of the specimens for the judgment of members of the Society. He considered the majority of the specimens were practically healthy, and only one case showed anything that deviated much from the usual standard; and he thought that no constant change had been found as the initial lesion of diabetes, and that the account of degeneration and decay of the nervous system was not justified by what had hitherto been seen. Unusual thickness of the walls of the vessels and large size of the vessels might be part of a general condition; a large central canal was to be otherwise explained than by vascular engorgement, and was not peculiar to diabetes; while the condition called milary degeneration was certainly the result of reagents. Dr. Taylor had not seen varicose dilatation of vessels in his specimens, nor evidence of degeneration of the nervous tissue. There remained the presence of orange semi-crystalline bodies about the vessels, and in the perivascular spaces, which were abundant in one of his cases; but he considered it still unproven that they indicated a congestive state of the nervous system which could be regarded as the cause of the disease. Recently he had examined four other cases, and though two were much spoiled in hardening, it was quite clear that they had not undergone any such degenerative changes as were described. Dr. Taylor next referred to the mode of death in diabetes, and pointed out that the proportion of fatal cases which occurred in consequence of the curious group of symptoms called “diabetic coma” was a very large one; of 53 cases dying within the last ten years at Guy’s Hospital, 33 died comatose; and in 17 of these there was no lesion of the viscera; while in 3 the lesions were inactive and could not have contributed to the result; and in 10 the coma supervened in the course of pneumonia or phthisis. He found evidence that neither the theory of fat embolism, nor that of acetone in the blood satisfied all cases; and he referred to the frequency of severe abdominal pain as an early symptom—an important fact, as it might give rise to a diagnosis of perforation or peritonitis.—Dr. Taylor also exhibited Microscopic Sections of the Pancreas from a case of diabetes, which was almost entirely converted into fat. It was on record that the pancreas had occasionally been found atrophied or otherwise altered in diabetes. At Guy’s Hospital some alteration had been noticed in five cases during the last ten years. Twice it was merely described

as small or wasted; three times, including the case exhibited, it was fatty.

Dr. Dawson Williams had examined the registers at University College Hospital for ten years, but the number of fatal cases of diabetes available for report was small. He referred to a group of six cases, occurring in young people, which had certain symptoms in common. Well-marked coma, accompanied in four cases with extreme dyspnoea, was the immediate antecedent of death in five of the cases. In three of the cases there was some phthisis pulmonalis present, but in none was any distinct evidence of tubercular disease found elsewhere. In two cases albuminuria was a constant symptom during the whole time the patients were under observation. No constant post-mortem appearances had been recorded; in two cases the puncta cruenta were stated to be more numerous and prominent than natural; in one case the perivascular spaces were said to have been enlarged; in one some swelling at the tip of the calamus scriptorius and congestion of the membranes in the neighborhood were noticed. It was thought that an examination of the Registrar-General’s Returns favored the idea that diabetes was becoming a more common disease. Thus the number of deaths registered as due from diabetes had risen from 537 in 1862 to 1,059 in 1880, an increase of 49 per cent., while the increase in the total number of deaths from all causes was only about 20 per cent.; again the death-rate from diabetes was 24 per million in 1850, and 41 per million in 1880; whereas the death-rate from “all causes” was almost the same (it was, in fact, a little lower in 1880 than in 1850.) The number of deaths from diabetes, compared with the total number of deaths, had also advanced about 30 per cent. The table published by Dr. Dickinson in his work on “Diabetes,” which showed the number of deaths from this disease at each decade of life during the decennial period 1861 to 1870 was exhibited graphically, and compared with a similar chart which had been prepared from the Registrar-General’s returns for 1871 to 1880. It resulted from this comparison that the incidence of diabetes at the various ages had not materially differed in the two decennial periods. It was greatest in the decade of years between the ages of fifty-five and sixty-five in both sexes, but the preponderance in this decade was much more marked in men than in women; this difference between the sexes, however, was less marked in the second decennial period than in the first. How far the relative greater mortality among women in the decade of years between twenty-five and thirty-five was due to any connection between diabetes and childbirth, such as Dr. Matthews Duncan had suggested, there was no evidence to show; indeed only six cases of diabetes had been registered in ten years in women dying within one month after childbirth.

Dr. Dickinson asserted that diabetes must have a pathology, and depend upon some change in the permanent structures of the body. In addition to his other investigations, he had recently examined organs from four cases of diabetes for the purposes of the discussion, and the results obtained went far to corroborate those previously arrived at. In his earliest observations he had not sufficiently allowed for natural variations in the cavities and channels of the brain, and this had led to doubt being cast more widely than deserved upon all his results. The brain, though at first appearing healthy, was hard in texture, injected, and occasionally showed surface hemorrhages. The centrum ovale showed a cribriform appearance, which, however, was also seen in chronic insanity. The microscope revealed:—1. Dilatation of the blood-

vessels. 2. Small extravasations of blood. 3. Dilatation of perivascular spaces. 4. Alteration in the perivascular sheaths and nervous matter bounding the cavities. Of fifteen diabetic brains he had found extravasations of blood in seven. Perivascular changes—thickening of the sheath, erosion or degeneration of the nervous matter—were invariably found; these were most marked around the largest vessels. The cavities were often sprinkled with grains of blood pigment. The changes in the cord were slight: erosion and commencing degeneration of the grey cornua. A careful examination of the sympathetic system in all its parts had shown him that it was usually healthy. He had once seen granular degeneration of the cells of the cervical ganglia, and in another case a less degree of the same change in the semilunar ganglion. Lungs showed caseating pneumonia, followed by cavities. The liver exhibited marked general congestion; a peculiar dilatation of the capillaries, possibly from a post-mortem development of gas, he had seen in two cases. In the kidney he had found evidence of tubal and interstitial nephritis. He thought the brain must be regarded as the primary seat of the disease. This he had always found diseased, with signs of an altered relation between the bloodvessels and the brain tissue; but these changes were not constant in position, and often widely scattered. The changes were not peculiar to diabetes, though constant with it. Against the view that the disease began in the blood and affected the brain secondarily was the fact that it often came on as the consequence of a mental impression or cerebral state, as grief or anxiety.

Dr. Pavy addressed himself to the condition of the blood, which he believed to be at the bottom of diabetes. He was sure the primary lesion was a chemical fault. He had recently been performing many chemical investigations of great importance in this matter. There was a distinct group of carbohydrates, moved by means of ferments. Thus starch acted upon by diastase, saliva, or pancreatic juice was converted first into a dextrin, then into maltose, attended with increased hydration and increased cupric oxide reducing power. Starch was $C_{12}H_{20}O_{10}$; maltose was $C_{12}H_{22}O_{11}$. The dextrins intervened in composition. Starch had no cupric oxide reducing power and it was precipitable by alcohol. Dextrin was no longer preceptible by alcohol, and could reduce cupric oxide at first a little, gradually more and more up to maltose, three times that of the first dextrin; and glucose had still more copper reducing power, five times as much as the first dextrin. All the carbohydrates were brought into glucose by sulphuric acid and heat. His investigation had been carried out on this line: half a principle had been tested to find its copper reducing power; the other half had been brought to up glucose, and its reducing power then tested, and a comparison of the two made. Exactly the same occurred in regard to the so-called glycogen, which had no cupric oxide reducing power, and was precipitable by alcohol. When acted upon by ferments it was converted into dextrins, maltose, and glucose. Ordinary ferments reduced dextrins only to maltose ($C_{12}H_{22}O_{11}$); it was impossible to get glucose ($C_{12}H_{24}O_{12}$). To get glucose it was necessary to act upon them by sulphuric acid and heat. But in diabetic urine glucose was met with; for this a glucose-forming ferment was necessary, and this exists in the liver. In the animal system the reverse change took place; glucose was carried up through maltose and dextrin to glycogen and starch. Glucose was converted into maltose in the stomach and intestine; it was not absorbed as glucose. Cane sugar was not converted into glucose, but into maltose in

the alimentary canal. The portal blood contained a quantity of maltose and dextrins, and ultimately glycogen was formed. Dextrin of low cupric oxide reducing power brought into contact with liver and blood out of the body was converted into glycogen. Carbohydrate treated with liver and blood was carried upwards out of that group altogether, and this new principle might be brought down again to carbohydrates by certain ferments. This was the process of assimilation. The carbohydrates were carried out of the group without being converted into glucose. Diabetes was essentially characterized by the non-utilization of these principles; the carbohydrates came into glucose, and were then eliminated. But glucose was eliminated where no carbohydrate is found, because the albuminous molecule was split up into urea and a carbohydrate, which was then reduced to glucose. We had, then, a glucose-forming ferment which was not saliva, blood, muscle, or pancreatic juice. This glucose-ferment was in the liver. All parts of the body, like the liver, undergo a post-mortem change with the increase of the amount of maltose. The glucose ferment only existed in the liver. Venous blood was antagonistic to it, and if an animal be asphyxiated by ether, maltose, not glucose, was found. Arterial blood in the liver gives a glucose ferment; venous blood in the liver gives a maltose ferment. A superabundance of oxygen in the body led to glycosuria (as by inhalation of oxygen or injection of dephibrinated arterial blood into the portal vein). Diabetes depended upon a dilatation of the arteries of the chylopoietic viscera—a vaso-motor paralysis; which allowed the blood to pass to the liver too little deoxygenated. What the liver wants was good venous blood producing a maltose-forming ferment. Simple venous congestion of the liver would never produce diabetes. The hyperæmia of the chylopoietic viscera had been observed in diabetes, both natural and artificial. The severity of diabetes depended upon the area of the vaso-motor paralysis; the area might increase up to the tongue, and then be seen—the tongue intensely red and injected like raw beef. He related the case of a lady, aged fifty-five suffering from diabetes, treated in the ordinary way; sugar disappeared from the urine; seven months later the disease had returned in the form of diabetes insipidus (she was still taking the restricted diet), and he thought the area of the vaso-motor paralysis had then shifted to the kidney. Under treatment by valerian the diabetes insipidus disappeared. Now she was able to take a certain amount of starchy food without passing sugar. In young people the disease was progressive, at first controllable, then uncontrollable. No doubt there was a nerve lesion in association with it.

Dr. Douglas Powell observed that the debate had been useful in indicating more especially the necessity for experimental inquiry into (induced) living pathology, and in physiological chemistry, in order to throw fresh light upon diabetes, and in both these respects Dr. Pavy had redeemed the Society from the reproach of having had no contribution of the kind. He believed that the results of Dr. Pavy's valuable and novel researches would dovetail in with those of Dr. Dickinson showing the existence of nervous lesions. He begged to second Dr. Dickinson's suggestion, that a committee be formed to report upon the specimens from the nervous system shown now and also at any future meeting. Dr. Powell was himself convinced that most of Dr. Dickinson's specimens were examples of positive lesion; whether the result or the cause of the comatose state was a separate question. Dr. Powell believed that the idea still prevailed that a causal affinity existed between

phthisis and diabetes; this view he regarded as due to confusing cases of diabetic phthisis, if there were such, and cases of phthisis occurring in the course of diabetes. In his own experience of chest disease diabetes was infinitely rare, and in five or six years' experience at Brompton, with an average of thirty cases of phthisis of all sorts, stages, and degrees of activity, constantly under his observation, he could recall no case. He had, through the kindness of colleagues and the friendly labors of the resident staff, obtained an examination of the urines of 165 cases of phthisis and sixty-five cases of other chest diseases now in the Brompton Hospital. The specific gravities varied from 1010 to 1035, but in no instance had sugar been found. He would like to have similar statistics from diabetic cases, not, of course, gathered from the last stage, for some form of pulmonary disease carried off a large proportion of all chronic maladies. He believed phthisis and diabetes to have nothing in common; they were not interchangeable by inheritance, and they did not merge into one another, save that some form of phthisis might arise in the course of diabetes, as in any other chronic and exhausting malady.

Mr. Hulke, in closing the discussion, said the debate had been useful as throwing much light of both a negative and a positive kind upon diabetes. Some observers had failed to find any pathology, others had found various lesions, but none of them were absolutely peculiar to diabetes. He thought it would be well to refer the whole matter of the microscopical investigation to a committee. Dr. Pavy's communication was of very great importance, but it was necessary to go beyond the vaso-motor palsy and detect the cause of that.

After the meeting Dr. Radcliffe Crocker demonstrated an easy and expeditious method for the quantitative estimation of sugar, invented by Dr. Duhomme, of Paris. The principle of the method was, chemically, that of Fehling; the mechanical differences consisted in the substitution of two of Limousin's compte gouttes graduated to 2 c.c. and 1 c.c. respectively, for burettes, etc. The test appeared to be easy, accurate, and expeditious.

Mr. Stanley Boyd showed a man with Tubercular Ulceration of the Tongue; and Dr. Hadden showed a specimen of Tubercular Ulceration of the tongue as a card specimen.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Congenital Syphilis of the Larynx.—Purulent Pericarditis treated by Paracentesis and by Free Incision, with Recovery.—Paracentesis Pericardii.

THE ordinary meeting of this Society was held April 24th, Professor J. Marshall, F.R.S., President, in the chair. At the commencement of the proceedings the President announced that the Council proposed the following gentlemen to fill the vacancies among the honorary Fellows: Dr. W. B. Carpenter, F.R.S., Professor W. K. Parker, F.R.S., Dr. Ed. Frankland, F.R.S., and Dr. Allen Thomson, F.R.S.; and as Foreign Honorary Fellows Dr. H. I. Bigelow, of Boston, Professor Charcot, of Paris, Professor Du Bois-Reymond, of Berlin, and M. Pasteur, of Paris. The business consisted of a paper by Dr. Percy Kidd on congenital syphilis of the larynx, and two papers dealing in a most thorough manner with the subject of paracentesis pericardii, by Dr. Samuel West, in which he gave details of a successful case of free drainage for purulent pericarditis (being the second on re-

cord), and a full analysis of seventy-nine cases of pericardial paracentesis. Time did not permit of very full discussion of the numerous points of interest raised.

The following is an abstract of the paper on Two Cases of Congenital Syphilis of the Larynx by Dr. Percy Kidd. The author said the ages of the patients here described were fifteen and eighteen at the time of observation, but symptoms developed at the ages of fourteen and thirteen respectively. In the first case, where laryngitis seemed to have appeared a few months previously, great improvement followed the administration of iodide of potassium. On the contrary, in the second case, where the laryngeal disease was of five years' standing, there were webbing of the vocal cords and polypoid excrescences in the larynx, and here no benefit could be expected from internal remedies. Case 1 is a boy aged fifteen. The family history is indefinite. Mother said to be subject to "rashes." There was a history of cough and shortness of breath for nine months. Three months previously the boy's breathing had become stridulous, and shortly afterwards some dead bone came away from his palate. For three days his breath had been very short and he had lost his voice. The patient is small for his age, speaks in a hoarse whisper; upper incisor teeth distinctly pegged; cornea clear. No cutaneous eruption or scarring. Chest small; superficial veins distended; supra-clavicular spaces drawn in during inspiration. Very slight dullness at both apices, and weak bronchial breathing. Breath sounds generally feeble. Marked scarring of soft and hard palate; scars whitish; surrounding tissue dull red. Larynx: mucous membrane throughout of a dull red color. Vocal cords red and thickened. Ventricular bands and aryepiglottic folds swollen, partially hiding the vocal cords. Movements of the vocal cords diminished greatly; abduction and adduction very imperfect; considerable stenosis of the glottis from swelling of parts and fixation of vocal cords. Rapid improvement under iodide of potassium and inhalations of benzoin. Recovery with slight degree of chronic laryngitis and partial fixation of left vocal cord. Case 2 is a girl, aged eighteen. Family history negative. Onset of symptoms sore-throat and hoarseness at the age of thirteen. The patient attributes the throat affection to some medicine she was given while an in-patient at the French Hospital in Leicester-square soon after her symptoms developed. Reasons are given for doubting this. This patient has been hoarse for five years. The chest shows no signs of disease. Lateral incisor teeth somewhat pegged. Palate, pharynx, and left tonsil marked with whitish scars. Larynx: epiglottis thickened and bent backwards towards the larynx; margin irregular and jagged as if partially eaten away; mucous membrane of epiglottis pale; no present ulceration. Vocal cords adherent to one another at their anterior extremities by a web of a reddish-grey color. On the left cord at its posterior third is a small conical outgrowth. The posterior part of the right ventricular band is occupied by a roundish red swelling, which projects downwards and hides part of the corresponding vocal cord. The left ventricular band at its anterior end is thickened. Vocal cords are pinkish, and move freely. Eyes: slight divergent squint. A high degree of myopia is present. Right eye shows a large patch of choroiditis in the position of the yellow spot. Fundus of left eye healthy.—Dr. Sémon had not the least doubt as to the syphilitic nature of the cases, the lesions described being perfectly characteristic. Although he concurred that the manifestations of congenital syphilis were sometimes much delayed, he mentioned a severe

case of pharyngeal and laryngeal ulceration in a lad of seventeen, who had acquired syphilis two years before. In Dr. Kidd's cases there was no history of the disease being acquired; and it was probable they were congenital cases in which the lesions became manifest at puberty. He had come to regard congenital syphilis of the larynx as less rare than he thought a few years ago, when he communicated two cases to the Pathological Society. Dr. John Mackenzie, who was present on that occasion, had published seventy instances. Still in proportion to the large number of cases of congenital syphilis, laryngeal disease could not be said to be frequent. During the past year Dr. Sémon had seen four cases of congenital syphilis of the larynx, and it was curious that two of the children were brothers, and two were a brother and a sister. With reference to the "web" described in Dr. Kidd's second case, Dr. Sémon remarked that Sommerbrodt, of Breslau, had recorded twenty-four cases, Dr. Parr showed one at the London Congress, and he himself had met with six examples, four of which were syphilitic. He agreed with Dr. Kidd as to the propriety of not attempting any surgical interference unless the symptoms were urgent.—Mr. R. W. Parker said it must be admitted that laryngeal disease was very rare in congenital syphilis, especially ulceration. He had paid much attention to cases of laryngeal obstruction for the past ten or twelve years, and had met with only four cases attributable to syphilis, in which the condition resembled that of the mucous tubercle—a papillary condition of the upper part of the trachea and larynx. Young children are sometimes attacked with acute laryngeal obstruction, and on inquiry a syphilitic history is obtained; the symptoms in such cases yield rapidly to mercurial inunction. In one or two such cases he had found the papillary growths on post-mortem examination. The President pointed out that the lesions described in the paper differed from mucous tubercles, which were earlier manifestations; the fact that the latter were benefited by mercurial treatment, and the former by iodide of potassium, further illustrated this difference. He suggested that the physiological changes undergone by the larynx at puberty might account for the late occurrence of the syphilitic disease, the larynx being then more prone to manifest the disease.—Dr. Kidd, in reply, said that if the syphilis in the second case were acquired, the date of infection would have been at the age of eleven or twelve years, but he had no evidence in support of this, and thought it quite possible that the earlier manifestations of the inherited disease had been overlooked. In both cases there was pegging of the teeth, and the girl had central choroiditis. The laryngeal syphilitic formations were more polypoid in nature and less like mucous tubercles than was formerly supposed. With regard to surgical interference with the "web" in the girls' case, he had thought it inadvisable, there being no respiratory distress.—The President remarked upon the fact that as a general rule attempts to remove cicatricial formations by galvano-cautery, etc., failed. Division by the knife and subsequent stretching of the bands is a preferable way of treating such strictures.

Dr. S. West read a paper on a Case of Purulent Pericarditis treated by Paracentesis and by free Incisions, with Recovery. A boy, aged sixteen, came under treatment with a large pericardial effusion. The symptoms became so urgent that paracentesis was performed. Pus was obtained. Three days later paracentesis was again performed, and subsequently the pericardium was laid freely open, evacuated, washed out, and a drainage-tube inserted. The temperature never rose, and the boy

recovered completely in five weeks, the only feature of interest being an attack of general urticaria, which came on about a week after the operation and lasted three or four days. In support of the diagnosis a case was referred to in which what was supposed to be a mediastinal cyst was frequently punctured, but it proved to be, on post-mortem examination, a case of chronic pericardial effusion. The points of clinical interest discussed were:—1. The absence of any special signs to indicate the nature of the effusion. 2. The operation and the place selected for puncture. 3. The amount of the fluid evacuated. 4. A peculiar epigastric prominence, noticed before paracentesis, which disappeared after operation. 5. The attack of urticaria. 6. The pulsus paradoxus. A short account was then given of the only other recorded case of incision of the pericardium for purulent pericarditis by Professor Rosenstein, of Leyden, which also recovered.—Dr. West also read a paper on the Statistics of Paracentesis Pericardii, with Remarks. A complete list of the recorded cases up to date was given in a tabular form, with the addition of several cases hitherto unpublished. The history of the operation was briefly referred to. The cases were discussed under the headings of:—Sex; age; causes (rheumatic fever, scorbutus, phthisis and pleurisy, miscellaneous, purulent pericarditis); length of illness before operation; the effect of the operation; the nature of the fluid; the quantity of the fluid; the number of punctures; the modes of operation; the place of puncture. The following conclusions were drawn:—1. Paracentesis pericardii is not only justifiable, but an operation which may be safely undertaken with ordinary precautions, for only one case is recorded in which the operation was in itself fatal, and with this exception all the patients were greatly relieved by the removal even of small amounts of fluid, and many recovered completely, who would probably have died had the operation not been performed. 2. The most suitable place for puncture is, in ordinary cases, in the fifth left intercostal space, one inch from the edge of the sternum; but if the pleura be adherent, the puncture may be made safely much further out, and even in the sixth space. 3. The instrument employed should be a trocar and cannula, with or without aspiration. 4. The operation may be performed with advantage, not only in the pericardial effusions of rheumatic or primary origin, but also in those which occur in the later stages of general dropsy, if it should appear that the fluid in the pericardium is adding to the difficulties under which the heart is placed. 5. Purulent pericarditis is best treated on general principles, like empyema. 6. The pericardial sac may be safely opened and drained. 7. This treatment, moreover, appears to be the only one which offers the slightest hope of recovery. 8. The results do not seem to be as unfavorable as those of empyema, for the walls of the cavity are better able to contract rapidly, and thus permit of the obliteration of the cavity.—Mr. Hulke congratulated Dr. West upon his case, and would only remark that it was far safer to dissect down on the pericardium before incising it than to plunge in the knife or trocar incautiously. He recalled a case where the diagnosis of a large pericardial effusion was made, and he was asked to operate. He plunged in a trocar, and was alarmed to find from the jetting of blood and the motion of the trocar that he had struck the heart. Fortunately no harm was done, but, on the contrary, some relief was afforded, and when the patient died subsequently there was found to be a universally adherent pericardium, with a greatly dilated heart.—Dr. Green thought it unusual for friction sound to be absent in purulent pericarditis,

and that Dr. West's case was also remarkable in the upper limit of dulness being at a lower level than was customary in pericardial effusions. He suggested the propriety of exploratory punctures, and believed that in most cases of non-purulent effusion the danger to life was from weakening of the muscular wall rather than from the effusion itself. At the same time Dr. West had shown not only the practicability of drainage in purulent effusions, but the fact that paracentesis may be safely resorted to in cases of serous effusion with relief to the patient.—Dr. Routh thought the presence of pus accounted for the absence of the friction sound, and that this negative sign might be of value in diagnosing the nature of the effused fluid.—Dr. Southey said that the etiology of the case was obscure; there was no evidence of rheumatic fever. In rheumatic pericarditis friction sound is almost invariably present. He thought considerable caution should be used before excluding injury, even if some weeks had elapsed, as a cause of such pericarditis, and he suggested the possibility that the case was one of abscess, primarily extra-pericardial, but extending into the pericardium. Was there any bronchial breathing over the lower lobe of the left lung posteriorly? If not, the idea of extra-pericardial abscess would be strengthened. The orthopnoea was no doubt the chief reason for interference. He agreed with Mr. Hulke as to the danger of pushing in a trocar freely. It would be safer to explore with a fine aspirator needle, and if pus were found, to dissect carefully down and then employ drainage. He knew of three fatal cases; one which he saw himself, where the ventricle was wounded; another is recorded by Bouchut. Probably there were others which Dr. West had not met with, and some unpublished. In 1869 Kussmaul recorded four cases, in one of which he pointed out the *pulsus paradoxus* for the first time.—The President remarked that much bolder methods of opening the pericardium had been suggested—e.g., section of rib-cartilages, trephining the sternum, etc.; but puncture through the intercostal space was amply sufficient. The soft depressed area noticed by Dr. West in the epigastrium might be explicable on the view of mediastinal abscess, and the rapidity of cure was remarkable if the pus were in the pericardium.—Dr. West, in reply, said that he proceeded with great caution, using first a small trocar for exploration; and he quite agreed as to the necessity for caution, seeing how impossible it was sometimes to make a diagnosis from dilated heart with adherent pericardium. The heart has been intentionally tapped in some cases of dilated right ventricle with great relief. In Bouchut's case the puncture was without ill effects, and Dr. West had collected several cases where the heart had been accidentally injured without fatal result. The large amount of effusion and the thickness of the pus accounted for the absence of friction sound. He could not agree with Dr. Green, that the chief danger in pericardial effusion is from myocarditis, but from the mechanical effect of the fluid pressure. The *pulsus paradoxus* was evidence of this, and it had been proved to be produced by the imperfect filling of the heart. The epigastric depression disappeared as soon as the incision was made. He had found the same thing noted in a case published by Dr. Clifford Allbutt. Dr. West, in conclusion, said he would be indebted for references to cases in addition to those he had collected.

—No less than 126 students have entered for the first half of the examination for the diploma in Surgery of the Royal College of Surgeons in Ireland.

Gliomatous Enlargement of the Pons Varolii.—Case of Asymmetry of the Brain, presenting peculiarities which bear upon the Question of the Connection between the Optic Nerves and certain Definite Areas of the Cerebral Cortex.

The ordinary meeting of the Royal Medical and Chirurgical Society was held May 8th, Professor J. Marshall, President, in the chair. Two papers were read dealing with cerebral pathology—one by Dr. Money upon a remarkable symmetrical affection of the pons; the other by Dr. Sharkey, in which corroborative evidence in support of the connection between the angular gyrus and the visual function was afforded.

Dr. Barlow showed an infant with Congenital Absence of both clavicles.

The following is an abstract of the paper on Gliomatous Enlargement of the Pons Varolii, by Dr. Angel Money. The object of the paper was to draw attention to the existence of a remarkable enlargement of the pons Varolii of undoubtedly infrequent occurrence. The disease was remarkable from the enormous increase in size of almost every part of the pons and neighboring parts of the brain; the tendency to implication of one-half of the pons as much as the other is a noteworthy feature. The cases recorded are entitled to further consideration from the light they throw on a condition which in this country has been ill understood. Cases of so-called gelatiniform enlargement of the pons Varolii, published in the St. Bartholomew's Hospital Reports, by Dr. Gee and Dr. Percy Kidd, are unquestionably of the nature of gliomata, and it would seem therefore advisable that the descriptive provisional nomenclature should be abandoned. Virchow, in 1863 (*"Die Krankhaften Geschwülste"*), described the various kinds of gliomata (including the infiltrating forms which give rise to diffuse enlargement) as occurring in any part of the brain, and there seems to be no good reason for the employment of a special name for the disease when it happens to occur in the pons. The first instance here recorded was worthy of remark from the fact that although the disease involved both halves of the pons the symptoms were decidedly unilateral. This kind of thing has been mentioned in other recorded cases. In the second case hæmorrhages into the retina and intestinal mucous membranes were discovered. Though this association may be one of mere coincidence or unreal relationship, yet, looking to the known occurrence of hæmorrhages in various parts of the body, almost undoubtedly as the result of lesions, more especially of the base of the brain, it would seem not unlikely that here also we have to do with a causal connection. The absence of such hard-featured symptoms as hyperpyrexia and glycosuria is worthy of mention, and a partial explanation may possibly be forthcoming in the notion that for the production of such symptoms lesions of sudden onset are required.—The President pointed out the difference between the limited and localized nature of the disease in this instance as compared with glioma of the eyeball, with its great tendency to recur and spread into the brain. He asked whether there was any family history of sarcoma in Dr. Money's cases.—Dr. Gee did not think the symptoms differed from those produced by other diseases of the pons—e.g., tubercular tumours, and he had no doubt that Dr. Money had drawn correct inferences from the microscopical characters of the lesions in referring them to a known category of disease.—Dr. Southey asked whether there was any evidence in support of a view formerly held that these gliomatous infiltrations were due to syphilis.—The Presi-

dent asked Dr. Ferrier if he had inferred anything from the statement that no medullated nerve fibres were found in the diseased part, and how this tallied with the fact that paralysis was not complete.—Dr. Ferrier said that the fact that there was not total paralysis proved that nerve-fibres must have been present, although they might have escaped observation. He had lately under his care a case in which he had diagnosed syphilitic lesion of the upper part of the ascending frontal convolution, and after death an abundant small-celled infiltration was found in this region, in which nerve fibres and cells could only be detected with difficulty. The symmetrical disposition of the lesion and its limitation to the pons were remarkable points in the cases described by Dr. Money. The symptoms were those of disease of the pons; but it would not be possible to diagnose the nature of the lesion. In recording these cases Dr. Money had done great service to pathology.—Dr. Kidd said that when he examined Dr. Gee's case he was not aware that Virchow had spoken of a gliomatous infiltration, but had regarded glioma as a definite form of tumour, nor did microscopical examination show the definite neuroglial structure characteristic of such tumours, but only a small-celled infiltration. There was, then, a difference between this form of disease and glioma proper, although they are probably related. In the case he examined he found numerous axis cylinders, although medullated fibres were not visible.—Dr. Hale White suggested that the non-malignancy of gliomata was probably due to the fact that, unlike sarcomata, they are developed from tissue that is already highly differentiated—i.e., the neuroglia. He had never seen or heard of glioma giving rise to secondary growths. The superficial resemblance which the diseased pons bore to the normal structure was doubtless due to the fact that the lesion was essentially an overgrowth of the neuroglia between the strands of nerves fibres, so that the bands of new tissue would follow the lines of the latter.—Dr. Money, in reply, said there was no family history of sarcoma, but in each case one other child had died from brain disease. It was generally held now that gliomata have nothing to do with syphilis. Although he had said that no medullated fibres could be found in the most diseased parts, he was far from thinking that axis cylinders were absent; indeed, several of the "nuclei" were probably sections of axis cylinders; and in other parts of the pons unaltered ganglion cells were to be seen. "Glioma" was a generic term, and the amount of intercellular substance varied in different forms, of which some were extremely cellular, and might be regarded as sarcomata of the brain. The most important point was, that the general pattern of the brain tissue was preserved in these cases. It was not a true hypertrophy of the neuroglia, but a perverted hypertrophy, in which there was a large production of small cells, with no true neuroglial tissue.

Dr. Seymour J. Sharkey read a paper on a case of Asymmetry of the Brain presenting peculiarities which bear upon the question of the Connection between the Optic Nerves and certain definite Areas of the Cerebral Cortex. The patient, whose age was twenty-five, died in St. Thomas's Hospital, owing to injuries received from the fall of a house. Her right arm and leg were somewhat smaller than their fellows, and the former was rigid. After her death this condition was ascertained to have been congenital, but no observations were made during life, either with regard to this malformation, or with reference to the condition of her special senses, etc. The subject of this communication was primarily the anatomical peculiari-

ties of the brain, and secondarily the physiological conclusions which they suggest. The most striking characteristics of the specimen were:—1. The general slight arrest of development of the left hemisphere. 2. The small size of the corresponding crus cerebri and anterior pyramid. 3. The absence of the angular gyrus and superior temporo-sphenoidal convolution, together with the fusion of some of the other convolutions of the left temporo-sphenoidal lobe. 4. The extreme atrophy of the optic tract, optic thalamus, and corpora geniculata on the same side. It was argued that the knowledge we possess at present of the connection between the central convolutions of the brain and the motor strands justifies us in referring the small and somewhat rigid limbs on the right side, together with the atrophy of the left anterior pyramid and crus cerebri, to the condition of the two ascending central convolutions, and their expansions near the great longitudinal fissure. The atrophy of the left optic tract, optic thalamus, and corpora geniculata must be looked at in connection with the absence of the angular convolution, and with the malformation of the left temporo-sphenoidal lobe. Although, from a consideration of this single anatomical specimen, we are hardly justified in making any more precise assertion, still we can hardly avoid looking upon it as confirmative of the physiological experiments of Ferrier, which point in the same direction, and which seem to indicate that the angular gyrus is in some way bound up with the function of vision. The specimen likewise supports the views that the optic thalamus has some direct connection with sight, and that there is semi and not total decussation of the optic nerves in the chiasma. For the right optic nerve bears a far larger proportion to the left than the left optic tract does to the right. And, finally, the absence of any inequality between the corpora quadrigemina of the two sides supports the theory that these bodies are not in the direct line of fire, so to say, between the retina and the cerebral cortex; though they may be in some way related to the coördination of the ocular muscles, which is necessary for normal vision.—Dr. Ferrier had been much interested in the paper, which detailed carefully and clearly a very important case. He had seen the specimen, and could confirm the fact of the limitation of the atrophy to the angular gyrus and superior temporo-sphenoidal convolution. Unfortunately, as often happens, no clinical history was available. The atrophy of the pyramid complicated the case, but it was, as Dr. Sharkey had stated, doubtless due to the general arrest of development of the left hemisphere. Was there actual sclerosis established? The chief point of the case concerned the angular gyrus, destruction of which he had shown to be followed by temporary blindness. In the experiments described by himself and Dr. Gerald Yeo at Cambridge, three years ago, it was shown that the visual centre comprised not only the angular gyrus, but the occipital lobe also, the former being the more important. Dr. Sharkey's case confirmed this. The case was also of value because the lesion was primarily cerebral, whereas in most recorded cases one has to do with the secondary effect on the brain of the loss of an eye or of a limb. In this respect the fact that the corpora quadrigemina were intact was valuable as throwing light on their function. The case at first sight might not seem to confirm the fact arrived at from experiment, that the temporo-sphenoidal lobe has to do with audition; for there was no atrophy of the auditory nerve like that of the optic tract. Perhaps the connection of the auditory nerve with its nucleus accounted for its immunity. The optic thalamus was probably related to all sensory func-

tions and not specially to vision.—Dr. Money asked if there was any change in color in the wasted convolutions. He had recently examined a case where there was pigmentation of the atrophied gyri, probably due to hæmatoidin.—The President asked whether there was any corresponding cranial asymmetry, whether any difference at all was observed in the relative sizes of the eyes, and any changes in the spinal cord. He also asked as to the relative thickness of the affected parts of the cortex, and observed that it is not probable that the cortical "centres" are strictly defined and limited, but that neighboring parts of the grey matter may share to a slight extent in the functions of these "centres." The fact that the corpora geniculata wasted suggested that these structures are related to the nutrition of the optic tracts, and are not directly concerned in vision proper.—Dr. Sharkey, in reply, said that he could detect no difference in the two sides of the cranium; and none of those who had seen the patient had observed any difference in the eyeballs during life. In the spinal cord there was very definite descending sclerosis, most abundant in the upper cervical region in the posterior part of the lateral column, but there was no change in the tract of direct fibres in the anterior column. He had not yet examined the affected cortex minutely for fear of disturbing the relation of the parts, but had observed no change in its color. The case was admitted into the surgical wards for an injury to the back, and paraplegia was sought for. The condition of the leg was noted, but the upper limb was not observed, nor was any special examination made of the eyes. He had now collected five cases of limited cortical lesions associated with local paralysis, and all of them were confirmatory of Ferrier's experimental conclusions. At the same time recovery of a limb from paralysis due to cortex lesion pointed to the probability that one part of the brain may take on the function of an injured part after a time.

MEDICAL SOCIETY OF LONDON.

The Poison of the Viper and Permanganate of Potash.

At the meeting of this Society, April 16th, Sir Joseph Fayrer, M.D., President, in the chair, a paper was communicated by Dr. G. Badaloni, of Nocera Umbra, on the poison of the Viper and Permanganate of Potash. A full abstract of the paper appeared in our last issue.

The President said that the interest of the paper was enhanced by the fact that there was present that evening Prince Louis-Lucien Bonaparte, who made the first analysis of viper poison, and he, (Sir Joseph) had himself alluded to this discovery of the alkaloid in the virus in his researches published twelve years ago.

Prince Louis-Lucien Bonaparte said that forty years ago he had abandoned the study of chemistry, but he was then doing his best to discover the chemical nature of viper poison, and suggested to physicians at Florence to experiment upon it. He had not studied its physiological action, but confined his researches to the action of the poison upon the chemical composition of the blood. What was the reason why blood, especially human blood, lost its coagulability under the influence of the poison? He thought the change was possibly akin to fermentation, a small quantity setting up changes in a large amount of blood; a small quantity of the alkaloidal principal, echinidine, acting upon the whole mass of blood. This was contrary to Lacerda's theory. Permanganate of potash is strongly oxidizing, and this oxygen ought rather to increase

the activity of the bacteria than destroy them. He was not inclined to believe in Lacerda's results, and great scientific caution must be used in estimating them.—Dr. Broadbent thought that the Prince's remarks were very suggestive. How do these poisons destroy life? By primary action on the nervous system, or on the blood, which then acts upon the nervous and vascular systems? Dr. Wall distinguishes between the effects upon the heart and upon the respiratory system. He agreed with Prince Bonaparte in hesitating before accepting the value of permanganate of potash in viper poisoning. Careless experimenters might easily have been misled by the different intensity of the poison at different seasons of the year. There might also be a difference in the intensity of the poison of the viper and the rattlesnake.—Dr. Williams asked Sir J. Fayrer as to the state of the blood-globules in viper poisoning, and what effect the poison of one viper would have upon another, and what upon different classes of animals.—Dr. Cullimore thought that if the permanganate of potash acted in a chemical manner, and the poison was bacterial, its action ought to be immediate. Oxygen is fatal to micro-organisms. It would be interesting to know what animals Dr. Lacerda experimented upon. He had been informed that during the Civil War in America death from rattlesnake bite was very rare when proper treatment and precaution had been observed. The best treatment was alcohol and cardiac stimulants.—Dr. Routh said the question whether the poison acts directly on the blood or on the nervous system depends upon the intensity of the virus, and it might act in both ways. A potash salt in sufficient quantity acts as a direct poison. The chloride of potassium kills instantly. To inject the permanganate of potash is to introduce a poison. Pasteur had shown the action of oxygen upon bacteria, and why should not peroxide of hydrogen be given, for it yields oxygen far more readily than the permanganate?—Dr. Hicks said the permanganate of potash only gives up oxygen to substances in its immediate vicinity. Its action would therefore be purely local, and it could not be of use in the general blood current.—The President, remarking upon the extent of the subject, said he would limit himself to one or two of the most important points. He wished the author of the paper were in the tropics, where he could experimentalize better on the subject. Permanganate of potash is a chemical antidote to snake poison, not a physiological antidote. It has no effect on a poisoned animal or man, but it does decompose the poison out of the body. The poison enters the system very quickly. About 90 per cent. are bitten in the extremities, and the part can be isolated to a certain extent, but it rarely happens that it is possible to apply any antidote. Permanganate of potash could be used locally to destroy the poison in the wound when a man is bitten and help is near for a ligature to be applied above the wound at once. In cutting out the part it is necessary to remove all the tissues stained the peculiar red tint caused by snake bites. Possibly the injection of a stronger solution of the permanganate may be required for its local effects; but he was sure it was of no value when the poison had once got into the system. He believed that great good would result from the experiments made by himself, L. Brunton, Lacerda, Ewart, Wall, and others. There is no physiological antidote to the effect of snake poison upon the nervous system, no more than to a bullet passing through the brain. Prince Bonaparte and others worked under great disadvantages, having very dilute poisons to work with. The poison of the echis is infinitely more deadly than that of other

much larger poisonous snakes. It is very rare for a healthy person to die from a viper bite. As Dr. Wall has clearly demonstrated, there are two or three totally distinct snake poisons. The teeth of a viper have no motion, but the maxillary bone moves. In the colubrine snake the maxilla is larger and hardly movable at all, but in all the poisonous snakes the maxilla is devoted entirely to the poison fangs. The poison of the colubrine snake kills by paralysis of respiration, both centrally and peripherally. The viperine acts at first upon the blood; it kills rapidly, producing convulsions, hæmorrhages and non-coagulability of blood. He had never seen any microscopical change in this blood; the corpuscles are a little crenated. After cobra poisoning the blood coagulates firmly, except occasionally in man. Cobra poison in a vein kills (man) in half an hour. The action of the poison is slower upon fish, snakes, and lizards; they become quiet and sluggish and then die. The bite of a cobra does no harm to another cobra, but kills a viper in from two to three days, either from the effect of the wound or its special poison. Care in nursing will often determine whether a man shall live or die when the dose of poison is small; but if a man be bitten by a vigorous cobra he certainly will die therefrom unless the entry of the poison into the blood be at once prevented. Stimulants are useful to prolong life. He did not think it likely that suction would extract much poison from the puncture, the poison being absorbed through the mucous membrane. There need be no abrasion of the skin, and there is danger to the person sucking the wound given by a deadly snake. The poison kills if passed into a rabbit's stomach or into a bird's gizzard.—H.I.H. Prince Louis-Lucien Bonaparte said that Sir J. Fayrer had proved the difference between viperine and colubrine; they were chemically different, the one coagulating, the other not coagulating, albumen. Analogy pointed to the difference in the chemical composition of the poisons of different species of snakes.

Spinal Deformity, with Fragility of Bones.—Foreign Body in the Pterygoid Region.—Pyæmia in a Child associated with Cystitis and Pyelo nephritis.

A meeting of the above Society was held on April 23rd, Sir Joseph Fayrer, President, in the chair.

Mr. Pearce Gould showed a case of Ununited Fracture of the Olecranon on which he had performed antiseptic suture of the fragments.

Dr. Lee read a paper on a case of Spinal Deformity and Fragility of Bone in its relation to Insanity (patient shown). He remarked that the disease of bones which caused deformities were obscure in their origin and difficult to explain. The pathological changes alone did not assist us in understanding them, and it was rather by observing the subtle influences of the hereditary peculiarities and close study of the clinical history of cases that we might arrive at such a knowledge of the causes as to enable us to treat the diseases with advantage. The man was thirty-nine years old, and had lost in seven years nearly five inches and a half in height from curvature of the spine, tibia, and other bones. He had broken both humeri at different times, as well as the clavicles and the patellæ. There was a strong family history of insanity and dipsomania. This man had not taken stimulants for twenty-five years. The exact nature of the case was doubtful, as there was some thickening of the bones and other symptoms of osteitis deformans; at the same time there were some of the ordinary symptoms of malacosteon.

Could the two conditions co-exist?—Dr. Symes Thompson asked if there was anything like the gastric crises seen in locomotor ataxy. The case was unlike the ordinary cases of fragility of bone in progressive muscular atrophy, Charcot's disease, osteitis or mollities ossium.—Mr. Hugh Smith asked if the urine contained an excess of phosphates.—Sir J. Fayrer asked if Dr. Lee had inquired into the statistics of lunatic asylums as to fragility of bones. The disease was not inflammatory. Had any other members of the family suffered in the same way? He mentioned a case where a tibia became bent from chronic osteitis, following an abscess which had been cured by trephining.—Dr. Lee, in reply, said there was no gastric crises nor marked excess of phosphates. Its resemblance to rickets had attracted his notice. In cases of rapid bending of bones after fever, the bones recover quickly, and these cases differ from the common form of rickets. Rickets was associated with nervous depression. Fragility occurs in paralysis of the insane, and osteomalacia had been seen in melancholia. In the present case no other members of the family were affected.

Mr. Hugh Smith related a case of Foreign Body in the Pterygoid Region. In March last a boy, aged six years, was brought to Mr. Henry Smith, having fallen with a piece of clay pipe stem between his teeth. On rising from the ground blood flowed freely from the mouth, and a small opening was visible internal to the second lower molar on the right side. On passing a probe a rough surface was felt at the depth of half an inch. Chloroform was given a week later, but owing to the rigidity of the jaws an attempt to remove the foreign body failed. Five weeks later chloroform was again given, the mouth being kept open with Rose's gag; the sinus leading to the rough surface was enlarged by incision, and a piece of pipe-stem one inch long was removed with the nasal polypus forceps. Mr. Smith also detailed a similar case which came under the care of his father, Mr. Henry Smith, twenty years ago. A man while smoking received a violent blow in the face. Five or six months afterwards he suffered from a painful swelling behind the angle of the jaw proceeding from an abscess, and eventually from its sac was taken a piece of pipe-stem an inch long. In both of these cases the foreign body entered the soft tissues internal to the ascending ramus of the jaw.—Sir J. Fayrer mentioned the case of an officer at Darjeeling, who fell on the stump of a bamboo and was impaled. He remained there for many hours; the bowel was injured and also the bladder. He was sent to Calcutta, and after great suffering a stone was eventually found in the bladder around a fragment of bamboo.—Dr. Isambard Owen referred to a specimen in the museum of St. George's Hospital of a hat-peg broken off through the stem. It had been lodged in the orbit, and was extracted, the patient recovering.—Mr. Alban Doran said there was often no suppuration around steel instruments—e.g., a prong of a fork.—Mr. Pearce Gould referred to the fact that many foreign bodies remain in the tissues without setting up suppuration, which appeared in many cases to be due to septic particles carried by them into the wound.—Sir J. Fayrer added that foreign bodies caused mischief by the great tearing and bruising of the tissues. He had known bullets to remain encysted in the body for many years without injury.—Dr. Day mentioned a case where a fish-bone in the rectum caused long-continued and profuse hæmorrhage, which ceased on the detection and removal of the foreign body.—Mr. Black knew of a case of intractable rectal abscess, where, at the end of a year, a piece of trouser was extracted, which had been carried in by impalement some years before.

Dr. Day read notes of a fatal case of supposed Pyæmia in a Female Child, associated with extensive changes in both Kidneys and Bladder. The child was twelve years and a half old, and came under care on Feb. 10th, 1883, suffering from constant sickness and failing strength. Five years previously she was said to have had measles and scarlet fever. Two days after admission a large and prominent tumour was detected in the abdomen, extending from the umbilicus to the pubes. This proved to be the bladder; a catheter was passed with difficulty, owing to contraction of the urethral orifice, and twenty-six ounces of acid urine containing a little pus were drawn off. A petechial rash appeared, and became general. On the 23rd she became delirious, and on the 25th she died. After death the right kidney weighed three ounces. Its capsule was thickened and universally adherent; the pelvis was dilated, containing four ounces of turbid urine. The left kidney weighed about five ounces, its surface covered with points of suppuration and small abscesses; the ureter dilated and its walls thickened. The bladder had thickened walls and greatly congested lining membrane. Dr. Day remarked that retention of urine is rare in children, especially in girls. The cause in this case was obscure. The contracted urethra might account for the bladder condition; and he thought the fatal illness was of pyæmic nature.—Dr. Amand Routh thought the cystitis preceded the contracted condition of the urethra.—Mr. Pearce Gould thought the case to be one of surgical kidney caused by stricture of the urethra.—Dr. Routh agreed with Mr. Gould. He asked whether the child had syphilis. A stricture might often occur from a cicatrizing chancre; or was there any history of masturbation?—Dr. Ewart suggested that there was local tuberculosis of the urinary tract. If it was pyæmia, it was local and not general, and death resulted from uræmia.—Dr. Day said there was no evidence of vulvitis or of masturbation, nor of syphilis. The symptoms were not those of uræmia. There was no tuberculosis.

CLINICAL SOCIETY OF LONDON.

Lepra Tuberculosa.—Excision of Lip.—Symmetrical Gangrene.—Subcutaneous Nodules.

THE ordinary meeting of the above Society was held on Friday, April 27th, Dr. Andrew Clark, President, in the chair. Three papers were read, and two, by Dr. Stephen Mackenzie and Dr. Dyce Duckworth, were, by the consent of the authors, taken as read, on account of the great number of communications still in the hands of the secretaries. A case of spondylitis deformans was shown by Mr. Glutton, a case of multiple nodes in a patient the subject of congenital syphilis by Dr. H. Radcliffe Crocker, and a case of tubercular ulceration of the palate by Dr. Barlow.

Dr. W. J. Tyson showed a case of *Lepra Tuberculosa*. R. C. S., aged sixteen, was born in Ireland, and when two months old went to India, and remained there until he was six, then returned to Ireland and has not been abroad since. His family history gave no clue to his case. He was quite well until two years ago, when the present condition of face first began to show itself. The lad is physically strong and fairly well made; height 4 ft. 8½ in.; his hair is reddish and his eyes blue. He does not seem mentally dull. The appearance of the face was characteristic of the disease, and had, as many have, a somewhat lion-like appearance; the skin was soft to the feel, thickened, and of a brownish-red color; on his chin and just underneath it were about a dozen small elevations

(tubercles), varying in size from a mustard-seed to a pea. On the trunk in front and behind there was a yellowish-brown mottling. The chest and abdomen were healthy. There was no albumen in the urine. Just below the right buttock there was a patch of flattened tubercles, and over the left olecranon a softish mass of the size of half a walnut. The hands were generally cold, and the skin thickened; around each wrist-joint there were a few tubercles. The skin over the feet was red, thickened, and scale-like in appearance. All the joints were sound. Hoarseness of voice had come on quite recently. There was no anæsthesia of the skin. His diet did not seem to have been abnormal. There were no signs of nerve lesion of any kind, and no joint affection.—Dr. Southey said the case was very interesting, as presenting all the signs of the earlier stage of leprosy. Two or three years hence the boy would show loss of sensation in the ends of the fingers; the fingers would become less mobile, and so a real distress to the patient, and such patients would often cut off their fingers themselves. Anæsthetic leprosy began quite differently by erythema of the skin of the face, hands, and arms; these were thickened, red and raised, and they became insensible first in the centre; the insensibility was limited to the skin; there were no tubercles in the skin. In the later stages of tubercular leprosy albuminuria came on with granular degeneration of the kidneys.—Mr. Startin said that there was slight ulceration commencing in the lobes of the boy's ears. He had seen a case of leprosy coming on ten years after the man left India.—Dr. Clark asked if Dr. Tyson had examined for bacilli.—Dr. Southey said there was frequent micturition preceding the albuminuria. The granular kidney was due to a general increase of the connective tissue of the kidney, and as also in the liver and other organs.—Dr. Dyce Duckworth referred to the report on a case of leprosy that died in Middlesex Hospital, published in the Pathological Society's Transactions.—Dr. Tyson said he could get no further history than that given. He did not think the very slight ulceration behind each ear was specific; he also doubted the thickening of the ulnar nerve. There was no frequency of micturition. He had not examined for bacilli.—Dr. Andrew Clark nominated Drs. Southey, Dyce Duckworth, Thin, and Tyson as a committee to investigate the case for bacilli.

Mr. Richard Barwell read a paper on a case of Removing a large portion of the Upper Lip without deforming the face.—George S., aged sixty-one, much addicted to smoking short clay pipes, came under Mr. Barwell's care with epithelioma of the upper lip. The growth was close to the corner of the mouth, but did not involve the commissure; and was so extensive that at least two-thirds of the lateral half of the lip had to be removed in eradicating the disease. The following operation was devised and performed, Nov. 4th, 1882: The base line of the triangle requiring removal was measured, and an equal line marked by a superficial incision extending from the corner of the mouth directly outward. The other sides of the triangle, also measured, were similarly traced from this line downward towards the ramus of the jaw. Thus was traced outside and below the mouth a triangular flap exactly like that to be removed from the upper lip, but reversed. The first—the horizontal—incision was now deepened down to, but not into, the mucous membrane; then the two lateral limbs of the triangle were incised through all tissues into the mouth, and some bleeding vessels were twisted. The thick tissues of the flap were dissected from the mucous membrane left hanging to the horizontal incision, to which the extreme point being sacrificed, it was stitched,

thus giving to that part a red border. The next step was the excision of the epithelioma along the lines already traced and measured. The edges of the lower of what may be called the complementary triangle were now brought together with twisted suture. In doing this the horizontal base line of the complementary triangle was necessarily shifted inwards, and coming to lie above the lower lip took the place of that part of the upper lip which had been removed with the cancer. The new red border, made by turning up the mucous membrane of the cheek, imitated the natural red of the lip. The edges of the wound in the upper lip were now brought together with harelip pins, and the new mucous edging sewn with horsehair, both to where it joined the old and at the commissure of the mouth. When all was complete, no deformity was left. The man recovered rapidly; and when seen two months after operation his mouth was as nearly perfect in form as previous to operation, nor did its movements appear in any way irregular or constrained. The disease rapidly recurred, and prevented Mr. Barwell from showing the case.—Dr. Andrew Clark remarked that possibly the most important factor in causing epithelioma of the lip was irritation, which stimulated growth and repressed development.

Dr. Southey related a case of Tachetic Symmetrical Gangrene and showed the patient. Frank N—, aged nine, admitted into Matthew ward, St. Bartholomew's Hospital, November 25th, 1881, was much emaciated, his hair thin and falling off, abdomen empty and retracted; skin dry, and he was in a curious, excitable, semi-delirious mental state. He presented a gangrene of the tip of his right index finger, all his extremities felt cold, and he had insomnia. His pulse was 148, very feeble; respiration 32; temperature 99°. His heart beat with feeble impulse in normal situation. There was no increase of normal cardiac dulness; no cardiac murmur; no physical signs of lung disease. Neither liver nor spleen transcended their normal limits. His appetite was bad; he had had no sickness; bowels acted once daily; tongue clean and moist; micturition gave no pain; urine scanty, not abnormal. After a few days the thumb and second finger of the same (right) hand were involved, became first red and throbbled, then livid and finally gangrenous. On December 5th an exactly similar spot occurred on the pinna of the right ear, and on the extremity of his nose, and the tip of the middle finger of his right hand. A little later, subcutaneous mottlings (*tachetéés*) appeared all over his trunk and limbs, and developed into a raised rash like urticaria tuberosa or erythema tuberculatum. The spots first itched, then became painful and tender, but gradually subsided, leaving only some pigmentation to mark their sites. Finally, all the fingers and the thumb of the right hand gangrened and slowly separated, also the thumb, index, and little finger of the left hand. He passed into a condition of most extreme prostration, with bronchopneumonia of both lungs, and only very slowly and gradually recovered from it. In January, 1882, a new and interesting clinical feature was manifested—namely, intermittent true hæmaturia, bloody urine being passed alternately with normal colored, non-albuminous urine. Some days distinct blood cells were passed with the urine, on others, blood-coloring matter without blood cells; on others, albumen with blood enough to give the guaiacum reaction only. Oxalate crystals were present in great abundance when the hæmaturia was abundant, and *vice versa*. No tube casts were ever noticed. All symptoms of urinary disorder disappeared in July, 1882, when the child was discharged well, but with the loss of his fingers. He had been seen several times since.

The author next cited some parallel examples of this malady, which he referred to vaso-motor disturbance.—Dr. A. Clark asked if there was any history of rheumatic gout; such patches of gangrene were not uncommon in so-called rheumatic gout.—Dr. Barlow had never seen so severe a case as this, but he had seen two or three cases of Reynaud's disease. The first was that of a man, aged thirty-five; he was said to have rheumatism; he had severe pains in his legs, followed by patches of very bluish redness; this he had had for several years, at times, during the winter months. Dr. Barlow first saw him a few days after one of these attacks, and he then had a patch of gangrene on one toe, and a livid patch near one hip. He had also seen the disease in two girls who first suffered at the age of three years and a half. They suffered monthly in the winter. When first seen, one of them had one limb quite black, and was in extreme pain; after three hours the color passed off and the child was quite well. He saw several such attacks in this child. The other little girl had her attack in cold weather; she had with several of her attacks violent pain in the stomach, and two or three hours after the attack she passed urine very dark from hæmatin—not blood-corpuscles—and containing oxalates. She did not pass the dark urine more than once after the attack. The disease seemed to be like paroxysmal hæmaturia in coming on in cold weather, and also in its mode of onset. Cold was much better than warmth for these attacks. He referred to a case of paroxysmal hæmaturia which appeared to be benefited by washing in cold water, while the patient had been accustomed to bathing in very hot water. Reynaud had used the constant current down the spine with excellent effects, and one of his patients, the man, was distinctly benefited by this treatment. He had not found any proof of rheumatism or gout in any of his cases. Mr. Hutchinson had described an end-joint arthritis which he associated with Reynaud's disease. Dr. Barlow had a patient with symmetrical fibrous ankylosis of fingers, and he had great coldness in his extremities, but not patches of local asphyxia.—Mr. Cripps thought this disease was essentially local, and that the disease was essentially a gangrene. No embolism had ever been found. There was a great analogy to ordinary frostbite in which there was no general disease. Young women often have cold hands and feet, and these easily get chilblains from a feeble action of the heart. He referred to a case of a woman very liable to chilblains, who married, and six weeks after confinement had gangrene of both hands, legs, and ears. The sudden call of the child-birth caused gangrene in a patient with a feeble circulation. He thought cold was a very dangerous application to parts already gangrenous. Opium was the drug of most value.—Dr. Barlow said he had only recommended cold for localized asphyxia. Reynaud had found spasm of the arterioles of the retina in three cases.—Dr. Mahomed referred to a case under Dr. Wilks of symmetrical gangrene and intermittent hæmaturia and hæmatinuria. He thought the disease was quite different from the cases referred to by Mr. Cripps; these people have not a feeble circulation, the early stage is like that of factitious urticaria. He referred to the case of a woman who showed the disease in a very chronic form. She had had the disease for seven or eight years. When first seen her fingers were blue, with black tips, like severe chilblain with gangrene added to it. In the summer the hands recovered considerably, and became almost well. There was no albuminuria or hæmatinuria.—Mr. Symonds said that the case first referred to by Dr. Mahomed was now well. He also mentioned a patient who suffers from chilblains and has lost the tips of two

fingers. She had none of the general symptoms of this disease. A girl from whom he had removed the ulna came to him the other day with well-marked purpura and hæmaturia.—Dr. Southey replied to Mr. Cripps that he considered the disease as a general disorder dependent probably upon disturbance of a centre in the upper part of the spinal cord regulating the vaso-motor system. He thought we were quite ignorant of the true etiology of the disease. There appeared to be spasm of the arterioles, which in rare cases passes on to gangrene.

Abstract of Dr. Stephen Mackenzie's paper on a case of Subcutaneous Nodules occurring in a patient the subject of Syphilis, and with very indefinite connection with Rheumatism. The patient was a married woman, aged forty, who had never had any important illness till three years ago, when she apparently had syphilis. She came under care for a tertiary syphilide, and during examination it was discovered that she had several subcutaneous nodules. In all, eight have been detected, which vary in size from a hemp seed to a split pea. The skin over them is natural, and they are all movable. They cause no pain, except when pressure is made on them. Two are situated along the posterior border of the ulna, and the remainder, with the exception of one in the gluteal subcutaneous tissue, beneath the skin of the thumbs and fingers. The first she noticed about two years ago, and it has increased in size. None that she has observed have disappeared. As regards rheumatism, the only symptoms which could be in any way construed as due to this disease were some pains in the legs eight years previously, for which she used a liniment. She has never had chorea. There is no evidence of heart disease, nor of arthritis, present or past. The physical characters of the subcutaneous nodules are exactly those of the nodules described by Drs. Barlow and Warner in connection with rheumatism and allied affections. The interest in the case lies in the very indefinite, if at all existing, connection between the nodules and rheumatism. The patient had not suffered from any distinct rheumatic symptoms, nor is there any family tendency to that affection. The association of the nodules with the syphiloderma may be fortuitous. The duration of one of the nodules is greater than in any of the series of cases recorded by Drs. Barlow and Warner. The longest time they noticed nodules to persist without diminution was five months.

Abstract of Dr. Dyce Duckworth's paper on a case of Rheumatismal, Cutaneous, Subcutaneous, and Periosteal Nodules. M. F—, aged thirty-eight, a married woman with one child, came under Mr. Langton's care at St. Bartholomew's, in December, 1882, for the treatment of multiple fibrous nodules on the arms and legs. She was active and robust, with fresh, rather florid complexion and fair hair. Teeth nearly all decayed and lost. The history was that a "lump" first came on the right elbow in September, 1879, another on the right knee soon followed, and others have appeared on the limbs from time to time. They were found in the several positions hereafter mentioned. Right ulna: A large tumour (size of a penny), freely movable, not adherent to the periosteum. Below this two others, much smaller, adherent to the periosteum. None over the radius; one firmly attached to the anterior ligament of the wrist; one in the palm of the hand; and one on the third phalanx of little finger. Left ulna: One four inches below olecranon, small, slightly movable, not adherent to the skin. None on the radius. On the palm of the hand six small nodules, adherent to the skin. Right leg: One over the lower angle of the patella,

movable, not attached to the bone, about the size of a penny. Another, two inches below patella, much firmer, freely movable, and adherent to the skin. Numerous small ones on the crest of the tibia, to within five inches of the ankle, firmly adherent to the periosteum. Several over the upper part of the fibula, firmly adherent to the periosteum. No nodules found on the scalp, scapulae, spinous processes of vertebrae, or feet. The tumours were very painful, and ached more in cold weather. There was no personal history of rheumatism or of chorea in this patient. Her mother, however, was rheumatic, and a sister had had three or four attacks of rheumatic fever. Examination of the heart revealed nothing worthy of note. There was perhaps doubtful roughness of the first sound of the apex. Iodide of potassium was given, and during the past three months there had been a gradual reduction in the size of the nodules, and some of them had become softer. Having regard to the clinical features of this case, and to the family rheumatic predisposition, Dr. Duckworth ventured to call these nodules rheumatic in their nature, and he believed that further study of these cases showed that there are several types or varieties of them. This case, as well as that one exhibited by him at the beginning of this session to the Society, illustrated a form met with in adults in which the nodules are very persistent, and are also attached to the skin and periosteum. Amongst the first cases brought forward by Drs. Barlow and Warner, the nodules were found to be commonest in children and young persons, to be subcutaneous, not to have any periosteal attachment, and not to last more than a few weeks or months. In this instance, the nodules have lasted for two years and six months, and in the other for one year and six months.

HARVEIAN SOCIETY OF LONDON.

At the meeting of this Society held on April 5th, 1883, the President, Dr. E. Symes Thompson, in the chair, Dr. Broadbent showed a patient who was suffering from a Peculiar Disturbance of the Capillary Circulation. The patient, eight years ago had a sunstroke, which for a time rendered him insensible; previously to this he had frequently suffered from pain in the occipital region and vertigo, which since that time had been much aggravated. Seven weeks ago, while looking over a bridge, he was seized with a sudden and violent pain at the back of the head, and intense giddiness, upon which supervened unconsciousness, lasting for fifteen minutes; since then he has had several similar attacks, as many as three or four a week. On speaking to the patient a blush appeared on the face which extended over the chest and back, and lasted several minutes, leaving a mottling of the skin which somewhat resembled roseola. The "tache cérébrale," again, was unusually well marked, a line of vivid redness appearing in the track of the finger nail drawn over the skin. In the course of his remarks Dr. Broadbent stated that this was a condition occasionally seen when the nervous system was broken down by overwork and strain. The "tache cérébrale" was most commonly seen in tubercular meningitis, but it was often present in other acute cerebral diseases and sometimes in enteric fever; its occurrence in association with prostration of the nervous system without fever was interesting and suggestive.

Dr. Sydney Phillips showed a case of Congenital Dislocation of both Radia. The patient was a girl, aged seventeen, otherwise well developed.

The head of each radius formed a well-marked prominence behind the external condyle of the humerus. The elbow-joint could be fully extended by the patient, and could be flexed to almost the normal degree, but only with the hand in a semi-pronated position. The head of the radius could be rotated to a small extent on the external condyle of the humerus, and the various prominences of the elbow-joint, as well as the head of the radius itself, were fully developed. The deformity was noticed almost immediately after the birth of the patient. Cases of dislocation of the bones of the forearm were stated ("Holmes' Principles and Practice of Surgery") to have occurred from traction on the limb by the accoucheur during delivery, but this did not appear to have been the cause in the present case, as the deformity was symmetrical on the two sides, and there had been no difficulty in the birth of the child. Dr. Phillips thought that, possibly, the radius was developed in the abnormal position.

Dr. A. J. Silcock exhibited a Kidney, Bladder, and Testicle taken from a patient who had recently died in St. Mary's Hospital. The left kidney was much enlarged, weighing twelve ounces, and very firmly adherent to the perinephritic fat. Scattered through its substance were numerous milky caseous tubercles, which had in many cases coalesced into patches of much larger extent. The mucous membrane of the ureters and pelvis were beset with small circular ulcers and submucous caseous deposits. A few caseous nodules were found in the right kidney, and both ureters were considerably dilated. The bladder showed a large number of ulcers, varying in size from a pin's head to a florin, the larger ones extending deeply into the submucous tissue. When removed from the body the mucous membrane was vividly injected. The prostate was slightly, but irregularly, enlarged from the deposition of caseous matter in its substance, the vesiculæ seminales and vasa deferentia on both sides being similarly affected. Microscopically the process was essentially an intertubal growth of a small-celled granulation-like tissue, and tending to caseation or to the formation of ill-developed fibrous tissue. As regards other organs, tubercular ulcers were present in the intestines, and grey milky tubercles in the lungs, with extensive recent tubercular pneumonia. The disease, so far as the genito-urinary tract was concerned, seemed to have commenced in the left kidney and spread therefrom to the bladder, prostate, and right kidney, the patient eventually succumbing to the pneumonia. His reason for supposing the disease to have begun in the kidney and travelled downwards was that that organ was caseous, whereas he had never before seen a tubercular testis in such an early stage.

Dr. John Williams next read a communication on Antiseptics in Midwifery in Lying-in Hospitals and Private Practice. He detailed the means taken at the Hospital for Women and Children, for avoiding septic infection after childbirth; these means, shortly, were perfect cleanliness in the patients themselves, strict attention to the state of the wards, which were cleansed daily and were periodically cleared of patients and disinfected with sulphur; during the act of parturition, antiseptic inunction of the vagina and of the head of the child at its descent during each pain, and after delivery, daily vaginal douches with warm water. By such means the mortality of the institution had been much decreased, being now 1 in 200. He compared this with the rate met with in private practice, which, he said, would be much higher if the large number of deaths from puerperal fever—but returned in the certificates as due to pleurisy,

pneumonia, and peritonitis—were taken into account.—Dr. Meadows remarked on the lowness of the death-rate obtained by Dr. Williams, but had seen a similar plan of treatment carried out in Russia as long ago as sixteen years. He deprecated the practice of intra-uterine injections, and remarked that the source of septic infection was often from within; a poison being bred in the maternal passages, a result of a diseased condition of the secretions.—Dr. Hickman thought that washing out of the vagina shortly after delivery was just as dangerous as intra-uterine injection, though after a few days vaginal douches became perfectly safe.—The President, Dr. Norman Kerr, Dr. Lamb, Dr. Alderson, and Dr. Wells took part in the discussion, and Dr. Williams replied.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

The Immediate Causation of Optic Neuritis in Intracranial Disease.—Recovery from Mild Sympathetic Ophthalmia.—New Registering Perimeter.—Peculiar Changes at the Yellow Spot.—New Refraction Ophthalmoscope.—Asthenopia.—Pseudo-Glioma.

THE ordinary meeting of this Society was held May 10th, W. Bowman, Esq., F.R.S., President, in the chair. At the commencement of the proceedings the President reminded the members that at the next meeting, on June 7th, a debate would be opened by Dr. Gowers upon Eye Symptoms in Diseases of the Spinal Cord (*vide infra*); and that if necessary the discussion would be continued on the following evening.

A paper entitled Remarks on the Immediate Causation of Optic Neuritis in Cases of Intracranial Disease was communicated by Dr. Walter Edmunds and Mr. J. B. Lawford. It was based on the examination of the optic nerves in eighteen cases—namely, eight of head injuries, two of tubercular meningitis, two of tumours of the dura mater at the base of the brain, two of cerebellar tumour, and two of cerebral tumour. The cases occurred consecutively at St. Thomas's Hospital. The examination of the optic nerves showed inflammation when they were affected at all, often more intense at the peripheral part and in the meninges, of the nerves. The authors inferred from this that the inflammation was communicated to the nerve from its meninges, down which it extended from the meninges at the base of the brain. This view was further supported by an analysis of the cases. The alternative theory of a descending cerebritis was criticised, and considered to be less well founded. Microscopic sections and drawings were exhibited.—The President asked if the inflammatory changes were more marked on the outer surface of the nerve than in its interior, for, if so, the fact would support the authors' contention as to the origin of the neuritis.—Dr. Edmunds replied that the changes were more marked at the circumference than in the substance of the nerve.—Dr. Brailey said the question was one to be decided by a careful balancing of microscopical evidence, and therefore there was much to be said for the view maintained by the authors. It seemed scarcely consistent with that view that there should be so little inflammation of the disc itself; and he was inclined to attribute the swelling of the disc to oedema. In renal disease the white patches are largely due to swelling of nerve fibres from oedema. In the case of papillitis secondary to meningitis, might not the disc suffer from inflammatory oedema because of the nerve at this point being free from the pressure exerted by the sheath.

Mr. Jennings Milles read notes of Five Cases of Recovery from Mild Sympathetic Ophthalmitis, the clinical characters of which were very similar. In all the cases there was a wound of the cornea, in conjunction with a wound of the ciliary region, or entanglement of the iris. The attack of sympathetic inflammation was of a very mild type, consisting of iritis serosa without any posterior synechiae. There was very slight ciliary congestion, and no pain. In every case the sympathizing eye made a rapid and uninterrupted recovery. In three cases the exciting eye was enucleated directly symptoms of sympathetic inflammation manifested themselves. In one case, excision was not performed till twelve months after all symptoms had disappeared; and in one case excision was performed twenty-two days before sympathetic inflammation appeared. This last case was also remarkable from the fact that the exciting cause of the disease was an extraction of cataract, which had been performed fifteen days previous to the excision. Mr. Milles showed some micro-photographs, illustrating the conditions of irido-cyclitis and neuro-retinitis found in the excised eyes. He stated that he was indebted to Mr. Watson Cheyne for being able to exhibit them. On the question of treatment, the cases were opposed to the dictum of Mauthner, that "one dare not excise in serous iritis;" but clearly proved that excision did no harm. On the other hand, they did not support the view that excision had any power in modifying or arresting the progress of sympathetic ophthalmitis, when once started. Stress was laid on the great importance of the constant use of atropine, and the removal of all sources of irritation, chiefly by the rigid exclusion of light, and by keeping the patient in a dark room, with a bandage over the eyes.—Mr. Nettleship said that he must apologize to Mr. Snell for having mislaid a case which he had contributed on this subject, and which would have now to be read subsequently. The case was interesting, especially in connection with the treatment employed, and he would give an outline of it. A young man received a punctured wound in the left ciliary region by a large needle. Sympathetic iritis of the right eye ensued in a few weeks. Mr. Snell prescribed atropine and rest, but after two or three days the pupil remained undilated. A small prolapse of the iris had occurred at the wound in the exciting eye, and Mr. Snell performed a sort of sclerotomy through the prolapse, removing what he could. In two days after the operation the right pupil dilated, and recovery took place.—Mr. Power had had large experience of injuries to the eye at St. Bartholomew's Hospital, Chatham, amongst the dockyard laborers, from particles of iron becoming detached in driving in rivets. When the injury is very severe, the eyeball ruptured, the iris much damaged, the only course is to remove the globe at once. But there are many other cases in which there is merely a punctured wound, the iris protruding to a certain extent, and in which often an operation is objected to by the patient. In such a case Mr. Power is in the habit of making a large iridectomy with a keratome, clearing the iris freely away from the edges of the wound so as to avoid its being strained. He had had excellent results from this practice. Both eyes must be bandaged, and the patient left in the dark for two or three weeks after the operation. When the lens is damaged it is well to remove the eyeball. It is bad practice to simply snip off the portion of prolapsed iris.—Mr. Couper said that in two of the cases recorded in the paper the sympathetic attack was very mild; in one extremely so; and in these we might trust to treatment. But what ground is there for believing that an attack of sympathetic inflammation

will continue to be a slight one? A severe attack may supervene and destroy the eye, and treatment come too late. If we may judge from his own cases, and that of Mr. Tweedy, which the author related in the paper, it would seem as if early excision arrests the progress of sympathetic inflammation. In one of his cases this attack was so severe that traces of plastic iritis remained a year afterwards, but with normal vision. In spite of the good vision in the injured eye, he thought it was right to excise when the sympathetic inflammation showed itself.

Mr. Adams Frost mentioned a case under the care of Mr. Warren Tay. A girl, ten years old, was wounded in the right eye by scissors, the wound extending to the sclero-corneal junction. Seven weeks afterwards, the wound had healed, the iris adhered to it, but there was no affection of the other eye. Ten days later she complained of dimness in the left eye, and keratitis punctata was observed; fundus normal. Between the fourteenth and sixteenth weeks there was well-marked optic neuritis, but the cornea was clearer. During all this time, and until the twentieth week, atropine had been employed, but it was now left off although papillitis was still present, vision being normal. Ten weeks later she returned with tough adhesions of the iris around the pupil, V. 20-70, but no injection of conjunctiva. Atropine was used again for four weeks, and some fresh opacities appeared on the cornea. Fifteen months after the injury the cornea was nearly clear, the synechiae unchanged; still well-marked papillitis. The injured eye remained passive throughout. The case showed the importance of long-continued use of atropine. He also reminded the Society of another case he recorded last year in which complete recovery took place. In that case there was no optic neuritis.—The President agreed as to the importance of obtaining at an early period absolute exclusion of light, and as to the desirability of the continued and sustained use of atropine, so long as it can be borne without increasing the congestion of the eye, as is not infrequent in advanced stages. He could never forget one case he had to deal with. A child was brought to him within a few days of the occurrence of sympathetic ophthalmia which had attained a severe height. The eye was tense and bulging, and the cornea covered with opaque dots. The injured eye was much damaged and he excised it. Immediately after the excision the tension of the inflamed eye became normal, and after some weeks of severe iritis there was complete synechiae, the iris being in many parts so bulged as to encroach on the anterior chamber. After months of continued exclusion of light, and the use of atropine, the eye completely recovered, and a year later there was no trace of the synechiae, the iris being perfectly mobile. He was never more astounded or delighted at so complete a recovery. He agreed with Mr. Power as to the desirability of very early excision of the iris embracing the region of injury, and extending beyond it if possible, so as to detach all the points to which the iris might contract adhesion; and indeed, generally speaking, it is important to divide and destroy anterior synechiae.

Mr. Priestley Smith exhibited an improved form of the new registering Perimeter, described by him a few months ago in the *Ophthalmic Review*. In the original instrument the sight-object traversed the visual field in concentric circles. This method, though advantageous in certain cases—namely, wherever the limiting line of the field runs in a meridional direction—was not universally applicable. With the instrument as now constructed the field would be traversed either in meridians or in circles; it was thus more efficient,

as well as being simpler in construction. The axis which carries the quadrant had fixed to its posterior extremity a wooden disc or hand-wheel, balanced so that the quadrant would stand in any position without fixing. The chart was placed upon the posterior surface of the hand-wheel and rotated with it. Behind the chart was a bracket carrying a horizontal fixed scale, the divisions of which correspond with the circles on the chart; and when the instrument was rotated, whatever position the quadrant assumed, the corresponding meridian of the chart stood against this scale. In consequence of this automatic movement of the chart, the readings obtained on the quadrant were very easily pricked off upon it by a steel pencil held in the hand of the operator. The advantages of the arrangement were, that the chart was visible to the operator throughout, and indicated by its own position the exact position of the quadrant. Thus any particular part of the field could be at once brought under examination by bringing that point on the chart round to the scale, and re-examination could be made of any point at any time by placing the original chart in the instrument. The perfected instrument was in the hands of Messrs. Pickard and Curry.

Mr. J. E. Adams showed Drawings of a peculiar appearance at the Yellow Spot. The patient was a woman. There was a small slightly raised area in each eye; the nature of this was very uncertain; very probably it was a physiological peculiarity.

Mr. Couper exhibited an Ophthalmoscope, about a foot long, over an inch broad, and containing 140 lenses, which he found very convenient in estimating refraction. The construction of the instrument, which was very ingenious, cannot conveniently be described without a diagram.

Dr. Brailey made the following communications on Asthenopia:—1. The case of a delicate child, aged seven, in whom asthenopic symptoms were immediately and perfectly relieved by the use of a 4° prism, base in, divided between the two eyes. Both internal and external recti were absolutely weak, the latter apparently even more so than the former. There was no hypermetropia. 2. A case in which a prism, placed vertically, relieved symptoms of asthenopia. Correction by sphericals and cylinders gave partial relief, which was rendered complete by the addition of a prism of 3°, placed before the left eye with the apex down. The case was very like one reported to the Society by the author in 1881.

Dr. Brailey also read notes of a case illustrating the development of the condition known as Pseudoglioma. The disease began with an acute febrile attack, with swelling and redness of the lid, and proptosis and injection of the globe. Afterwards the eye became slightly shrunken; the iris-periphery was retracted; and a whitish reflex was visible from behind the clear lens. Dr. Brailey judged the case to be one of spontaneous suppurative hyalitis.

Memoranda on Eye Symptoms in Spinal Disease, prepared by Dr. W. R. GOWERS.

Of the ocular symptoms associated with spinal disease, two are of especial importance on account of their frequency—atrophy of the optic nerve, and the states of the pupil. Modern pathological investigation has rendered it improbable that these ocular symptoms are the result of disease of the cord. They are associated almost exclusively with degenerative diseases, and probably depend on a degeneration which is not structurally continuous with that in the cord. They are almost unknown in acute diseases of the cord, except when these follow, or are followed by, degeneration which runs

a practically independent course. Considerable interest will therefore attach to any cases that can be brought forward in which these symptoms were distinctly consecutive to an acute lesion of the cord. Optic nerve atrophy is associated especially with locomotor ataxy, and the association may be considered from the side of the ocular and of the spinal affection. In what proportion of cases of atrophy of the optic nerves can the signs of locomotor ataxy be detected? As the earliest and most constant of these signs, the loss of the knee-jerk may be conveniently taken as a criterion. In what proportion of cases of locomotor ataxy do the optic nerves undergo atrophy? It is not probable that a definite answer can be given to this question, because few cases of ataxy are followed to the end, so that the occurrence of atrophy cannot be excluded. But an approximate answer can be secured if the next question can be decided. When does atrophy of the optic nerves usually commence in the course of ataxy? The course of tabes may, for this purpose, be conveniently divided into three stages—(1) before there is any alteration in gait; (2) when the gait is distinctly ataxic, but the patient is still able to walk alone or with the aid of a stick; (3) when the patient is unable to walk without the help of another person. It is very important to know in what proportion of the cases of tabetic atrophy the change in the optic nerve commences in each of these stages. If the proportion of cases in which atrophy commences in the first stage is known, an approximate estimate of its total frequency can be formed from the number of cases in the second stage with and without signs of atrophy. Can any relation be traced, in a series of cases, between the occurrence of atrophy and the character of the spinal symptoms (pains, anaesthesia, etc.)? In what proportion of cases does tabetic atrophy affect one eye before and more than the other, and which eye is most frequently affected first? Does concentric limitation of the field always precede, or preponderate over, central amblyopia in tabetic atrophy? In rare cases there are unusual changes in the field of vision (e.g., temporal hemiopia). Observations on such cases are of especial importance, and so also are facts regarding acute failure of sight in this affection. Does the atrophy always progress to total blindness, or does it sometimes become arrested, and remain stationary for an indefinite time, as does the spinal affection? Can any instances of considerable and permanent improvement of sight in tabetic atrophy be brought forward? Observations and microscopical sections illustrating the pathological anatomy of tabetic and other allied atrophies are desirable, especially those which show the condition of the optic chiasma and optic tracts. In what respects does the optic atrophy of tabes differ from the optic atrophy sometimes associated with other forms of chronic spinal cord disease? When eye symptoms occur in general paralysis of the insane, is the case more likely to be complicated with spinal symptoms? States of pupil: The most frequent condition of the pupil associated with spinal disease is the loss of contraction to light, the pupil still contracting on accommodation (reflex iridoplegia, reflex rigidity of the pupil, Argyll-Robertson symptom). Erb has pointed out that, in these cases the pupil no longer dilates on a painful cutaneous stimulation (e.g., of the skin of the neck by a faradaic brush). Regarding this condition, information is needed on several points. Can this reflex dilatation be always obtained under normal circumstances? What is the most convenient and efficient means of obtaining it in regard to (a) place and (b) form of cutaneous stimulation? Is it true that there is always loss of re-

flex dilatation when there is loss of reflex contraction? The pupils are usually small in this condition, but not invariably, and are sometimes not circular. It is desirable to know whether any relation can be traced between the size and shape of the pupils and other symptoms. It is not uncommon to find, under the conditions in which reflex iridoplegia occurs, that the pupils contract under the influence of light; but immediately, the exposure continuing, dilate again to their former size, often with slight oscillations. Does this condition go on to loss of reflex contraction? In total paralysis of the internal muscles—ophthalmoplegia interna (Hutchinson)—the pupils are not usually small. What variations in the size of the pupils are met with in this condition? Regarding the association of these symptoms with spinal disease, it is desirable to know how frequently they are met with in locomotor ataxy and general paralysis of the insane, and in what other spinal diseases they occur. Both symptoms occur apart from spinal disease, and facts are needed as to the other conditions with which they are associated, and as to their relation to constitutional syphilis. Does ophthalmoplegia interna begin as reflex iridoplegia? Ophthalmoplegia externa has been shown to depend on nuclear degeneration. There is some reason to believe that reflex iridoplegia and ophthalmoplegia interna depend on a similar degeneration. Pathological observations on the nature of the lesion in these cases are much needed.

MIDLAND MEDICAL SOCIETY.

THE ordinary meeting of the above Society was held on April 4th, in the Medical Institute, Birmingham, Dr. Malins, President, in the chair.

Dr. Malins exhibited, with microscopical sections, two Atrophied Ovaries removed from a patient, aged forty. There had been no menstruation for six years, and great pain completely incapacitated the woman. Convalescence had been quite satisfactory.

Dr. Suckling showed a case of Paraplegia in a woman, aged twenty-five, which he considered to be hysterical. Owing to an attack of subacute rheumatism, a sudden rise of temperature occurred, attended with complete spastic paraplegia; but in twenty-four hours the rigidity passed off, and the patient was able to move about. There was ankle clonus and an increase of patellar reflexes on both sides, also analgesia. Electrical sensibility had been found to vary considerably, the responses being normal.

Mr. Hugh Thomas exhibited two very long Nails removed from the great toes of a woman, aged sixty-five. They had been allowed to remain uncut for eleven years. The right one measured five inches and a quarter, and passed under the four other toes. The left was three inches and three-quarters long, and lay over the other toes of the foot. The patient was unable to walk. After removal, the matrices on both sides were found to be healthy.—Mr. Thomas also showed a Placenta from a case of single birth, having a separate cotyledon imbedded in its membranes; attached to it was a rudimentary cord inserted into the maternal end of the umbilical cord, suggesting the former existence of another foetus. During the whole period of pregnancy there was persistent vomiting. No post-partum hæmorrhage took place.

Mr. Chavasse showed a child, seven years of age, upon whom he had performed Paracentesis Thoracis for Empyema by means of a double opening in the eighth intercostal space. The child was

lost sight of, but returned in four months with the drainage-tube *in situ* and the lung collapsed. In a fortnight after removal of the tube the wounds were closed, and the normal physical signs fully re-established.

Dr. Edgar Underhill (Tipton) exhibited eight small Phosphatic Calculi removed from a child, eight years old. The bladder had been examined for stone several times, but nothing could be detected with the sound. As circumcision did not altogether relieve the symptoms, Dr. Underhill made an exploratory incision into the bladder, and the stones were then readily detected by the finger and removed.

In a paper on the Administration of Parochial Medical Relief, Dr. Hickinbotham started by asserting that sickness was a most potent factor in producing and maintaining pauperism, and thus causing heavy rates. Therefore it was manifest that it would be an economical policy to use such means as would tend to prevent illness or shorten its duration. It was argued that to do this the best men, the best medicines, and the best appliances should be available in the Poor-law medical service. Three reasons were stated that deterred first-class men from accepting parish appointments: 1st, bad pay; 2nd, social disability; 3rd, harassing supervision. Dr. Hickinbotham considered that payment should be equal to that received by one of equal education and ability in the legal or other professions; that all medicines and appliances should be supplied at the cost of the parish; and that in large centres the appointments should be sufficiently valuable to demand the whole of the officer's time, as in the case of medical officers of health. Dr. Hickinbotham was not in favor of the permanent tenure of office, but thought that reasonable notice on either side should determine the appointment. It was thought that consultations should be held in obscure or difficult cases at the cost of the guardians. Referring to the management of workhouse infirmaries, an opinion was expressed that they would be best worked upon the hospital plan, with a senior and responsible non-resident and a junior resident staff of house-physicians and surgeons. Dr. Hickinbotham regretted the antagonism which often existed between boards of guardians and their medical officers, as also the attitude of the central authority, the Local Government Board, which, he said, was never marked by confidence or cordiality towards the medical profession.

The last ordinary meeting of the session was held in the Medical Institute, Birmingham, on April 18th, Dr. Malins, President, in the chair.

The President exhibited, with microscopic sections, an Hypertrophic Polypus of the Cervix Uteri; also an Ovarian Cyst showing the formation of daughter cysts. The tumour altogether weighed twenty-eight pounds.

Mr. Jordan Lloyd exhibited a specimen of Necrosis of the Patella, the result of using a peg leg in a case where the os calcis was previously diseased.

Dr. Edgar Underhill (Tipton) exhibited a simple form of Ovariectomy Trocar, which consists of a plain tube tapering to a point, sufficiently sharp to puncture any cyst, but not sharp enough to injure any internal organ. The openings are at the sides, and there are no clips of any kind. He had demonstrated its utility in a case at the Guest Hospital, Dudley, where a multilocular ovarian cyst was removed weighing seventy-two pounds. The usual clips he had found troublesome, often tearing the cyst-wall and allowing the escape of fluid into the peritoneal cavity.

Mr. Chavasse showed a Tongue removed by scissors for epithelioma. The hæmorrhage during the operation was so profuse that it was found necessary to open the trachea and suck the blood out of the patient's windpipe.

Mr. Hugh Thomas read the notes of a case of Uterine Hydatids accompanied by Icterus. The patient was an anæmic woman, aged twenty-six; the weight of the mass removed was three pounds and three-quarters; no post-partum hæmorrhage took place. With regard to the jaundice, the author thought it probable that a direct connection existed between the two conditions, caused by some undue pressure of the morbid mass upon the biliary apparatus, as when the uterus had been emptied a rapid convalescence took place.

Mr. Chavasse in a paper on Neurectomy as a Method of Treating Facial Neuralgia discussed the plans of performing the various operations that had been devised. Many instances were quoted, occurring in his own practice and those of other surgeons, in which the operation had resulted in long periods of relief; and, again, cases in which the painful manifestations were only subdued for a short time. The weight of the evidence showed that in certain instances neurectomy held out hopes of long or permanent relief from suffering when other means had proved ineffectual.

ACADEMY OF MEDICINE IN IRELAND.

A MEETING of the Pathological Section was held on Feb. 2nd, 1883.

Exhibition of Specimens.

Dr. C. F. Moore exhibited a living patient, a strong woman aged seventy-one, suffering from Molluscum Simplex. Neither her children, grandchildren, nor any relative had a similar disease. The growths commenced twenty-five years ago, without pain or injury to her health, in size varying from a small shot to that of a small grape; some sessile; some pendulous growing on the face, neck, hands, chest, and arms; none on the lower limbs.

Mr. Abraham showed microscopic mountings of new bloodvessels inosculating in granulation tissue among the meshes of a sponge skeleton after grafting.

Dr. Warren showed an example of Strangulated Obturator Hernia which had been discovered post-mortem.

Mr. Wheeler exhibited an Arm amputated for Compound Fracture, with extreme laceration; also a drawing of Erectile Tumour of the Forearm, removed successfully from a boy, aged sixteen, by excision; also a case of Congenital Deformity of the Hand, consisting in the absence of the little and ring fingers, with ribbing of the middle and index, the thumb being normal.

Mr. Stokes exhibited the Bladder of a patient who had been recently under observation in the Richmond Hospital, suffering from an exceptionally rare form of Penetrating Wound of the Bladder. The patient, a youth aged sixteen, employed in an ironfoundry establishment, was playing with a companion at vaulting over a pair of long forger's tongs. Failure attended one of his attempts to clear the instrument, and one of the long handles passed through the anus into the rectum a considerable distance. The boy fell, and the handle of the tongs was promptly removed by his companion. When brought to the hospital he was in a state of great collapse. His sufferings were extreme. There was some slight hæmorrhage from the rectum, and the urine being drawn off

was found deeply tinged with blood. On the second day all the symptoms were much aggravated. The abdomen became tympanitic and swollen, the pain agonizing, and there was great vesical irritability. On the third day the patient became delirious, in which condition he remained until released from his sufferings, seventy-four hours after the accident happened. The autopsy revealed a perforation of the anterior wall of the rectum, about an inch and a half from the anus. Here the instrument had passed into the bladder through the trigone and emerged at the fundus of the organ opening into the peritoneal cavity, in which there was a large quantity of purulent fluid. There were well-marked signs of extensive peritonitis. The author referred to the three somewhat analogous cases published by Mr. Prescott Hewett, Mr. Budee, and Mr. Bryant, giving the leading particulars of each and also to the cases mentioned by M. Houel and M. Joubert de Lamballe. The question, as to what is the chief factor inducing peritoneal inflammation in these cases, was likewise discussed, the author inclining to the belief—from the evidence afforded by several instances of vesical rupture, intra-peritoneal gunshot wounds of the bladder, and also the experiments of MM. Vincent and Murzel—that urine when first extravasated, and before any decomposition of its constituents takes place, is comparatively innocuous; and the practical deduction would be, provided no distinct contra-indication existed, the desirability in such cases of promptly securing a free exit for the urine by cystotomy or laparotomy, before the changes take place which, as a rule, lead to such disastrous consequences. In the case the author brought under the notice of the section, neither of these operations could be contemplated, owing to the extreme condition of prostration the patient was in when admitted into the hospital.

In the discussion which followed, Mr. Croly directed attention to the value which he assigned præcordial anxiety as a diagnostic symptom of ruptured bladder, a view which was not sustained by the facts of the case which Mr. Stokes recorded.

Microscopic Diagnosis of Phthisis.

Dr. Purser exhibited the Viscera of a man who had died of Phthisis. In the lungs there were tracts of dense fibrous tissue surrounding the bronchial tubes and pulmonary vessels, and extending to the neighboring portions of the pulmonary tissue. This was extensively consolidated by fibrous thickening of the alveoli. There were numerous tubercles, which had for the most part undergone fibrous changes. Caseation was not present to any great extent, but there was a large cavity due to this cause at the base of the right lung, and smaller cavities at both apices. The bronchial glands were indurated, and contained tubercles. Tubercles were abundant in the liver and spleen, both of which organs were amyloid. In this case the bacillus tuberculosis had been detected in the sputum five weeks before unequivocal signs of phthisis had been detected by the stethoscope.—Dr. Finney said the patient in question, when under his care, was the subject of amyloid disease of the liver. The point of greatest interest on that part of the case was the evidence it afforded bearing on the view of Schnupple and others as to where amyloid disease began. It was not amyloid degeneration springing from small arteries in the liver, and in which the whole enlargement was due to the liver cells being involved in the disease. Here the liver cells were pushed aside by the growing of the amyloid disease, the result of which was a sort of infiltration, which caused atrophy and de-

generation of the liver cells, and the destruction of their functions.—Dr. Walter Smith said this was the first case published in Ireland in which a microscopical diagnosis of phthisis had been made, and that five weeks before the ordinary signs of the disease could be detected by a skilled ear. He did not know whether they could hold that the converse proposition was true—namely, that the absence of bacilli argued the absence of phthisis. A gentleman came under his care with evidence of an inter-thoracic tumour. The evidences of that disease subsided, and the gentleman recovered; but he got a cough, began to expectorate a quantity of purulent fluid, and became thinner; and it was evident that there was mischief at the right lung. He (Dr. Smith) forwarded some of his sputum to Dr. Purser, who, having examined it, informed him that he had been unable to detect any bacilli in it. That was several months ago, and the patient had not since developed any symptoms of phthisis.

A meeting of the Surgical Section of the Academy was held on Feb. 9th, when Dr. T. E. Little narrated a case of Axillary Aneurism, for the cure of which he had deligated the subclavian in its third stage. The tumour had a traumatic origin. Great difficulties surrounded the diagnosis of the case, owing to an almost complete absence of pulsation or bruit in the tumour; nor could pulsation be felt at the wrist. There was a division of opinion among the surgeons who had been asked to examine the case; but ultimately the diagnosis of aneurism was arrived at. The operation selected and performed by Dr. Little was ligature of the third stage of the subclavian, the vessel being reached by an infra-clavicular incision. The result of the operation was most satisfactory.—Dr. Bennett dwelt on the difficulties that attended the diagnosis in this case, he being at one time of the opinion that the tumour was of venous origin. He subsequently, however, qualified this view. In deligating the first stage of the axillary artery he pointed out the advantages of keeping above, and not below the cephalic vein.—Mr. Stokes asked the author what were his reasons for selecting the infra-clavicular operation—one which, in Mr. Stokes' experience, was much more difficult than the operation above the clavicle. He also mentioned that the probabilities of finding the artery healthy were greater when distant operation was performed.—Mr. Porter considered the Academy indebted to Dr. Little for his excellent description of the operation. He believed the deligation of the first stage of the axillary artery was a more difficult operation than that of the third stage of the subclavian. He agreed with Dr. Bennett that the vein gave a great deal of trouble as a rule, and that the surgeon must with great caution pass either the aneurismal needle or the probe between them. Mr. Croly dwelt on the difficulty of the operation, mainly from the great depth of the vessel. It had been suggested, in order to facilitate reaching the vessel, to saw across the clavicle. The collapse of the aneurism after the operation was not a favorable sign. The case appeared to have many features of resemblance to that of an aneurismal varix. The occurrence of pulsation in malignant tumours he also mentioned.—Dr. Little, in reply, observed that to give some color to what Mr. Croly had said it appeared to him that the pulsation in the vein at the time was intrinsic. He gave his reasons for selecting the infra-clavicular operation, stating that the indications to keep as far as possible from the aneurism were not specially great, as the aneurism had a traumatic origin. He agreed with Mr. Croly that the collapsing of the aneurism on the application of the ligature was an unfavorable sign.

Mr. Kilgariff read the notes of three cases of Strangulated Hernia which had been operated on by him. The first was remarkable from the nature of the contents of the hernial tumour, consisting of the cæcum and a portion of the ascending colon in the cæcum having a free meso-cæcum and the protrusion having a complete sac. The second case was one of congenital hernia and presented many features of interest. The spermatic cord had a diameter of three-quarters of an inch, and was slung by a distinct and free mesentery. Again, the rigid, inelastic condition of the skin of the patient rendered the replacement of the testicle impossible and necessitated castration. In the third case there was a double stricture, the external consisting of thickened intercolumnar bands, and the second at the deep abdominal ring. The results obtained in these three cases were satisfactory. In the discussion which followed Mr. Ormsby, Dr. T. E. Little, Dr. Henry D. Fitzgibbon, Mr. Croly, the President, and Mr. Stokes took part. They drew attention to the after-treatment in cases of strangulated hernia, to the frequent possibility of reducing hernia after opening the sac without division of the stricture, to the possible connection of serous effusion in the sac and extreme tightness of the stricture, and to the desirability of making a high incision in the congenital form.—Mr. Kilgariff replied.

WIGAN MEDICAL SOCIETY.

THE first general meeting of the resuscitated Wigan Medical Society took place on April 5th at the Mechanics' Hall, King-street. The following were the office-bearers for the ensuing year:—President: Mr. W. Crowdsen Barnish. Vice-President: Mr. Elisha Monks. Treasurer and Honorary Secretary: Mr. R. Prosser White. An alteration in the time of meeting and amount of subscription having been passed, the President delivered an address upon "Recent Advances in Scientific Medicine." Two papers were read by Mr. Webster, one upon "Double Apical Pneumonia," the other "Excision of the Knee-joint." Microscopical specimens were exhibited by Mr. Barnish of varieties of bacilli. Mr. Jackson exhibited a recent specimen of traumatic perforation of the orbital plate of the frontal bone. There were present Messrs. Barnish, Monks, Williams, Webster, Brady, Withington, Jackson, Berry, Wood, White, E. H. Monks, Shepherd, and R. P. White.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.

At the meeting of this Society held on April 12th, Mr. B. Walker, President, in the chair, Dr. Porter showed three cases of Fractured Patella to illustrate the good results that could be obtained from very simple treatment. One case had stood the test of fifteen months, and a second of nine months, in both of which union appeared to be either osseous or very fine fibrous. The third case had only occurred about five months, and the patient was not yet able to resume work; but as far as it was possible to judge of the result in so short a time, his leg promised to be as useful to him as the other cases shown. The same treatment had been adopted in each case—viz., back splint and foot piece, reaching well up the thigh, for three months, followed by gum-and-chalk knee-cap for two months longer. Dr. Porter dwelt particularly on the importance of firm compression at the very commencement, with a view to reduce the swelling, and ensure early apposition of the fragments.

Dr. T. H. Morton gave particulars of a case of Strangulated Umbilical Hernia successfully operated upon by him. The patient was a woman, aged sixty-four, and a reducible hernia, the size of a large orange, had existed many years. On March 7th it could not be returned by taxis, and on March 12th symptoms of strangulation appeared. Next day the operation was performed by dividing the upper edge of the ventral opening. Recovery was rapid. Dr. T. H. Morton also related a case of Hydrocele injected by Ergot. The patient, a strong man, aged twenty-nine, had first noticed a swelling eight years ago, probably induced by the saddle when riding. He had been tapped three times and an injection used once. On Feb. 24th, 1883, sixteen ounces of fluid were withdrawn by trocar, and iodine was injected. The patient came under notice again on March 25th with the fluid again collected. Eight ounces were taken away, and the treatment suggested by Mr. Walker was tried—viz., by injecting two drachms of the liq. ergotæ ext. (P. B.). Very little pain and but slight inflammatory action followed. There was no accumulation of fluid when seen on April 3rd.

Editorial.

ATTENUATION AND DESTRUCTION OF VIRUS.

AN important series of experimental investigations having practical bearings has been contributed to the *Lyon Medical* by Arloing, Cornevin, and Thomas. These observers arrive at the conclusion that certain forms of virus have their own way of reacting to various destructive agencies, so that without previous experiment it could not be predicted that this or that virus will be more or less affected by a given noxious reagent. The present course of investigations was made on the bacillus anthracis; the best virus was considered to be that extract obtained by powdering and squeezing the fragments of the symptomatic swellings of charbon, which had been treated with half their weight of pure water. This preparation contained microbes in the form of mobile rods, with or without free spores, and could be preserved fresh for some days if the external temperature were low, whilst if dried it remained active for two years, no matter what the temperature of the laboratory might be. The authors have found in conformity with previous conclusions, that dried virus was more resistant to destruction than fresh material; that the virulence of the agency is not necessarily related to the mobility of the organisms, for thymol and oil of eucalyptus are capable of attenuating the virus in forty-eight hours, without destroying the activity of the proper motion of the microbes. When the above-mentioned preparation was allowed to stand, it separated into two layers. The upper contained no organisms, effectual results were only got when inoculations were made with the lower layer. In certain cases no putrefaction occurred, even after the lapse of seven months, so that the symptoms observed in inoculated ani-

mals were not due to septicæmia. The juice of muscular tissue diluted with water did not preserve intact the virulence of the virus—this nutritive medium was therefore one mode of effecting attenuation. The rapidity, however, with which attenuation was effected varied; in some cases the virus had actually lost its virulence at the end of five days; other specimens continued active even after the lapse of eight, nine, or ten days. The power of the poison remained unaffected, notwithstanding exposure for three days to a degree of cold equal to that met with in the severest weather of the winter of 1880-81. The experiments made by submitting the organisms to various degrees of heat were varied and numerous; in their general outline they are corroborative of the conclusions drawn from his investigations by M. Chauveau, an account of which we presented to our readers in *THE LANCET* recently. When fresh virus was heated in sealed vessels to a temperature below 65° C., for ten to thirty minutes there was no modification of its activity—i.e., inoculations performed on guinea-pigs produced positive and rapid results. When the same virus was exposed to a degree of heat above 65° C., but below 100° C., the damage to the pathogenic activity of the organisms was more or less marked, according to the duration of the heat; the virus was rendered totally harmless if the heat were sufficiently prolonged. Inoculations performed on a series of guinea-pigs of the same age, size and sex (important points in experimental pathology, if they can be carried out), with the virus which had been heated to 65° C., for different amounts of time (fifteen, twenty, thirty, forty, and seventy minutes) were all successful in killing the animals at periods varying from twelve to forty hours after inoculation in an order which precisely corresponded to the duration of the exposure of the virus to the heat. When fresh virus was heated for two hours at 80° C., or for twenty minutes at 100° C., all pathogenic properties were lost. The same result was obtained at the end of two minutes if a tube containing the material were immersed in boiling water—an interesting occurrence, which was probably to be explained by the fact that impure water boils at a temperature above 100° C., whilst the conductivity of water is also greater than that of air, which was the medium in the other experiments. Curiously the addition of three volumes of boiling water to one of fresh virus left totally unaltered its pathogenic capacity. When the virus was desiccated a temperature of 85° C. for six hours was necessary to bring about a sensible attenuation of the activity of the virus; and a temperature of 110° C. for the same time was required for complete destruction of the pathogenic property. The authors have succeeded in preparing from the dried material, by submitting it to temperatures between 85° C. and 100° C., a series of attenuated preparations, by the aid of which preventive vaccinations were crowned with complete success. Dried virus required to be kept for

two hours instead of two minutes in boiling water, in order to completely destroy its virulence.

The study of the bacterial poison in connection with various reputed antiseptics is of much practical interest. To make comparisons between the various antiseptic agencies, their action was always allowed to go on for forty-eight hours, and five drops of the virus thus obtained were invariably the amount inoculated in animals to test the alteration of its activity. The difference between the degree of resistance of the fresh and dried virus was in this manner rendered very clearly. Out of fifty substances employed, thirty were powerful enough to destroy the pathogenic property of fresh virus, whilst only nine were capable of doing this with dried virus. Watery solution of carbolic acid 2 per 100, salicylic acid and nitrate of silver 1 per 1,000, sulphate of copper and boracic acid 1 in 5, corrosive sublimate 1 in 5,000, hydrochloric acid 1 in 2, saturated solution of salicylic acid in alcohol and the vapor of bromine, destroyed both the fresh and dried virus; watery solution of permanganate of potash 1 in 20, of chloral 3 in 100, of acetate of alumina 1 in 200, of benzoic acid 2 in 100, etc., only destroy the fresh virus. The authors were surprised to find that alcohol at 90° C., saturated alcoholic solution of camphor, the salts of ammonia, borate of soda, tannic acid, gaseous sulphurous acid, and many other substances, did not destroy the virulence of the poison after contact for forty-eight hours. These conclusions are remarkable. It would appear that we are quite unable to predict from previous knowledge of the chemical power of various agencies whether such agencies will prove as powerful in destroying bacteria as we might with some reason anticipate. For example, it will be seen that a very dilute solution of corrosive sublimate seems to be quite as effectual as a strong one of hydrochloric acid. It was the above results which led the authors to make the statement already alluded to concerning the peculiar mode of reaction of certain kinds of virus to various agencies. Again, a strong caustic like chloride of zinc may fail as a means of destruction when the vapor of thymol may succeed. Many experiments made with fresh and strong preparations of peroxide of hydrogen failed to substantiate those made by MM. Best, Regnard, Nocard, and Mollereau. Arloing found that oxygenated water capable of setting free ten volumes of oxygen on decomposition was no more able to modify the activity of the charbon virus than ordinary water after contacts varying from four to ninety-six hours. The above researches are of great suggestiveness; they seem to point to a way out of the difficulties which surround the treatment of persons already the subjects of infectious diseases. The destructibility of the activity of bacteria once introduced into the animal organism, either by attenuation or complete annihilation, if such be possible, has until recently appeared to be altogether beyond our ken, from the simple no-

(12)

tion that it was to be feared that agencies capable of effecting their modification could only act at the price of at least corresponding damage to the tissues of the animal affected. These latest experiments hold out a hope that our therapeutical measures may not always be in vain, and even that apparently trivial means may in this regard be as powerful as seemingly more efficient methods. It would seem that here, as elsewhere, knowledge may be more powerful than power. Further, the proper protoplasm of animal bodies in one way or other by some of the various processes originating in it, may be in an apparently accidental manner really the efficient cause of the termination of acute infectious diseases, either by introducing the necessary factor for the complete attenuation of the acting virus, or by lending support to the activity of the poison. In some such way the considerations arising from these recent researches may lend a helping hand in the elucidation of many important pathological processes.

THE DEBATE ON DIABETES.

WHATEVER its shortcomings in other respects, the recent debate on the Pathology of Diabetes at the Pathological Society must be credited with having cleared the ground of much that was uncertain and doubtful, and indicated the path in which researches into the causation of the disease may in future be followed with advantage. As Dr. Dickinson pertinently observed, diabetes must have a pathology; but the question at issue is whether the primary condition is a chemical fault, or due to lesion of the cerebro-spinal system. Dr. Dickinson, as is well known, is in favor of the latter view, and he bases his position, first, on the fact that the disease is persistent, notwithstanding entire changes in the environment of the individual, and the suddenness of the onset, generally following on some intense mental disturbance, such as grief, anxiety, fright, etc.; secondly, on the existence of certain lesions he had discovered in the brain. With regard to the first proposition, we do not think the persistency of a disease necessarily proves that it depends on changes in the permanent structures; indeed, the most persistent of disorders are generally those which are acknowledged to take their origin from a morbid condition of the blood, and only lead at last after long continuance to definite local lesions. Nor can the fact that the disease sets in suddenly be taken as evidence of its arising from a change of structure, nothing being more likely to produce chemical aberrations than violent emotions acting through the nervous system. With regard to the existence of well-defined nerve lesions in the disease, Dr. Dickinson's position is very generally questioned. It is not asserted that no such lesions are to be found, but that they are not peculiarly associated with diabetes. Thus, Dr. Hale White stated that out of twenty-three post-mortem examinations made at Guy's Hospital on diabetic subjects, no

changes in the nervous centres were detected; whilst he brought forward specimens from subjects in whose urine no sugar had been found which exhibited the special lesions. Dr. Frederick Taylor's evidence as regards the result of post-mortem examinations at the same hospital was much to the same effect. He considered the majority of his specimens healthy, and only one of them deviated much from the usual standard. The experience of the London Hospital is very similar to that of Guy's. Dr. Stephen Mackenzie, in one of the most effective speeches of the debate, in which he discussed fully the various changes found in the different organs of the body after death in diabetes in relation to cause and effect, stated that in fourteen cases in which the nervous system was examined no changes were met with; in six cases slight peri-ganglionic vascular dilatations were found, but it was doubtful how far they were due to the mode of preservation. Dr. Seymour Taylor, of St. Thomas's, had failed to meet with the vacuolations described by Dr. Dickinson; he spoke of the difficulty of successfully hardening and mounting specimens of the nervous system for microscopical examination, and was inclined to believe that many of the appearances regarded as morbid might be due to the method of examination. This point the committee that is to be appointed to examine the specimens and inquire into the methods of preparation employed by the exhibitors will no doubt definitely settle. If this committee should report that the changes observed by Dr. Dickinson are not due to his method of examination, but are manifestly morbid, then the connection of the disease with distinct nervous lesion must be again discussed with regard to the question of the change being a primary one or a result of the disease.

But if we have to discard the view of an originating nerve lesion, what other hypothesis can be advanced? Chemistry, or at least modern chemistry, has as yet advanced no definite theory; but it has not been idle, and those who have followed this line of research have collected many valuable facts, from which no doubt important conclusions will in time be drawn. Indeed, we are surprised that they have not already attracted more attention. Hardly a speaker alluded to the very important investigations, chiefly based on chemical research, that have been carried on by Dr. Pavy for many years, and which have led him to the conclusion that the phenomenon of diabetes is dependent on an afflux of blood, not properly venous, to the liver, and that this afflux is brought about by vaso-motor paralysis. Our space is too limited to state at length the experiments on which Dr. Pavy has founded his view, and we must refer our readers to his Croonian Lectures of 1878 and an abstract of his paper on the Physiology of the Carbohydrates, read this year at the Royal Society. This vaso-motor paralysis depends of course on nervous disturbance, but it is referred to the sympathetic rather than the cerebro-spinal system. Nor need

it necessarily have origin in the large ganglia; there may be intrinsic conditions of the liver tissue or in the chylipoietic viscera generally sufficient to produce it. When the degree of vaso-motor paralysis is slight, we have a mild form of glycosuria; with a greater degree, the more acute and persistent form of diabetes. Dr. Ralfe also speaking from the chemical side of the question, contributed some original material to the debate. He especially insisted on distinguishing between the forms of diabetic coma, and pointed out that the ordinary form was generally the termination of long-standing cases, whilst the acute variety, attended with marked and peculiar symptoms, and which was infinitely rarer, was rather an accident than a natural feature of the disease, and was generally associated with anomalous and irregular forms of glycosuria, and that in these cases a fatty condition of the blood, the result of a chemical change in its composition, is most frequently met with. He also laid stress on the highly acid condition of the urine in diabetes, and hinted that this might furnish a clue to the chemical changes taking place in the blood.

In short, the general conclusions to be drawn from the debate are that diabetes is not associated with any definite structural lesion of any organ; that it is due to disturbance of functions of the liver, brought about apparently by a peculiar condition of the circulation in that organ; and that this condition, vaso-motor paralysis, can be induced experimentally in the living animal. The question was left open whether in diabetes this vaso-motor paralysis is caused directly by disease of the sympathetic or indirectly by the action of some chemical fault originating in the chylipoietic viscera, or in the blood itself.

ON THE TESTS FOR ALBUMEN AND SUGAR IN THE URINE.

DURING the past six months we have published numerous contributions relative to the most suitable reagents and best methods for the detection of albumen and sugar in urine. The interest that has been excited by this question is an evidence of the revived appreciation of questions of pathological chemistry which seems to be gradually setting in. The new tests, or, to speak more accurately, old tests resuscitated, have been introduced with a view ostensibly of facilitating urine-testing at the bedside; in short, to do away with the cumbersome paraphernalia of spirit-lamp and bottles of nitric acid, copper solution, etc. If the introducers could have stopped short at this laudable intention, the student and practitioner would have been duly grateful; but unfortunately so many abstruse chemical and physiological questions had to be considered that a general bewilderment has been the result. So much has this been the case that the Clinical Society has appointed a committee to report on the tests for the detection of albumen and sugar that have been brought under

the notice of its members during the past session. The report will no doubt be an exhaustive one, and, to those unacquainted with the literature of the subject, interesting; but it can hardly add much that is new, since students of physiological and pathological chemistry are already fully acquainted with the range and capabilities of the so-called new tests, allusions to which will be found in most of the foreign journals and the text-books devoted to this question.

To take the subject of albumen first, it will be found that all the new tests are more or less applicable for the detection of proteid substances in urine, whilst no one of them especially indicates the presence in its unaltered form of serum albumen. To detect this it is necessary to apply heat, since this body coagulates at temperatures between 73° and 75° C. But not only do these new tests fail to distinguish serum albumen from other proteids, but most of them likewise give a reaction with other bodies met with in the urine, as mucin, peptone, parapeptone, and the like. It is probably owing to the precipitation of these substances, in some instances, that the new tests have laid claim to extreme delicacy. Again, some of the introducers have stated that the tests will discover traces of albumen after it has been separated by coagulation by heat, thus showing that their test is more reliable than the "coarser" method of heating for the detection of minute traces. This assumption is based on a fallacy, since it is extremely difficult to separate all the albumen by heat, a small portion always coming through the filter with the filtrate. The Germans have been aware of this fallacy for some time, and give minute directions as to the individual and complete separation of mucin, peptone, and albumen, in all cases where an exact examination is called for.

The picric acid test seems to us the best of the new reagents. It is certainly more delicate than nitric acid, as it is more manageable and portable, whilst it has the advantage of being made available for sugar-testing. One objection raised against it—the bulk of its solution—is really no practical disadvantage, since, if employed, as Dr. Johnson suggests, by carrying a few grains of the substance in bulk in a small box, and dissolving a pinch in half a wineglass of water, the solution is readily made at the bedside of the patient. Picric acid, however, like most other reagents except heat, precipitates every variety of proteid substance, as well as mucin, parapeptone, albuminose, and urates if present in excess, and these have, therefore, to be identified by distinguishing reactions. In this respect, however, picric acid is equally at a disadvantage with nitric acid and many other reagents. If at the present moment we were asked what test, after all, we should rely on for the detection of serous albumen in urine, we should unhesitatingly answer, Heat. If an ordinary test-tube be filled nearly full with filtered

urine, and the upper end be heated whilst the lower portion remains cold, the minutest trace of albumen will be revealed by the haze given in the warm portion, which shows up in strong contrast with the clear cold portion. A drop of acetic acid or ordinary vinegar if at a patient's house, will determine if the haze be due to phosphates, whilst neither mucin, parapeptone, nor urates are precipitated by heat. Picric acid, ferrocyanide of potassium, or the mercuric tests may then be used as confirmatory.

Passing on to the tests for sugar, we are inclined to think that Dr. George Johnson's application of picric acid with liquor potassæ for the detection of this substance in urine is likely to be widely adopted for clinical purposes, especially his method for quantitative determination. His valuable communication on this subject to the Clinical Society has not had full justice done it, owing no doubt to the controversy raised with regard to the action of picric acid in albuminous urines. Dr. Johnson's saccharimeter is an exceedingly neat instrument, and the determination can be rapidly effected. We know of no process so speedy and convenient, whilst there is no doubt that its results are trustworthy. It is just the process for work in the wards, since it can be carried out then and there at the bedside of the patient, without having to refer the urine to the chemical laboratory, or to wait twenty-four hours, as is the case with the fermentation process. Dr. Oliver's application of the indigo carmine test is likely to prove useful to the busy practitioner at the bedside, though for reasons dwelt upon recently it cannot be relied upon as proving beyond doubt the presence of glucose, since it gives reactions with all the carbohydrates. In all cases, therefore, it would be necessary to determine the nature of the carbohydrate by means of the copper test.

In conclusion, we venture to hope that the discussions these various tests have given rise to will create an interest in that hitherto much neglected branch of medical science—pathological chemistry. Paracelsus ridiculed the physicians of his time for remaining content with the mere inspection of the urines of the sick, and for making no attempt to become acquainted with their real nature by submitting them to analysis; but the present generation have been as negligent as their predecessors, since they have not only not availed themselves of much of the really good work already done in this direction, but are apparently ignorant that such work has been done. For its own credit we hope that the report of the Committee of the Clinical Society, even if it can add nothing fresh, will do full justice to the past work in this field, and also clearly indicate the lines of future research.

THE appalling statement has been made that over six thousand women die yearly in the United States from attempts to destroy unborn children.

BOVINE AND HUMANIZED LYMPH IN THE UNITED STATES.

Amongst the subjects dealt with in the Sixth Annual Report of the Board of Health of the State of New Jersey is that of small-pox and vaccination, the Board having submitted a series of questions to certain practitioners having special experience in, and acquaintance with, the subject. One of these questions was whether the use of bovine lymph should supersede the use of humanized lymph. As to this Dr. Thomas F. Wood, of the North Carolina Board of Health, regards the reasons in favor of the arm-to-arm practice as outweighing those in favor of the use of lymph direct from the calf, its effects being milder, more uniform, and more convenient than those attending the use of bovine lymph, and he refers to the experience of Great Britain as proving the "excellent results" following on it. Dr. Ezra M. Hunt, of the Jersey State Board, after discussing the subject very fully, does not admit the necessity of the use of bovine lymph by reason of the loss of any original power in the Jennerian lymph, but he considers that since the use of such lymph does away with any cavil as to the possibility of the transmission of human diseases, and since the calf enables us at almost any moment to secure an almost unlimited supply fresh and ready for use, calf lymph must be regarded as an addition to the available stock of such advantage as to be of the utmost importance. This latter consideration would necessarily have special weight in America, where, vaccination not being compulsory, exceptional demands are liable to be suddenly made on the lymph-supply in moments of emergency. Dr. E. L. Griffin, President of the Wisconsin Board of Health, is not of opinion that it is either necessary or wise that bovine lymph should supersede the use of humanized lymph. Both he regards as protective, indispensable, and, with wise safeguards in their selection and use, also safe. What he most recommends is humanized lymph of only a few removes from the heifer, and when this lymph is used he knows of no data by which the superiority of the one over the other can be determined. Dr. E. J. Marsh, President of the Board of Health of Paterson, gives the result of his lengthened use of humanized lymph up to 1873, such use having been in every way satisfactory, as regards alike its protective power in the face of two epidemics, its safety from anything but trivial injurious results, and its success in taking effect. Since that date he has used bovine lymph, and he continues to use it for three reasons:—In the first place, much has lately been written about the danger of transmitting syphilis through humanized lymph; a possibility of degeneration of the Jennerian stock had presented itself to his mind; and, finally, patients ask for bovine lymph because its use has become fashionable. The results of calf-lymph have been the production of more severe local and constitutional symptoms, in-

flammatory action in a few cases having run so high that the vesicle sloughed out *en masse*, leaving a deep ulcer. So also the only case of post-vaccinal erysipelas he has met with has occurred after using bovine lymph; he does not, however, think this was due to the character of the lymph, but was solely "the result of traumatism." Bovine lymph should, in his opinion, be retained because the protection it affords is certain, and on this account it can be used in some cases where prejudice would interfere with the best humanized lymph. So also one of the prominent advantages it affords is the ease with which the supply can be made to meet any demands. On the other hand, humanized lymph should also, he says, be retained, because it is protective against small-pox, because with care it can be guaranteed as safe in regard to the syphilitic poison, because it can be propagated by any medical practitioner himself, and lastly, because of its comparative cheapness.

These views, based as they are on wide experience gained in a country where both humanized and bovine lymph have had a long period of probation, come in aptly, as proving the wisdom of our own Government in this matter. The central department now issues bovine lymph to those who ask for it, but it does so under limitations which clearly show that, whilst willing to meet a public demand and to provide even for the prejudices of the population, it has lost none of the confidence which it has all along expressed in the protective value of lymph transferred from arm to arm, a confidence which is fully borne out by the marked and convincing results which have followed on the vaccination with humanized lymph of the nurses and other officers in our large small-pox hospitals.

Reviews and Notices of Books.

The Sanitary Contrasts of the British and French Armies during the Crimean War. By Surgeon-General T. LONGMORE, C.B. 8vo, pp. 31. London: Griffin & Co. 1883.

THIS work of Mr. Longmore's brings before the profession, and especially the military branch of it, a very concise and interesting view of the sanitary condition of the French and British troops during the campaign of 1854-56 in the Crimea, the remarkable differences in the two forces, and the causes to which these were attributable. Though upwards of a quarter of a century has elapsed since the termination of that war, and though much has been written regarding it, we are not aware of any work which brings into contrast the state of the allied armies from a sanitary point of view, and we are therefore pleased to find this desideratum so ably supplied by one entitled to speak on the subject with great authority. The necessity for such a work is all the greater owing to the misleading remarks by Mr. Kinglake in his recent volume, in which, as Mr. Longmore justly remarks, "avoiding uglier designations, that might grate upon the ears of his readers, he

applies the euphemism of 'winter troubles' to the ghastly sacrifice of lives and inexpressible suffering among the troops, the mere recollection of which still causes a shudder to those who were familiar with the tragic scenes that took place, day after day and night after night, in that part of the army which was encamped in the front before Sebastopol in the winter of 1854-55." Mr. Longmore has brought together the statistics of mortality in the two armies, divided into periods of four months from September, 1854, to April, 1856. It would be impossible in the space at our disposal to enter into all the details thus given; we shall therefore merely note, with regard to the British army, that during the first winter the mortality among the troops was frightful, amounting in six months to one third of the average strength, while in the second winter it was so much reduced as to be little above what would have occurred had the men been serving in England. In the French army, on the contrary, the death-rate in the first winter, though high, did not approach to anything like that of the British, but in the second winter it was nearly one-half higher than in the first, and more than thirteen times that of their allies during the same period.

Mr. Longmore discusses the circumstances which led to the fatal sickness in the British army during the first, and its remarkably healthy condition during the second, winter, and to the comparatively healthy state of the French army during the first, and its increased sickness and mortality during the second, period. The condition of the British army in the first winter he attributes to our neglect of the old maxim, "to be prepared for war in time of peace," and to our disregard of even the elementary teachings of sanitary science. Our troops, whose general health had been impaired by their stay in the unhealthy valleys of Bulgaria, were landed in the Crimea, "without tents or cover, every one lying and sleeping on the damp ground; and subsequently the hardships, privations, and suffering of the winter seige, the exposure to cold, and the loss of rest in the trenches and on picket duty at night; the ill-suited clothing, the tight coats, and the closely fitting trousers of that time; the want of fuel; the want of means of personal cleanliness; the excessive overwork, increased, as the numbers lessened, among those who remained; the want of adequate nutriment, all hygienic rules outraged in respect to sufficiency, quality, variety, and cooking of the food—the rations consisting almost exclusively, for a considerable time, of salt meat and biscuit, without vegetables." With regard to the medical arrangements, he observes: "Had the recorded experience and recommendations of army surgeons who had served during the Peninsular wars been acted upon, there would have been an organized army hospital corps, suitable field hospital establishments, suitable field hospital transport, adequate in amount and ready at call for service; but there were none of these when the campaign commenced." The French, on the contrary, "started with the necessary equipment for service in the field; officers and men were familiar with the use of it, and duly estimated its importance." They had their *tentes d'abri*, their ambulance wagons, their fur overcoats, their bakeries, their well-organized transport, and the troops generally were well instructed in the practice of cookery. These differences sufficiently account for the marked contrast in the health of the troops during the first winter. To what, then, was the remarkable change in their relative condition due in the second winter? Mr. Longmore considers it very easily explained by the extraordinary efforts made by the people of England to retrieve the disasters

of the first winter and to obviate their recurrence: the abundant supplies of food and comforts of all kinds, of clothing, shelter, and transport, which were provided without stint; the improved conservancy of the camps, and the strict enforcement of sanitary regulations. But while this was being done for the British Army, the French began to suffer from neglect of these very matters. "The French in the second winter had got into circumstances very similar to those of the English in the first winter, while there was neither the enthusiasm on the part of the French nation nor the pecuniary means which had been called forth on the British side to effect a similarly favorable change in the sanitary condition of the French troops. Neglect of the advice of those who were competent to advise on the means necessary for preserving the health of the troops, and the authority of the intendants, who were quite incompetent to give directions on hygienic matters, led to the development of the scurvy and typhus which broke out among the French troops, to the constant increase in virulence of these diseases, and at last to their diffusion in such overwhelming proportions that all available resources were powerless to cope with them."

Mr. Longmore has done good service in bringing to notice the special circumstances which exercised so disastrous an influence on our army in the Crimea, and the measures which were adopted to restore its health. They are well deserving of study by all who take an interest in the welfare of our troops, and especially of those who are responsible for the efficient organization of our army and of those on whom the practical application of the measures devolve. The recent campaign in Egypt, though it showed nothing so disastrous as that of the Crimea, found us in the old condition of unpreparedness to take the field. On this, as on most previous occasions, the want of an organized and efficient transport seemed to be at the root of all the sufferings to which the men were exposed, and to an efficient organization of this branch of the service it is manifest the attention of authorities ought to be immediately directed. We observe that Mr. Longmore calls attention to the unfairness with which Mr. Kinglake has treated the statistics of the French army in the Crimea, published by the late Dr. Chenu. We are not the least surprised at this after the exposure which Sir John McNeill, whose death at a ripe old age occurred very recently, made of the misleading statements by Mr. Kinglake on the subject of the Crimean Commission, and of the "ludicrously inadequate" cause assigned by him for the fatal privations suffered by our troops in the Crimea.

Health Lectures for the People. Third Series. Delivered in Edinburgh during the winter of 1882-83. 8vo, pp. 218. Edinburgh: MacNiven & Wallace. 1883.

THIS volume consists of the lectures delivered at the request of the Edinburgh Health Society during the past winter. The object of the Society is "to promote by all the means in its power attention to personal and domestic cleanliness, to comfort, self-denial, temperance, and the laws of health generally." The subjects treated in the present volume are: Ventilation, Physical Exercise, Brain Health, Domestic Economy as regards Food and Cookery, the Ear in Health and Disease, the Eye the Organ of Vision, Minor Ailments and their Treatment, Nursing the Sick, and Sanitary Law and Administration. These lectures of course vary much in quality. Some of them appear to be over the heads of the class for whom they are

intended, while others are remarkably well adapted to promote the objects the Society has in view. In the latter group may be noted Dr. Douglas MacLagan's clear, intelligible, and practical lecture on Ventilation, Miss Phoebe Blyth's on Food and Cookery, Dr. Jameson's on Clothing and Household Arrangements, and Dr. Halliday Croom's on Nursing the Sick. The concluding lecture, by Mr. W. C. Smith, of the Scottish Bar, gives an interesting summary of the state of sanitary law and administration in Scotland, with some suggestions for its improvement. The lectures are also published separately, at a very low price, for circulation among the people generally, and appear likely to direct their attention to the most important subjects bearing upon the preservation of health.

Warming and Lighting the Dwelling; their bearing on Health and Disease. By JOHN ANGELL, Science Master, Manchester Grammar School. London: Heywood. 1883.

This also is one of a series of Health Lectures for the People, and is published at a nominal price by the Manchester and Salford Sanitary Association. It was illustrated by experiments of a popular nature showing the effects of respiration and combustion on atmospheric air, and was apparently intended for a more highly educated class of persons than those to whom the lectures at Edinburgh were addressed. We cannot doubt that the labors of these Societies to spread a knowledge of sanitary principles among all classes of the people will have a beneficial influence in promoting the public health and in diminishing the amount of preventable disease. From their low price they are well suited for general distribution.

Principles of Health in Childhood, Manhood, and Old Age. By LOUIS KING, M.R.C.S. 8vo, pp. 185. London and Bath: Hamilton & Co. 1883.

THE object of this book is much the same as that of the Health Lectures already noticed. It directs attention to errors in ventilation and drainage of houses; it discusses the principles on which the diet and general management of children and aged persons should be conducted; and it concludes with instructions respecting the immediate treatment to be adopted in accidents and emergencies. The introductory chapter on Physiology might, in our opinion, have been advantageously omitted, and the other portions would bear judicious condensation. The work altogether is too diffuse, although there is, no doubt, much good advice in it, especially with reference to the management of children. A good index would add greatly to its value.

Lectures on Medical Nursing. By Dr. J. WALLACE ANDERSON. Glasgow: James Maclehoose & Sons. 1883.

A Manual of Nursing, Medical and Surgical. By Dr. C. J. CULLINGWORTH. London: J. & A. Churchill. 1883.

Notes from Sick Rooms. By Mrs. LESLIE STEPHEN. pp. 52. London: Smith, Elder & Co. 1883.

THE numerous additions that have of late been made to the literature of nursing are a natural outcome of the greatly increased interest that the subject has excited, and are the direct results of an attempt to extend a knowledge of the true principles of the nurse's art.

Dr. Anderson's little work provides an admirable account of medical nursing, and is in many respects the best manual we at present possess upon the subject. The book is carefully written, the style is clear and attractive, and the arrangement of the matter is admirable. Dr. Anderson has succeeded well in giving just that amount of information of the commoner phases of disease that every medical nurse should possess who wishes to take an intelligent part in her work. In supplying this information, he has with equal care avoided providing too much of that "little knowledge" of medicine which to many nurses "is a dangerous thing." In Lecture IV., for example, the author gives a simple and lucid account of the process of digestion, and especially points out those practical lessons that can be drawn from a knowledge of the process. He then deals with the comparative digestibility of various articles of diet, and concludes with a thoroughly practical account of the cooking of food, and of its administration. At the end of each lecture is a number of questions which deal with the principal points discussed in that lecture, and the book concludes with a glossary of the commoner medical terms; which although scanty, is yet well arranged.

Dr. Cullingworth's manual, which is of smaller size than the preceding, deals with the whole subject of medical and surgical nursing, and is therefore a somewhat more ambitious volume. From the small amount of space that Dr. Cullingworth has allowed himself for the discussion of the whole matter, it follows that his descriptions are much abbreviated, and are apt to be a little bare. The author limits himself rather to an account of the appliances used in medical and surgical nursing, and has little to say of the needs of such appliances, and the reasons for their use. The manual, however, is, so far as it goes, simple, practical, and precise, and may be accepted as a trustworthy guide to the knowledge of the technicalities of nursing. Woodcuts are given to illustrate some of the commoner dressings and appliances, and add to the value of the book.

We have read Mrs. Stephen's work with much pleasure, and can cordially recommend it not only to the relative who is in charge of a sick person, to whom perhaps it is more particularly addressed, but also to the trained nurse and to the medical attendant. The book is distinctly clinical in character, and could not have been written by anyone who had not enjoyed ample experience of the requirements of patients. It does not deal so much with abstract questions of nursing as with the thousand apparently trifling matters which go to make or mar the comfort of the sick room. Nowhere else, perhaps, is it so true that "evil is wrought for want of thought," and the kindest, most self-devoting of relatives, may fall into little errors of omission, or still more frequently of commission, which are intensely trying to the delicately organized patient. We may mention such subjects as the making of the bed, "crumbs," the mode of changing the linen, the management of waterproofs and handkerchiefs, the mode of washing a patient and doing her hair, as examples of the kind of information which is imparted with graphic detail in the book. From the preparation of food and the mode of helping a patient to take it, to the management of visits from friends and the patient's fancies, all is carefully considered, and numerous hints imparted, many of which the most experienced of us will be glad to receive. The medical man is out of place as a nurse, but he should be learned in all that relates to the art of nursing, if his patient is to be well cared for. It is, therefore, a great advantage when a lady of refinement gives us, as

Mrs. Stephen does, the benefit of an experience evidently personal and practical, which is conveyed in simple and effective language.

Mechanical Exercise a Means of Cure Being a Description of the Zander Institute, London.

Edited by the Medical Officer to the Institution.
London: J. & A. Churchill.

THE subject of exercise, both as a means of physical development and as a method of cure, while it has of late years come to bulk largely not with medical men alone, but also with the public, and especially in the minds of those who have the care of children and young people, has not, we believe, received the amount of attention that its importance deserves. Regulated exercises have from time immemorial been found to be of great value for the establishment and maintenance of physical vigor in those already sufficiently robust to profit by them in the somewhat rough-and-ready manner in which they have hitherto been applied; but they have occasionally been brought into discredit from the fact that delicate organisms seemed to be overstrained. The great difficulty has been to apply exercise in such a manner that it could be adapted not only to the removal of physical defects and the strengthening of weak parts, but also to be able accurately to graduate the force in proportion to the strength of the patient. It is claimed, and with good show of reason, that in Dr. Zander's system these ends have been attained. The little work before us is a description of the Zander Institute, recently established in London. It gives a brief account of the different machines, their action, and the cases in which they are likely to be found most useful, including also notes of a few cases of chronic rheumatism, stiff and deformed joints, partial paralysis, spinal curvature, constipation, etc., etc., that have been successfully treated. The machines are divided primarily into two classes—(a) those for active exercises, in which the patients themselves do the work, and (b) those for passive exercises. The latter are worked by a gas engine. The amount of resistance can in each case be carefully regulated by means of a movable weight placed on the levers, and thus the danger of overtaxing the strength is removed, while the resistance can be increased in proportion as the muscular power increases. The adaptation is in many instances extremely ingenious, and we anticipate that the more the system becomes known the more widespread will its application be found. Dr. Zander began his experiments some twenty years ago. His first subjects were the pupils of a large school, and he found even in the most delicate children, not only an increase of strength and weight, but an improvement in general health and spirits. It is clear that an institution of this sort can work successfully only by gaining the confidence of the profession, and the directors seem to be aware of this, for it is stated that they consider it particularly desirable that patients should before commencing a course of treatment consult their own doctor, and if they choose they can remain under his sole care all the time. Each patient is thoroughly examined at least once by the medical officer of the institution, and to medical men sending patients every facility for guiding and watching their course is afforded. Thus while the objects of the Zander Institute are in the main curative, it seeks also to enter the sphere of preventive medicine by affording to those whose occupations condemn them to a sedentary life the means of obtaining safe and regular exercise. We therefore heartily commend it to the attention of the profession.

The book is neatly got up and the facts are clearly and tersely stated. The drawings give a good idea of the machines, but those who are interested in the subject should visit the establishment and test for themselves the actions of the various machines.

Revue Mensuelle des Maladies de l'Enfance. Avril, 1883. Paris: Lauwereyns.

THE April number of this journal, which appears to have the collaboration of many eminent French physicians, contains original articles on the Treatment of Congenital Phimosia by Preputial Dilatation, on the Headaches of Young People, and on the Treatment of Infantile Maladies by the Waters of Bourbonne-les-Bains. Of these, the last, by Dr. Mercier, is perhaps the most important and deserves further consideration. We are disappointed not to find detailed statements as to the modes of application of the Bourbonne treatment and of the special indications for particular methods. There is also given a classified synopsis of recent contributions on children's diseases, by French, German, English, and American writers, and concerning this admirable section of the journal, we can only offer the criticism that some of the summaries are rather meagre. From the reports of societies, it is clear that M. Parrot's view as to rickets being solely a transformation of congenital syphilis, scarcely commands any more acceptance in Paris than in London.

Les Hystériques : Etat Physique et Etat Mental; Acts Insolites, Delicieux, et Criminels. Par le Dr. LEGRAND DU SAULLE. J. B. Baillière et Fils. 1883.

PROBABLY all physicians would agree with the opinion that hysteria as we know it and hysteria as witnessed by the French is very different, not perhaps so much in nature as in degree. To the English student of medicine it would almost certainly be a great waste of time to read a French work on hysteria, we mean only so far as concerns the actual practice of physic in England. The present work is one of considerable size; the matter is of a readable kind, well digested, and evidently comes from the mind of a physician well versed in the study of mental and nervous disease. Nothing else could be expected from an observer of Legrand du Saulle's experience and standing. The first chapter considers sufficiently all the alleged factors in the etiology of the disease. The opinion is stated that the neuropathic disposition is the most efficient element in the causation. The author does not seem inclined to regard flexions and versions of the uterus as having much to do with the origin of hysteria. We fully endorse this opinion. The various corporal manifestations of the complaint are amply dealt with in the second chapter. Hypnotism, as observed in hysterical patients, is considered in the next section, and Charcot's contributions to the theory of the subject, the dominant idea of which is the hyperexcitability of the neuro-muscular apparatus, receive a prominent place. Disorders of the mental faculties met with in hysteria receive lucid descriptions, and the part is illustrated by accounts of interesting cases; the multifiform character of the disease is nowhere better shown than in this relation. At the close of the chapter an endeavor is made to harmonize all the facts with physiological teachings. We fully sympathize with the trial; the result could only be tentative in the present state of knowledge. Hysterical Mania is the title of the next part. Here many clinical ob-

servations of cases of delirium, with hallucinations, of suicidal impulses, and transient erotic manifestations are recorded; the rarity of actual dementia is insisted upon; and the delirium of drunkards and hysterical delirium are compared with one another. The epidemic features of hysterical mania are also pointed out. The medico-legal aspect of hysteria is a subject with which Du Saulle is perfectly "at home." This section, which constitutes a third of the contents of the volume, is profusely illustrated with records of cases which for depth of interest and wealth of incident fully vie with the most realistic novels of French literature. The last chapters are devoted to questions relating to the nature, prognosis, and diagnosis of the disease; its treatment receives short but sufficient attention. In an appendix the author treats of nymphomania, which he regards as a different affection from hysteria, although the two may be combined in the same individual. Erotomania is separated from nymphomania; the former is a disease of the imagination not characterized by the excessive use of the physical organs.

St. Bartholomew's Hospital Reports. Vol. xviii.

1882. Edited by W. S. CHURCH, M.D., and JOHN LANGTON, F.R.C.S. London: Smith, Elder & Co. 1882.

THE demand made upon contributors to annual volumes like this does not apparently affect the quality of the work which they produce. There seems to be less striving after elaborate theses, and a fuller recognition of the fact that such volumes should be mainly limited to the records of facts of diseases observed within the hospitals. This primary intention has sometimes been lost sight of. Opportunity is given for the review of many matters of clinical and pathological interest by the light of present experience, and the six-and-twenty papers contained in this volume embrace a very wide range of such subjects. Dr. Gee contributes, in the terse and undogmatic manner so characteristic of all his writings, a few notes of cases of Fitful or Recurrent Vomiting in Children; and in conjunction with Dr. Abercrombie he has an interesting paper on a case of Lesion of the Sympathetic Nerve in the Neck. The patient was a child four years and a half old, whose illness began with right hemiplegia and partial right ptosis with myosis, and passed on, with wasting, to paraplegia, an elastic swelling appearing on the right side of the spine in the upper dorsal and lower cervical region. Besides the myosis, there was further evidence of sympathetic involvement in the fact that the temperature of the right ear was three degrees higher than that of the left. The diagnosis arrived at was vertebral caries with abscess involving the inferior cervical sympathetic ganglion, and accompanied by a subacute descending poliomyelitis. The condition proved to be a sarcomatous tumour seated deeply in the neck and upper thorax, and growing into the spinal canal through the foramina. The ganglion was not to be found, and the spinal cord showed some evidence of change in the cervical region and below. Mr. W. H. Jessop furnishes a paper on two cases of the remarkable condition of Hemiatrophia Facialis, illustrated by photographs; he reviews the hitherto recorded cases, and points out that the cases he describes support the conclusion arrived at by Romberg that the condition is a trophoneurosis. Dr. Wickham Legg shows, in a brief article on the History of Exophthalmic Goitre, that the claims of Basedow have been exaggerated, and that the credit of the earliest recognition of the disease rests with the Dublin school, as represented by

Graves, Marsh, and Stokes. Dr. Vincent Harris in a paper on Cardiac Murmurs analyzes the facts relating to cardiac auscultation, and formulates propositions, the truth of which may well be accepted, which mainly assert that murmurs are not always present in valvular disease, and that it is often not possible to diagnose by the stethoscope conditions of the circulation producing murmurs apart from valvular disease from actual valve lesion. A valuable contribution to the statistics of the laryngeal conditions in phthisis is supplied by Dr. Ormerod, who records in a tabular form the results of a systematic examination in 100 consecutive cases of phthisis. He found the larynx to be normal in 25 cases; in 17 changes limited to the vocal cords; in 8 some affection of the ventricular bands—anæmia of larynx; in 16 affection limited principally to the arytenoid mucous membrane; in 7 to the inter-arytenoid space; 11 involving all the back of the larynx; in 11 subacute laryngeal catarrh, and in 5 general tubercular infiltration. Dr. Dyce Duckworth has an essay demonstrating the special relationships between Diabetes and Arthritism, including under the latter term, which he has imported from French authors, "all the special morbid conditions commonly recognized as rheumatic or gouty, whether these be articular or not." Dr. D. A. King analyzes seventy-five cases of Typhoid Fever occurring in the Epidemic of 1882, in which he clearly shows the evil influence of delay in seeking admission to hospital—not only the mortality rising in proportion to the lateness of admission, but the severity of the complications. He also demonstrates that there is no relation between relapses and the taking of solid food, and concludes with some observations on constipation—a symptom of unusually frequent occurrence in the cases analyzed. A tabular statement is appended, and notes of a few selected cases. Dr. Steavenson contributes a paper on Tracheotomy, Dr. S. West one on Pain and Hemorrhage, and Dr. Moore one on cancer of the pancreas. Passing to the surgical papers, we may call attention to Mr. Walsham's very carefully compiled statistics respecting the operation of trephining, and the conclusion at which he arrives, that the operation is not *per se* a dangerous one. Mr. Howard Marsh gathers up his experience of the orthopaedic department in an interesting paper, in which he reviews particularly the condition of rickets, knock-knee, flat-foot, and lateral curvature, with reference to their treatment; Mr. Willett also contributing a paper on the Treatment of Flat-foot. Mr. Harrison Cripps writes upon Imperforate Rectum and Anus in Infants, distinguishing the varieties of this malformation, and describing the methods of operating most likely to be successful in their object. Mr. Langton has a paper on Hernia of the Ovary based upon his own experience, which has led him to think that it is a condition far more frequent than is usually supposed, but not often calling for surgical interference. Mr. Butlin supplies a record of the work done in the laryngeal department, dwelling especially on a few of the more interesting cases. Dr. Champneys writes upon the Scoliotic Pelvis in a paper that bristles with figures of the various measurements made in seven specimens he examined. Nor must mention be omitted of Dr. N. Moore's contribution on the Physicians and Surgeons of St. Bartholomew's Hospital before the Time of Harvey, a paper of much interest, in which he brings lucidly before us the manner in which they worked, and quotes largely from their writings, especially from those of William Clowes, who was surgeon from 1575 to 1585, and who appears to have been in many ways a notable man. The volume—which, it will be seen, is full of interesting

matter—concludes with reports of the meetings of the Abernethian Society, a list of specimens added to the museum, and the reports of the registrars for 1881.

Auscultation and Percussion. By SAMUEL JONES GEE, M.D. Third Edition. London: Smith, Elder & Co. 1883.—At the time when the first edition of this very useful and accurate little work appeared there were not nearly so many text-books of the kind in circulation; but it is not too much to say that although of late more than one excellent book on Physical Diagnosis has been issued, yet this of Dr. Gee's still maintains the pre-eminence it always held. Limited in scope, but dealing with the most important methods employed in clinical medicine, it is valuable on many accounts. There is a freshness and an originality about it which, combined with thoroughness and precision, convey the idea that the author has given here the results of his own careful observation, whilst endeavoring to enjoin the same care and accuracy on others. The clinical student cannot do better than take Dr. Gee as his guide, and he should endeavor to make himself master of the principles as well as of the practice so forcibly and clearly expressed by the author. The whole art of medicine, we were told, lies in observation; and we could well wish this maxim to be taken seriously by every hospital clinical clerk. The examination of the chest affords a great field for the exercise of his faculties, and he should omit no opportunity of making that examination as thorough, precise, and accurate as possible; every day that he enters the ward he will find scope for this practice, and the more he faithfully pursues it the deeper interest will it have for him, whilst from an educational point of view, in the training of eye, ear and hand, the gains derived from such study are not to be counted.

A Synoptical Guide to the Study of Obstetrics. By ROBERT BARNES, M.D. London: Smith, Elder & Co.—This little book is a sort of copious table of contents of the subjects embraced in midwifery. The materials are grouped under certain headings, and are full and well arranged. The work is intended to serve (1) as an index to a work on obstetrics about to be published by the author, in conjunction with his son and Professor Milnes Marshall; (2) as a syllabus for students attending lectures on midwifery; (3) as a guide to indicate to the student of obstetrics the subjects a knowledge of which he should possess; (4) as an aid to memory with view to examination.

Archives de Physiologie (BROWN-SÉQUARD, CHARCOT, VULPIAN), No. III., Mars, 1883.—This part contains the following memoirs:—1. Histological Research on the Poison Glands of the Toad, and on the Modifications in their Evolution resulting from Electric Stimulation of the Animal, by G. Calmels. 2. On the Nucleated Red Corpuscles of the Blood of the Adult, by G. Hayem. 3. Research on the Action of some Toxic and Remedial Agents on the Red Globules of the Blood, by M. Mayet. 4. On the Inoculation of Tubercle in the Ape, by MM. Dienlaffoy and Krishaber. 5. Experimental Researches on the Transmission of some Virulent Diseases, and a particular Charbon from the Mother to the Fœtus, by MM. J. Straus and Ch. Chamberland. 6. On Cylindroma, or Alveolar Epithelioma, with Myxomatous Invasion, by M. L. Malassez.

Epitome of Skin Disease. With Formulæ for Students and Practitioners. By the late TILBURY FOX, M.D., F.R.C.P., and T. COLCOTT FOX, M.B. Third Edition by T. COLCOTT FOX, M.B., Physi-

cian to the Skin Department of the North-west London Hospital. London: Henry Renshaw. 1883.—We are glad to see that a third edition of this useful little book has been called for. Dr. Colcott Fox has carefully revised the whole, and in places has, with advantage, amplified the text. This edition is certain to maintain the popularity enjoyed by the previous ones.

The Student's Guide to Surgical Diagnosis. By CHRISTOPHER HEATH, F.R.C.S., Holme Professor of Clinical Surgery in University College, London, and Surgeon to University College Hospital, etc. Second Edition. London: J. & A. Churchill.—The fact that a second edition of Mr. Heath's work has been so soon called for is sufficient evidence that the book is appreciated by the class for whom it is especially intended. There is no modification of the plan of the work, and the only alterations in this edition are amplifications in a few places and the addition of a very complete index.

Questions on Human Anatomy. By SAMUEL O. L. POTTER, A.M., M.D. Philadelphia. Test Series, No. I. London: Henry Kimpton. 1883.—This is a little book specially intended to help men in preparing for examinations in anatomy. It is more than its title implies; for it contains answers as well as questions. Indeed, it is a very condensed description of the bones, muscles, nerves, and lymphatics written in the form of answers to questions. It belongs to a class of books with which we have not much sympathy; but of the class it is a good specimen, being accurate and carefully done.

Medical Annotations.

"Ne quid nimis."

CO-EXISTENT DEFECTS OF URO-GENITARY ORGANS.

THE concurrence of two or more congenital curiosities tends to call forth a more considerable amount of conjecture and speculation than the mere presence of a single extraordinary defect. The wisdom of this tendency of the human mind may certainly be called in question, because we should have thought that one incident might, or perhaps ought to, excite as much attention as a number of odd occurrences. At all events, the co-existence of absence of one kidney with defects in the organs of generation is a sufficiently noteworthy phenomenon, and Dr. Guttman has recorded a male and female instance of this event in the April number of Virchow's *Archiv*. The first case was that of a boy aged fifteen years, who succumbed from Pott's disease of the spine. The right kidney and ureter were totally wanting, the left were much enlarged, and there was waxy degeneration of the glomeruli. The right vesicula seminalis was absent, as well as the right vas deferens; the corresponding tissues of the left side were of small size. Both testes were present and apparently natural, though, owing to a mistake, these were thrown away, and not properly examined after the autopsy. The second instance occurred in a female aged twenty, who died from phthisis. Again the right ureter and kidney were not present, the aorta was small, and there was no right renal artery. The external organs of generation were almost entirely undeveloped, the nymphæ and clitoris hardly recognizable, and the orifice of the vagina and that tube itself very narrow. A hymen was present. The small and long uterus were apparently kinked towards the right, at the junc-

tion of the body with the neck. The left broad ligament was normal, the right was inserted at the site of the kink, so that the whole right side of the body of the uterus lay free in the pelvic cavity. This circumstance and the apparent angularity of the uterus made it probable that a two-horned womb had to be dealt with, of which the right horn was scarcely at all developed. The right and left ovaries were small; the uterine half of the right Fallopian tube terminated in a blind extremity. There are now on record in literature about seventy instances of congenital absence of one kidney. Beumer collected altogether forty-eight; in twenty-two of these there was disease of the remaining kidney, enough to cause death; in twenty-six instances, on the contrary, the present kidney was healthy, although enlarged and heavier than normal. By careful micrometric investigations the enlargement was shown to be due not only to an increase in size of the glomeruli and urinary tubules, but also to a hyperplasia of the renal tissue.

THE BILIARY CAPILLARIES.

THE precise histological structure of the capillary network of bile-ducts in the lobules of the liver has not been satisfactorily settled. Is there a special epithelioid lining to these minute channels or not? M. Kanellis has communicated to the *Académie des Sciences* a note of some investigations made on the livers of rabbits with the aid of injections of nitrate of silver. The conclusion at which the histologist arrived was to the effect that there does exist a flat, thin, tessellated epithelial lining of the ultimate biliary canaliculi, and that the larger ducts possess a coat of prismatic cells. This observation is believed to afford grounds for a belief in the existence of a distinction between the biliary and glycogenic functions of the liver; the epithelium of the biliary channels presiding over the functions of bile secretion, whilst the hepatic cells proper are devoted to the formation of glycogen. When the small size of the intralobular biliary capillaries is borne in mind, the determination of the presence or absence of a special epithelial lining, even with the aid of injections of argentic nitrate, will certainly not seem to be an easy matter, especially when we remember that an inference in histology is seldom or never a matter of direct observation. The distance, too, between such cells of doubtful existence and the genuine hepatic tissue is so infinitesimal that the relegation of one function to one structure must be an act of discrimination of so delicate a nature that we do not think much weight ought to be attached to the suggestion offered.

PARASITES OF FISH.

AMONGST the objects of interest to the profession shown at the International Fisheries Exhibition are several small collections of entozoa and ectozoa infesting fish, oostacea, shellfish, and other aquatic animals. The special commissioner from the Gothenburg Museum, Dr. A. H. Malm, exhibits a few beautifully mounted parasites from marine fish and from two cetaceans. Professor Carmichael McIntosh, of St. Andrews, shows a series of interesting parasites from salmon captured in the Tay. They are very effectively displayed. So far as we have observed, the only "exhibit" exclusively devoted to parasites is the one sent by Dr. Cobbold. It comprises some eighty bottles, containing nearly as many distinct species. Some of the worms are of considerable rarity, and many have been transmitted from great distances. From the complete list given in *Land and Water*

we find that the exhibitor has taken much trouble to acknowledge his indebtedness to the various collectors. Thus there are three specimens which were obtained by the late Charles Darwin off Patagonia in 1835. Acknowledgments are also made to Dr. Günther, of the British Museum, to Surgeon-Major Francis Day, to Dr. John Anderson, of the Calcutta Museum, to Dr. Carmichael McIntosh, to Professor Coughtrey, of Otago, to Mr. Jardine Murray, of Brighton, to Dr. John Lowe, of Lynn, to Dr. Burge, of Shanghai, to Mr. Charles Tomes, to the late Drs. Pechey and Lauder Lindsay, and to Drs. Seccombe, Charles Davidson, and Henry Day; and, lastly, to the lamented Frank Buckland, whose enthusiasm would have been stirred to the highest pitch had he survived to take part in the International undertaking. We may add, what perhaps is not very generally known, that tapeworms and other entozoa, as well as certain ectozoa, are amongst the ascertained causes of diseases that prove fatal to fish and other aquatic animals.

SEVERE HÆMORRHAGE AFTER TOOTH-EXTRACTION TREATED BY TRANSFUSION.

THE *Revue Odontologique* for April contains an interesting account of a case of almost fatal hæmorrhage after tooth-extraction. The patient, a young soldier of twenty-two, with a marked history of hereditary and collateral hæmorrhagic diathesis, was admitted to the *Hôtel Dieu*, and had some molar roots removed without telling the house-surgeon any facts as to his history, and the operation which was performed was followed by profuse hæmorrhage of a dark color, without clots. Next morning plugging with lint and perchloride of iron was tried without permanent effect. On the third day actual cautery was tried at the bottom of the socket, followed by plugging with compressed sponge, the jaws being fixed by a bandage, and ergotine subcutaneously injected. On the fourth and fifth there was no hæmorrhage; injections continued. Next day (the sixth) the bandages, etc., were removed, owing to sloughing and suppuration of the gums, and from the raw surfaces profuse bleeding recurred, and no local measures were effective to arrest it. On the eleventh day the patient was moribund, and it was decided to try transfusion of blood. After plugging the socket again, 100 grammes of blood were transfused into the cephalic vein, with immediate relief to the patient. In three hours the trouble began again and continued until next morning, when, after a second transfusion, the patient began to revive, although an access of syncope nearly proved fatal during the operation. However, the hæmorrhage was stopped, and in six weeks the patient was discharged cured.

THE INDIGO TEST FOR SUGAR.

At a recent meeting of the Clinical Society Dr. Oliver showed how the well-known property of indigo carmine being converted into indigo white in the presence of certain organic matters might be rendered available for testing for sugar in urine, by means of specially prepared test-paper. The indigo test for sugar in urine has been before the profession for some years, having been originally suggested by Mulder. In the Sydenham Society's translation of Neubauer and Vogel the test is fully described. The reaction has also been long in use in operations connected with dyeing calicoes. It is based on the fact that indigotine, the coloring matter extracted from commercial indigo, with certain oxidizable organic matters, such as glucose, gallic acid, pectic acid, etc., in the presence of al-

kalies possesses the property of fixing hydrogen and of being converted into colorless indigo, but which is susceptible of reconversion under the influence of oxygen into indigotine. The change from indigotine into indigo white may be represented by the following equation:—Indigotine 2 ($C_{16}H_7NO$) + $H_2 = C_{16}H_9N_2O_2$, or indigo white. Many other organic as well as inorganic substances besides sugar seem to possess the property of decolorizing indigo in alkaline solutions—in fact, the processes used in the different factories are extremely various. Even the processes of alkaline fermentation and butyric acid fermentation will produce the change. We do not make these remarks with a view to disparage the test, and Dr. Oliver is deserving the highest credit for his endeavor to make it readily available for clinical purposes, but to suggest a caution as to the deductions drawn from results obtained by it. It is more than probable that a test so favorably introduced by Mulder and Neubauer must have been found on more intimate acquaintance defective in its practical working, or it would not have fallen into comparative disuse. We believe, however, that while it cannot supplant the copper test, it will prove a valuable supplement. The copper test, as is well known, is not reduced by all forms of sugar, whilst the indigo reaction is given by every form of carbohydrate. It may thus be made available for distinguishing between those forms of sugar sometimes present in urine which give no reaction with copper, and may so help to distinguish these cases from true glycosuria.

A CASE OF POISONING BY CARBOLIC ACID.

A CASE has recently occurred at Calcutta which presents many points of medical interest. A practitioner of that city was charged with causing the death of his cousin, a boy of five, by administering an overdose of carbohc acid in the form of an enema. From the evidence it appears that the deceased had been suffering from diarrhoea for some days, but had not been very ill, and had been able to play about much as usual. There had been a little blood in the motions, and worms were suspected. On the afternoon of Nov. 26th the accused was called in to see the patient. The little boy was at the time in the garden, and on being sent for came running up and exclaimed, "Oh! papa has brought me a new doctor!" He was taken to his bedroom, where he was undressed and carefully examined. The doctor gave it as his opinion that there was no enlargement of the liver or spleen, but thought that the symptoms were due to worms. He asked for a bottle of carbohc acid and an enema apparatus. He then measured out an ounce of the acid; but on the father protesting that it was too much, he said, "Oh! very well; I will mix it with forty parts of water, and only inject half." On the father again protesting and saying, "Don't you think it will be too strong?" the doctor assented, and about a pint more water was added. The child was then placed on its back, and the injection commenced. After about half the fluid had been introduced, the apparatus was withdrawn, the rectum, however, being supported so that nothing should escape. The child complained of no pain, but a few minutes later was found to be insensible. The friends, in answer to their inquiries, were informed that it was only shock, and was of no consequence. An attempt to give brandy by the mouth was unsuccessful. Other medical men were then called in by the father, and artificial respiration was resorted to, but the child never recovered consciousness, and died the following morning at half past seven. No post-mortem examination was

made, but it was stated that the body smelt strongly of carbohc acid. The exact quantity injected was not known, but the prisoner volunteered the statement that he used a 1 in 60 solution, and injected about 18 ounces, representing 144 grains. For the defence it was urged that it had not been conclusively shown that the fluid injected was carbohc acid. It had been obtained from a native dispensary for doctoring horses, and it might have been carbohc acid or something much stronger. Then it was urged that it was not clear that the child had died from carbohc acid poisoning at all. The parents had refused a post-mortem examination. It might have died of ulceration of the bowel or any other disease. And again, even supposing that the child had died of carbohc acid poisoning, it did not prove that an overdose had been given. What was there to show that the child was not unusually susceptible to the action of carbohc acid, that it was not, in fact, a case of idiosyncrasy? The prisoner had studied medicine at Edinburgh and Glasgow, and at the Rotunda at Dublin, and was it to be supposed that he did not know more about the action of the drug than other gentlemen who had not had these unusual advantages? The jury ultimately found the prisoner guilty, but recommended him to mercy. The judge, in discharging him with a caution, remarked that perhaps it would be as well to give rather smaller doses in future. The accused is certainly to be congratulated on the result of the trial, but we fear that he owed his acquittal rather to the ingenuity of his counsel than to his knowledge of materia medica or therapeutics. It may interest him to note that Taylor, Murrell, Woodman and Tidy, and others consider that the fatal dose of carbohc acid is a drachm, and that recovery even in adults is very exceptional after half an ounce. At the same time it is only fair to mention that Reichert in his "Contributions to the Study of the Toxicology of the Cardiac Depressants," mentions the case of a woman, aged twenty, who recovered after the injection of 145 grains of carbohc acid for the cure of worms.

BATHING.

ALL are agreed that bathing is a healthful practice: first, because it is cleanly; and second, because it is a precautionary measure against risk to life by drowning. We are fully prepared to endorse the proposition that boys should be allowed to bathe as often and as freely as may be practicable. It is, however, necessary to raise a protest against the recklessness which too commonly attends the recourse to bathing as an exceptional, or at most seasonable, exercise, by those who are, though eager perhaps, not always physically fit to bathe. There is, practically, less danger in bathing all the year round than in doing so only at certain periods. When to begin bathing? In what weather to bathe? and under what condition of the bodily state to bathe? are questions of considerable perplexity, and by no means always easy to answer. The general rules which should guide the judgment are, doubtless, in the main physiological—that is to say, they relate chiefly to the functions of life and their healthy performance: Obviously it is not right to dare the dangers of a "chill" either when undressing or by immersion in the cold water. Speaking generally, the "reaction," on which everything depends, will take place in proportion to the healthy circulation of the blood and the natural heat of the body when the bath is taken. If there be much moisture on the surface, it is difficult to tell what the actual temperature of the organism really is. In most cases a sweating surface indicates some

measure of exhaustion already set in. In any case it is unwise to bathe when copious perspiration has continued for some hour or more, unless the heat of the weather be excessive or the sweating has been induced by loading with clothes rather than by exertion. When much perspiration has been produced by muscular exercise, it is unsafe to bathe, because the body is so fatigued or exhausted that the reaction—that is, the return of the momentarily displaced blood to the surface—cannot be ensured, and the effect may be to congest the internal organs and notably the nerve centres. It is from congestion of the nervous centres we get cramp, so often fatal in bathing. The fact of the “reaction” does not, of course, constitute the whole phenomena of bathing; but it is so important and comprehensive that we may take this as the point on which everything turns. Conditions under which a vigorous return of blood to the surface cannot be confidently counted upon are not favorable to bathing. If, therefore, the weather be “chilly” or there be a cold wind so that the body may be rapidly cooled at the surface while undressing, it is not safe to bathe. Under such conditions the further chill of immersion in cold water will take place at the precise moment when the reaction consequent upon the chill of exposure by undressing ought to occur, and this second chill will not only delay or altogether prevent the reaction, but convert the bath from a mere stimulant to a depressant, ending in the abstraction of a large amount of animal heat and congestion of the internal organs and nerve centres. The actual temperature of the water does not affect the question so much as its relative temperature as compared with that of the surrounding air. Practically, there ought to be a good deal of difference between the two, the water being much lower than the air and the body being—without great or long persisting perspiration—much warmer than the water, of course, but not so much warmer than the atmosphere as to be chilled by undressing. In short, the aim must be to avoid *two* chills; first, from the air, and second, from the water, and to make sure that the body is in such a condition as to secure a quick reaction on emerging from the water, without relying too much on the possible effect of friction by rubbing. Thinking these brief hints out it will be obvious that both weather and wind must be carefully considered before bathing is commenced, and that the state of the organism as regards fatigue and the force of the circulation should also be considered, not merely as regards the general habit, but the special condition when a bath is to be taken. These precautions are eminently needful in the case of the young or weakly.

CIGARETTE SMOKING AGAIN.

SOME months ago we took occasion to offer a few remarks on the practice of cigarette smoking. It was not with any desire to indulge in a tirade against tobacco and what is called “nicotine poisoning” we then discussed the subject in these columns. Our observations were misunderstood in some, misrepresented in other, and sharply criticised in many, quarters. It is urged in rejoinder to our allegations that medical men not unfrequently themselves smoke, and, like other smokers, use cigarettes. Our warning was against the too habitual, and daily increasing, practice of keeping cigarettes in the mouth almost continuously. If cigarettes were smoked by the young men of England as they are by most foreigners no harm would probably result. In other countries the little roll of tobacco is held loosely between the fingers and applied daintily to the lips, a mere puff

of the smoke being inhaled and as quickly blown away. The prosaic Englishman places his cigarette firmly between his lips and leaves it there, sucking in and retaining the smoke, thereby poisoning the saliva, and, which is worse, giving the smoke time to deposit its oily particles in the lining membranes of the mouth, the throat, and the air passages generally. It is directly demonstrable by experiments that tobacco smoke will throw down nicotine with extraordinary rapidity, and the proportion deposited by the smoke of finely cut leaves burnt quickly, as the tobacco in a cigarette is burnt, is greater than that thrown down by the smoke of a cigar or pipe. In cigarette smoking the tobacco leaf is reduced to very fine shreds, and it is consumed with great celerity. The smoke passes directly into the mouth, unless a mouth-piece is used, and whatever nicotine there may be to affect the organism of the smoker is taken up with especial avidity. As regards the influence of cigarette smoking on the pulse, this is in many cases, undoubtedly, strongly marked. The sphygmograph gives tracings which are characteristic of the depression produced by tobacco on the vasomotor centre and nerves—that is to say, the apparatus by which the calibre of the smaller blood-vessels is regulated, and the pulsating current of the blood normally converted into a continuous flow of the nourishing fluid—and these tracings are more characteristic in the case of the habitual smoker of cigarettes than in that of the smoker of cigars or a pipe. This fact has fallen repeatedly under observation. Another feature of the case against cigarette smoking is the relatively greater dryness of the mouth and throat, and therefore desire for a “brandy-and-soda” or some other stimulating beverage which attends the smoking of cigarettes, than that which is caused by other modes of indulgence in tobacco. We neither share the fashionable belief that alcoholic drinks are injurious when taken in strict moderation, nor do we for a moment think a moderate use of tobacco is to be deprecated, except in special cases; on the contrary, we are convinced that for the relief of many mind and nerve troubles, and for the reduction of needless and mischievous excitement in the brain and other nerve centres, tobacco smoking is often useful; but, at the same time, we are persuaded that a protest against the habitual smoking of cigarettes is needed, and we think it timely to repeat this protest in warm summer weather; for it is undoubtedly when the atmosphere is heated and the pulse is liable to be quickened by the slightest nervous excitement or muscular exercise, those who smoke find the genial influence of small doses of tobacco both soothing and recuperative.

INCUBATION OF DISEASED EGGS.

SOME observations in a field of experimental investigation hitherto but little, if at all, the subject of special research, were contributed by M. Barthélemy before a recent meeting of the Académie des Sciences. The conclusions at which M. Barthélemy arrives are remarkable, and may turn out to be of much value in throwing light on kindred questions. In a farmyard which had been during the past year the site of an epidemic of fowl-cholera, a fowl presented this year, towards the end of February, all the symptoms of the affection, and after a protracted illness died. Fourteen eggs were laid by this bird during its illness, and these were subjected to incubation side by side with some eggs obtained from a normal fowl. Closely watched, the two kinds of eggs presented no recognizable difference so long as the circulation lasted in the yolk of the egg. Notable differences were, however, detected when the respira-

tory function was transferred to the allantois; this would be at about the ninth day of incubation. The added eggs—if that term may be used—ceased to develop; not one was hatched. Examination of the eggs, opened with the usual precautions, showed that beneath the shell, and at the surface of the allantois, an extravasation of black blood existed, which was characterized by the presence of an odor quite similar to that arising from fowls dead of cholera. Pending the examination the umbilical artery continued to pulsate slowly, a fact which goes to show the tenacity of life of these embryos. The embryo proper was seen, so to speak, swamped in the bottom of the amniotic sac, which was swollen with a large quantity of fluid, whilst all trace of albumen had disappeared. The blood of the diseased egg was full of bacteria, and the amniotic fluid contained monads of very minute size. M. Barthélemy contends strongly for the notion, that the ovum contained the germs of the microbes with which the parent's blood teemed, and that these germs only developed when, by the formation of the allantoic circulation, an aerial respiration imparted to the circulating blood the necessary amount of oxygen; it is of further interest to remark that just at this time the embryo begins to assume the special features of a bird. Two out of three fowls succumbed after inoculation with the débris of the diseased embryo. Lastly, it ought to be mentioned that cholera was still rife in the farm, and that other fowls were affected.

A NEW TREATMENT FOR GLAUCOMA.

FROM a review of the thesis in *L'Union Médicale* we learn that M. Trousseau, *ancien interne des hôpitaux*, has arrived at certain conclusions with regard to the value of what is believed to be a new method of treating glaucoma. The method consists in stretching the external nasal nerve. The details are not mentioned, but it would appear to be a measure of very simple sort, and of innocent application. It is believed that it may succeed when iridectomy and sclerotomy have failed. The prodromal stage is not too early for its application, and the necessity of having recourse to the gravest measures may be prevented. Other sensory nerves of the orbit ought to be tried if elongation of the external nasal fail. The above conclusions were drawn from the results of ten observations. Allowing the truth of the assertions, the explanation would be of as doubtful a nature as the *rationale* of the nerve-stretching in locomotor ataxy. We may truly say, *Ignotum per Ignotius*.

FALSE TEETH.

AN inquest was held at St. Bartholomew's Hospital recently by Mr. Langham on the body of a man from Rhayader, in North Wales, who died from the effects of swallowing a small plate carrying two artificial teeth. He was brought from Wales to London, and admitted into the hospital, and an operation was performed to relieve the urgent dyspnoea, but death eventually supervened owing to an abscess caused by the impaction of the plate. There is no rose without a thorn, no advantage without a drawback. Even the blessing of false teeth to the toothless has a possible curse hidden beneath its fair exterior: the teeth may break loose from their fixings or fastenings either when in use or while the wearer sleeps, and being either swallowed or drawn with the breath into the larynx, trachea, or bronchus, become converted from an aid to living into a cause of death. The moral of this consideration ought to be not that the dread of being "in peril by false teeth" should

frighten persons from wearing them, but that dentists should be particularly careful to provide secure fastenings. There can be no doubt that there is a great deal of careless work in the fitting of artificial teeth. Setting aside the multitude of clumsy and inartistic teeth thrust into the mouths of the ignorant or too forbearing, there is a large proportion of cases in which safety is sacrificed to seeming comfort or appearance. It may be easy to wear a set of teeth, or to keep a single tooth in place with ordinary attention when the attachments have been reduced to a minimum, but a very little careless eating or talking may, at any moment, render such attachments of no value. We have heard dentists themselves express wonder at the fact that "sets" supplied at the special request of their wearers, with little or nothing to hold them in place, could be worn. Dentists should insist on making the teeth they apply thoroughly secure; and their clients should submit the question of fastenings, both as regards number and extent, entirely to their judgment.

DEATH FROM EMOTION.

THE *Philadelphia Medical Times* records a very instructive case in which a man died from fright, and where the death narrowly escaped being attributed to ether. The patient had received a severe injury to his hip during some blasting operations. Some days after the injury a consultation was held on his case in the Wilkesbarre Hospital, and it was considered necessary to administer ether. The man objected to this and urged that his heart was weak, but it was considered necessary to anaesthetize him. This decision seemed to affect the man strongly, he breathed with great difficulty, asked for the windows to be opened, and in a few moments died. No ether or other anaesthetic had been administered, and he had not suffered any pain from the partial examination of the hip that had been made. No particulars of the actual state of the heart are given, but we are told a "murmur" was present. There is little difficulty, however, in tracing the death to a powerful inhibitory influence upon a weak heart. The case has many parallels, and a very good one is quoted by the *Philadelphia Times* of a boy in India who, mistaking in the night a harmless lizard creeping over his leg for a bite from a cobra, immediately became collapsed and died in spite of all attempts to restore him. Had the surgeons in the first case begun to administer ether, this death would have been wrongfully attributed to the effects of the anaesthetic.

Correspondence.

"Audi alteram partem."

SIR HENRY THOMPSON ON CIGARETTE SMOKING.

To the Editor of THE LANCET.

SIR—I think I might, if permitted, offer you a practical hint of some value in connection with cigarette smoking, which I think is not altogether appreciated by the author of your notes on the subject.

First, the cigarette, without a mouthpiece, is really never smoked more than half way through in the East, where cigarettes are very cheap. It is well understood there, as it is by all practiced cigarette smokers, that every inhalation from a

cigarette slightly deteriorates in quality from the first. A small deposit of the very offensive oil of tobacco is deposited in the finely cut leaf, which acts as a strainer, and intercepts the deposit as it passes. Very little of this arrives in the smoker's mouth if he stops when half is consumed. I have seen many oriental smokers who consume no more than a third. Turkish ladies, for example, as I have had personal opportunity of observing at Constantinople, will smoke fifty or upwards in a day, but, I need scarcely say, only in the manner I have described.

Secondly, if a cigarette with a card mouthpiece is employed, the noxious matter may be intercepted by always introducing a light plug of cotton wool into the tube. If now the cigarette is nearly consumed, a considerable quantity of brown and very offensive matter will be found in the cotton wool, from the evil of which the smoker is thus preserved.

Thirdly. Some years ago I designed a cigarette-holder or mouthpiece, which opened transversely in the middle, disclosing a small cavity, which is filled with cotton wool. It would surprise many people, perhaps, to find that the result of smoking six cigarettes only in this tube is that this plug is saturated with a brown fluid like treacle, of powerfully offensive odor, and disagreeable almost beyond belief. The wool then requires to be changed, and in this manner the evil of smoking is very greatly diminished. Several of these were constructed by a well-known tobacconist close to your office in the Strand.

Lastly. The maximum of pernicious influence which occurs through cigarette smoking is attained by the practice of inhaling the smoke largely direct into the lungs, where it comes into immediate contact with the circulation, and the toxic effect is so strongly perceptible after three or four consecutive inhalations, and so felt by a sensitive person to the very tips of the fingers. I have no doubt that the effect would in most cases be notably recorded by the sphygmograph. Such smoking is of course, or ought to be, exceptional. All the fragrance, with a little only of the toxic effect, is obtained by admission of the smoke into the mouth only, still more by passing it through the passages of the pharynx and nose; but it is the pulmonary inhalation referred to, often associated with cigarette smoking, and rarely with the pipe, which constitutes the chief mischief of the cigarette. I may say, in passing, that that well-known oriental method of smoking, practiced by means of the narghileh, in which the smoke, although drawn through water, passes invariably through the lungs, explains the powerful effects which sometimes unpleasantly surprise novices in its use.

Smoked, then, simply, and with cotton wool interposed, I do not hesitate to regard the cigarette as the least potent, and therefore the least injurious form of tobacco smoking. Without this precaution it may be made, although not necessarily, the most ready means of conveying the active principle of tobacco, by means of smoke, into the system.

I am, Sir, yours truly,

H. THOMPSON.

Wimpole-street, W., May 28th, 1883.

To the Editor of THE LANCET.

SIR—With reference to the article on this subject, I should like, if you would allow me, to make a few remarks.

In your article you infer that smoking cigarettes in the foreign way does less harm than the English mode, because in the latter case the smoke is

retained longer in the mouth. Now, I have lived for several years abroad, and I know that the French, Italians, Spaniards, Germans, and I have heard also that the Russians, "inhale" the smoke from the cigarette—that is, they swallow it, so that the smoker after drawing down a whiff of smoke, can, if he chooses, speak, or even drink a glass of beer, and after that bring the smoke up again and eject it. This is their usual way of smoking cigarettes, but in London ten years ago, as far as I could see, "inhaling" was not much known, but I notice that the numbers here who now adopt it are increasing every year, and they, after having acquired the habit, will tell you that this is the only way they care to smoke a cigarette. But if the mere retention in the mouth of the smoke is so bad, how much more must it be so in the case of the foreigner who always "inhales" or swallows the smoke; and yet it is held in your article that the foreign way of smoking is the least injurious.

I do not know whether the attention of the medical profession has been drawn to the subject of "inhaling," but if it has, I and many other "outsiders" with whom I have conversed on the subject would be glad to know their opinion, whether inhaling is much more injurious than ordinary smoking, and what are its effects; and I think that it would be very useful to the public to have their views, as the practice of inhaling seems to be spreading rapidly.

I am, Sir, your obedient servant,

C. E. D.

May 29th, 1883.

TETANUS OR HYDROPHOBIA.

To the Editor of THE LANCET.

SIR—I beg to send you the following case, which you may deem worthy of insertion in THE LANCET:—

A female Hindoo child, aged seven years, was bitten on March 30th, 1883, by a dog supposed to be rabid. The wounds, which were described as slight, were on the top of the head and top of the right shoulder, were cauterized as soon after the injury as possible with nitrate of silver, and both healed kindly within a week. About six weeks after the injury, or on May 14th, the child complained to the father that it experienced a sensation as if there were a worm in its ear, and afterwards complained of headache. Next morning the father states "she began to grind her teeth, and I then brought her to hospital." The case was admitted into the regimental hospital on the morning of May 15th, and, from the history, it was diagnosed to be one of hydrophobia. The following symptoms were noted:—Frequent fits of crying as if afraid of something, and paroxysms of cramp over the whole body. Trismus was marked, the grinding of the teeth being caused by spasm of the muscles of mastication. The child had no dread of water, but had great difficulty in swallowing fluids, which it did by gulps. There was no frothing at the mouth or dripping of saliva from the mouth at this period, although this is said to have happened immediately before death. During the whole day the child lay on its belly, and suffered from paroxysms of cramp, occurring at varying intervals, but always excited by being in any way disturbed. The same condition prevailed during the night. The temperature in the axilla was noted to be 99°. On the morning of the 16th I again saw the patient. It now suffered from very frequent attacks of cramp over the whole body, opisthotonos being marked. It had no dread of water, but refused to drink any. The pulse was

now weak and rapid, the temperature 99° 2'. The face had a wild expression, but there was no mental aberration. The jaws were firmly closed. At 1.45 it had a violent seizure of spasms, and died in the convulsions. The bowels were constipated throughout. Several other persons were bitten by the same dog, but to the present date this is the only one with serious results.

I am, Sir, your obedient servant,
J. E. FERGUSON, Surgeon, 9th Bombay N.I.
Poona, India, May 23rd, 1883.

A CASE OF SCURVY OCCURRING AS A COMPLICATION OF HEART DISEASE AND SYPHILIS.

To the Editor of THE LANCET.

SIR—The following case is, I believe, of sufficient interest for publication.

G. M—, aged forty-five, came under my care for the first time in September last, suffering from long-standing aortic obstruction and regurgitation together with the usual train of symptoms denoting cardiac failure. He was also the subject of tertiary syphilis, having a large ulcer over the manubrium sterni connected with that bone, and symmetrical gummata in the sterno-mastoid muscles, which subsequently suppurated; he had, moreover, lost an eye from "inflammation" some years previously. The progress of the case presented nothing unusual till March this year; and, although distressful symptoms were markedly relieved by treatment, the condition of the patient was one of increasing weakness.

On March 19th he complained of unusually severe pains in his joints and back, and the following day petechiæ began to appear on the trunk and limbs. On the 21st a large brawny swelling appeared in front of the left elbow-joint, with deep-seated oedema of the forearm and hand. Subsequently effusion took place into the cellular tissue of each orbit, quite closing the eyelids; and the right forearm also was the seat of extensive intermuscular effusion. The petechiæ meanwhile increased in size and number. The gums, though unhealthy, were not particularly affected, but the fetor of the breath was almost unbearable. Intestinal hæmorrhage and bilious vomiting soon supervened, and the patient died on the 29th of March. The diet of this patient had not been at all limited in kind, and for a man in his condition he had, up to a fortnight before his death, taken a fair amount of nourishment; so that, although one cannot exclude mal-assimilation as a factor, I am inclined to attribute the origin of scurvy in this instance to the mal-nutrition resulting from disease. The combination of morbid elements present was peculiarly favorable to the production of profound cachexia—viz., a diseased and failing heart, impure blood, and an arterial system seriously affected, in all probability by the syphilitic poison.

I am, Sir, your obediently,
JAMES TURTON, M.R.C.S.
Heckmondwike, June 1st, 1883.

AN UNUSUAL PARTURITION.

To the Editor of THE LANCET.

SIR—In May, Mrs. D—, aged twenty-eight, a fine, well-made, fair woman, the mother of two children born at full period and who had had one miscarriage, was taken in labour after a pregnancy of six months and a half. Anomalous pains commenced about four hours previous to the birth of the child.

When I arrived the nurse told me the child was

just expelled, lying under the bedclothes between the mother's legs. Upon raising the sheets I found the whole contents of the late gravid uterus had been ejected. The placenta, membranes, waters, and the child were all intact; the mass was about the size of a large bat. The child was floundering about in the fluid, and struggling to be released. I raised the mass up by taking hold of the placenta, and found its total weight about nine pounds. The membranes were exceedingly tough, and to release the child I had to cut them with a pair of scissors, as I could not tear them open with my fingers.

This is the only case I ever saw born in this fashion, where the child was viable, out of 7,000 cases I have attended, the nearest approach to it being one other case where the child was four months old in utero, the preparation of which I have in spirits. It is remarkable that the child was alive in *membrana* after being expelled in this way, and it lived for some days after. The wonder is that there was not considerable hæmorrhage or inversion of the uterus. The mother stated the pains were not like that of labour, but a sudden "rush out of the contents of the bowels." She had a good getting up. Had I been present at the birth I should have ruptured the membranes, and thus prevented this singular and, as far as I know, unique labour, which may be classed as of the rarest kind.

I am, Sir, yours, etc.,
W. H. BORHAM.

Notting-hill, June 4th, 1883.

THE COLOR OF MILITARY UNIFORMS.

To the Editor of THE LANCET.

SIR—Relative to the proposed change of color in the uniform of our military, it may not be amiss to call attention to the following fact:—

When a ray of light passes through an ordinary convex lens, it is usually split up into its component colors, causing a slightly blurred colored border around the object. This is caused by the unequal amount of refraction to which the different colors are subjected. It (the splitting up of the colors) is prevented in the human eye by the unequal refractive power of the media, situate in front of the retina; the remedy existing however only while the image can be received exactly at its focal distance by the aid of the accommodating apparatus of the eye, causing by its failure the blurred trail or outline which surrounds the scarlet coat at a distance (?).

In the "spectrum" the red is the least refractive of all the colors, for which reason the eye has to bring its strongest accommodating power into action, and *ergo* focuses the red object as if it were considerably nearer than it really is. This of course would not be so apparent if the scenery around were of the same color or nearly so, but assuming the atmosphere colorless, the red stands out in bold relief.

Thus in our soldiers' scarlet tunic we seem to have considered the advantage we can give the enemy in choosing the least refractive of colors.

I am, Sir, yours truly,
OCULUS.

June 16th, 1883.

"APOMORPHIA."

To the Editor of THE LANCET.

SIR—about a year ago I was called to a stout, healthy woman who had swallowed an unknown quantity of morphine with suicidal intent. She was already unconscious, pupils contracted, and stertor-

ous breathing. As I could get her to swallow nothing, I injected into the arm, as soon as I could get it from a drug store about one square away, about one-eighth of a grain of apomorphia dissolved in water, which was followed in a few moments by copious vomiting. As the patient seemed to get no worse, nothing more was done, and she recovered in a few hours.

I have also used hypodermic injections of apomorphia in three cases of general clonic convulsions of children, all under four years of age. The convulsions in one were caused by commencing meningitis, in one by pneumonia, and in the third by intermittent fever. All recovered fully from the convulsions, but the one with meningitis died in about three weeks from the meningitis; the one with pneumonia lived one week, and died from the disease; and the other recovered in about two months, after a severe seizure of malarial fever, with possibly some meningitis, but is to-day almost an idiot, more than a year after recovery. All recovered perfect consciousness for about one week, showing that the apomorphia had nothing to do with death in two cases or with the idiocy of the third. I am, Sir, very truly yours,

F. JACKMAN, M.D.

S. Illinois-street, Indianapolis, Indiana, U.S., May 15th, 1883.

PRESENCE OF BACILLUS TUBERCULOSIS IN AN ABSCESS NEAR THE ANUS.

To the Editor of THE LANCET.

SIR—Six months ago a young clerk, aged twenty-one, came under treatment for hæmoptysis and other signs of phthisis; after about three months' treatment he got strong enough to return to his employment, at which he continued up to the commencement of this month. I saw him on the 5th, when he was suffering acutely from an abscess in the neighborhood of the anus, and, fearing, lest it might burst into the bowel and give rise to a painful blind internal fistula, I opened the abscess at once and let out a quantity of thin curdy fetid pus. A microscopic examination of this fluid by a half-inch object glass, after the usual process of staining, revealed the presence of great quantities of well-marked typical tubercle bacillus. Now, the presence of these organisms in this situation is interesting, as they tend to throw some light on the well-known connection between fistula and phthisis. On this account you may, perhaps, deem this note not unworthy of being recorded.

I am Sir, yours obediently,

R. C. SMITH, M.D., D.Sc.

Manchester, June 10th, 1883.

News Items, Medical Facts, &c.

THE battle of the codes in the United States rages as hotly as ever. Dr. J. W. Howe has resigned the Professorship of Clinical Surgery in Bellevue Hospital Medical College because he has understood that unless he could join with the rest of the faculty in supporting the code of the American Medical Association his resignation would be acceptable.

ARE FALSE TEETH NECESSARIES?—An interesting case bearing on the above question was recently decided before the Austrian district tribunal at Brünn. A dentist sued a gentleman of position for the cost of furnishing several false teeth to his recently deceased wife. The widower contended that the claim did not come within the scope of the befitting support which his wife was legally

entitled to receive, and argued that, although medical services would be covered by legislative enactment, such was not the case with the offices of a dentist. The court, however, decided against him, on the grounds that mastication must be defective with a deficient number of teeth, and thus their replacement is a matter of necessity to the bodily health.

PHOTOGRAPHY FOR PHYSICIANS.—The general idea associated with the practice of photography is one of dirt and "mussiness." This was eminently characteristic of the art a few years ago, but since the introduction of what is known as the dry-plate system, this has been entirely changed and the making of a photograph does not involve half the labor and dirt that is required in preparing and mounting ordinary specimens either for the microscope or the shelf. Physicians and surgeons can hardly fail to find the new system a great aid, both as an aid in consultation with their brethren at a distance, and as a means of recording peculiar cases. The Scoville Manufacturing Company manufacture special outfits for this purpose, and they publish a small book on the subject, giving full directions for the taking of photographs. This book will be sent free to any one who will send for it.

MR. SMEE'S GARDEN.—The *Gardener's Magazine* contains a brief description of the garden of the late Mr. Alfred Smee, situated at Wallington. It has now passed into the possession of Mr. H. Smee, who has religiously preserved it as regards its peculiar features and the idea it represents. It has of course been slightly modified by its present possessor, but for all scientific and artistic purposes it remains intact, a suitable memorial of a good and gifted man, a rural microcosm, in which may be seen very much of the material of which this world is made, and more particularly of its vegetable clothing. The idea of the late Mr. Smee was to encourage as many forms of vegetation as can be accommodated within the space of a few acres, and as far as possible to leave nature free. The garden has been many times described, but the best description, and, indeed, the only one worth mention now, was that given by Mr. Smee himself in a remarkable book, entitled "My Garden," published by Bell & Daldy in 1872.

PURE WATER.—It is probable that impure water is the cause of quite as much sickness as any other agent, and it is unfortunately the case that ordinary mechanical filters fail to remove some of the most deleterious ingredients. The great natural filters, those by which our springs and clear streams are purified, are beds of clay and soil; but this material is too cumbrous and bulky to be used for ordinary artificial filters. But the extraordinary powers of discoloring and defecating possessed by charcoal, and especially by animal charcoal, place within our reach a means of purifying drinking water which leave nothing to be desired. We have frequently passed filthy and offensive water through this material, and obtained a clear, limpid, and entirely sweet product. Of course the efficiency and convenience of a charcoal filter depends much upon the mechanical arrangements involved in its construction. An exceedingly simple and convenient filter, constructed upon this principle is that manufactured by the Stoddard Lock Company, of this city. It is cheap and may be readily applied to any water cooler or faucet. Descriptive circulars may be obtained from the company.

PRINTED AND PUBLISHED BY

THE INDUSTRIAL PUBLICATION CO., 294 Broadway, N.Y.

THE LANCET.

A Journal of British and Foreign Medicine, Physiology, Surgery,
Chemistry, Criticism, Literature, and News.

JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

PUBLISHED MONTHLY.

No. 3. NEW YORK, SEPTEMBER, 1883.

A Sketch

OF

THE ORIGIN AND DEVELOPMENT OF THE SCIENCE OF HYGIENE.

*Being the Inaugural Lecture of the Parkes Museum,
delivered on June 1st, 1883,*

By F. S. B. F. DE CHAUMONT, M.D., F.R.S.,

Professor of Hygiene in the Army Medical School, Netley.

To trace the history of the search of the human race after health would be almost tantamount to writing the history of the race itself. Fortunately, both for myself and my hearers, such an undertaking is neither expected nor intended. An inquiry into early wanderings and gropings after health would be doubtfully useful, even if it were likely to be interesting, for it would bear to the hygiene of the present day something of the same relation that the visions of the astrologer bear to the astronomy of Newton. Perhaps some might object that this is claiming too much for our subject, and that even its title to be treated as a science may be questioned. But much the same objection might be made to medicine, and perhaps even to other branches of knowledge which are conventionally included in the list of exact sciences. A careful examination, however, of the position which hygiene now holds will, I think, justify us in claiming that it has made such advances as may fairly entitle it to take its place among the progressive if not absolutely exact sciences. Its literature has been said with truth to be amongst the oldest in the world, the earliest records being religious ceremonial formulas which ever involved rules directed to maintain the health and efficiency of the people.

It has been proposed to place upon these walls the names of the illustrious dead who were the pioneers and founders of our science, and the difficulty will probably lie more in the wealth than in the paucity of material, rendering selection less easy where so many are worthy. We cannot doubt that in order of chronology the first name to be honored is that of Moses, as the author of the most complete and detailed system of hygiene in ancient times. His rules, given as part of the Divine Law, are of course mixed up with religious

ceremonial, both as being appropriate to the age and to the nation for whom they were intended, and also as being more likely to be followed when made in that way a part of the religion of the people. We may be pretty well sure that the code of Moses was the outcome of the wisdom and experience of long past ages. "Nemo fuit repente turpissimus," so also "Nemo fuit repente hygienicus." Be that as it may, however, one cannot but admire the excellent precepts laid down for the cleansing and purifying of house and camp, for the security of pure water, for choice of good and wholesome food, for the isolation of the sick and the unclean, for the destruction of refuse, etc. Some of the rules we may smile at now-a-days, as being a superfluity of precaution, and it is true that with advance of knowledge we can see that certain of them were unnecessarily sweeping in character; but still it would not be too much to say that a fairly strict adherence to the Mosaic law would have preserved mankind from many of the disastrous plagues which have afflicted it. The history of the Jews themselves illustrates this point. Of old, when a pestilence visited them, it was always represented, and probably with perfect truth, as a punishment consequent upon the breaking of the law, a statement which may be frankly accepted either by those who maintain the special intervention of a Divine Providence, or by those who regard it as a strict consequence following on antecedent cause. In later times, and especially during the Middle Ages, the Jews enjoyed a remarkable immunity from outbreaks of epidemic disease, an immunity which still distinguishes them in our own time. Several causes have combined to bring this about. 1st. They are generally temperate and frugal. 2nd. They still in the main follow out the Mosaic law with regard to their food, their meat being carefully examined and selected for its freedom from signs of sickness or parasites, nothing but pure (or kosher) meat being used. And 3rd. By reason of the periodical purifications which take place in their dwellings, as a part of their religious rites, which purifications extend to most minute particulars, so minute as to render it hardly possible that disease germs should lurk in any part of the dwelling. So little, however, was the real cause of their healthiness appreciated by our predecessors in the bad mediæval times, that it was held an irrefragable proof of their demoniac machinations, which led them to poison the wells which supplied the Christian community with water, their bigoted

enemies not stopping to consider that it would be much against the interest of the Jews to kill or harm those from whom, by commerce, they gained their livelihood. But, indeed, our own time furnishes the exact counterpart of this cruel and unreasoning tyranny, not merely in the savage outrages perpetrated by the rude and ignorant populace of Russia, but in the disgraceful *Juden-hütze* which has stained the name of civilized Prussia, and was led by—save the mark—the chaplain of the Court itself!

Let us turn now to the classic records as they are called—that is, the writings that remain to us from the Greeks and Romans. Considering how many men must have written in those times, how general knowledge and the art of writing was, we have to lament the paucity of the literary remains that have survived. How we curse the fanatical zeal of Omar, who burned the library of Alexandria, and still more the senseless stupidity of the monks of later days who scraped out the writing from priceless manuscripts to write missals and the like in their place! As might be expected, it is to the Father of Medicine, the great Hippocrates, that we owe the most of what we have left of Greek hygienic literature, although we must admit that even in Homer there are traces of hygienic knowledge, and that there the disinfecting powers of cleansing fires of sulphur are fully recognized. It is a remarkable fact that one of the chief books of Hippocrates relating to hygiene—viz., that on “Air, Waters, and Places,”—is one of the few about the authorship of which no doubt has ever been raised. Like the code of Moses, it was probably a summary of the already existing knowledge of the subject, supplemented and extended by the experience of the great physician himself. Another name that deserves remembrance is that of Xenophon, whose triumphant retreat was no less a hygienic than a military triumph; and there is no doubt also that Alexander the Great was a master of the art of hygiene, to have taken his force so far with so little loss. Nor ought we to omit the name of Herodotus, one of the preceptors of Hippocrates, and the first to introduce gymnastics on scientific principles, not only as a curative, but also as a preventive measure. The works of Asclepiades, who boasted that he would never be sick, and did, indeed, die of a fall, and those of Aretæus, doubtless contained reference to preventive medicine; whilst those of Galen, which extended to 300 volumes, the majority of them now lost, furnished many of the precepts on which later hygiene was based. On the other hand, the myth which makes Health, or Hygieia, the daughter of Asklepios (whom we call Æsculapius) no doubt arose from an instinctive perception of the value of medical science in preserving health as well as in the cure of disease. We may also be permitted to believe that the honors paid to his sons Machaon and Podalirius were due, at least in part, to their hygienic foresight as well as to their medical and surgical skill. The famous line of Homer shows the estimation in which the military surgeon of those days was held, and the consternation that fell on the Grecian camp when Machaon was wounded:—

Ἴητρος γὰρ ἀνὴρ πολλῶν ἀνταχίους ἄλλων,

Which is thus rendered by Pope:

“A wise physician skilled our wounds to heal,
Is more than armies to the common weal.”

Would that modern commanders had an equally just and appreciative estimation of the services of the best abused but most beneficent of professions. I may mention that the above line of Homer has been selected as the motto for the medal in military surgery, founded by the liberality of the late

Mr. Nathaniel Montefiore, and awarded every session at the Army Medical School, Netley. Besides the writers already quoted it would be unjust to omit the name of Aristotle, whose writings include important hygienic precepts. The praise of health was also sung in an ode of Ariphron, who calls her *πρεσβίστη μακαρῶν*, eldest born of the blessed, and also by Isocrates, one of the purest of Greek writers, whose line *Ἡ περὶ τοῦ σώματος καὶ τῆς ψυχῆς ἱγίεια*, has been adopted as the motto of the gold medal founded at Netley in memory of Edmund Alexander Parkes. The general life of the Greeks was eminently hygienic, being mostly outdoor and under favorable conditions, persons even of high position taking part not only in active occupations but in labors that might be even considered menial by the unthinking. The honorable place that athletic games held is a point of resemblance between the Greeks and our own countrymen that ought not to be lost sight of. Nothing is more conducive to health of body and mind than active exercise in the open air, and the splendor of Greek literature, art, and knowledge is a sufficient answer to those who are afraid lest athletics should develop the muscles of our youth to the detriment of their brains.

Among the Romans the care bestowed upon the provision of pure water—with which is connected the celebrated name of Frontinus, as *Curator Aquarum*—and their elaborate system of drainage, prove that they had correct ideas on some of the fundamental questions of hygiene. Their fondness for bathing and extensive establishments for that purpose remain monuments of the next to godliness which even at this distance of time we, with all our boasted civilization, have been unable to emulate. The more recent discoveries in the Campagna have still further shown that they were fully aware of the conditions which alone could make that now pestilential region habitable, as a system of subsoil drainage has been revealed that is a reproach to the ignorance and supineness of modern times. Nor was Rome the only city of antiquity that was efficiently drained, for we have evidence of it at Agrigentum at least; but Rome was certainly among the oldest of which we have actual remains, the beginnings of its great cloaca going back at least five and twenty centuries. Another direction in which the Romans showed great knowledge of the principles of hygiene was in the management of their troops on the march and during war. The rules for encampments given by Vegetius are excellent, and to the great care shown for every detail of sanitation must be attributed the comparatively small loss which the armies of the Romans appear to have sustained. We may say, indeed, of classical times generally that there was a remarkable absence of devastating epidemics, none of those on record approaching in fatality and intensity the great plagues which swept over Europe down to quite modern times.

In taking a cursory retrospect of the Old World in its medical aspects, I should be inclined to say that on the whole its medicine was as much preventive as curative. It is probable that such a proposition would be combated; but, in spite of the treatises that have survived in curative medicine and surgery, and the long list of medicaments that we find, for instance, in the works of Galen, there was probably as much, if not more, done in the preventive line as in the simply curative. The motto of the time might have been, “*Venienti occurrere morbo*.” Two things seem to indicate this:—1. There was a dread and impatience of disease, so much so that men were known to commit suicide to escape it; like the aged Indian who slew himself at the tomb of Achilles, for fear he should die

of disease, from which he had through life been free. 2. The sentiment of pity for the weak and the oppressed appears to have been absent; there was the same tendency as we find among animals and among savages to hold a sick man of little account, as useless to the State, and the sooner got rid of the better. Hence, perhaps, the curious fact that we have no record whatsoever of public hospitals or infirmaries for the sick poor during the classical period—the earliest being as late as the reign of Justinian.

From the time of the decline and fall of the Western Empire the progress of hygiene appears to have been arrested. Some few of the treatises of the Greek and Latin physicians survived, others were known only as translated from the Arabic, etc., whilst the wholesome traditions of the hygienic life of Greece and Rome appear to have decayed, and we pass into a dark and dirty period when fanaticism usurped the place of religion, and dirt became the odor of sanctity. The Hermits of the Thebaid became the types of all that was holy, and so framed their lives and manners as to be as much as possible the antithesis of the heathen. The heathen led an active and healthy life, the Christian fanatic led a life of mooning and inaction; the heathen washed himself and his clothing, the Christian forsook cold water and wore his clothing till it fell off his body from sheer rotteness. The picture of the thousand years which elapsed between the downfall of Rome and the final capture of Constantinople, as drawn by Michelet in his "Sorcière," is one of the most striking as well as disgusting that can be conceived. "Pas de bain," he says, "pendant mille ans!" Can we wonder at the plagues which devastated Europe? Is it astonishing that the "Black death" cut off two-thirds of its inhabitants? Although the revival of learning was partly instrumental in arousing the nations to a sense of their degraded condition, yet the change was by no means great, even down to much later days, and it is humiliating to think, from the accounts of Erasmus and other visitors to our shores, that our own country remained long pre-eminent in Europe for dirt and disease. Hardly a decade passed without visitations of some foul malady until the cleansing fires of the great conflagration of London in 1666 appear to have extinguished the last vestiges of those old and dreaded enemies. It is true that even then we were far from being free from epidemic disease, and that we are still open to its ravages; but the forms of disease which have shown themselves since the great plague are of a type, if not entirely different, still of a kind and under circumstances which have been more understood, and the causes traced more certainly to particular conditions. But one can easily imagine how different the case of Europe might have been could the hygienic knowledge collected during and before the classic period have been carefully put together, formulated, and acted upon by the succeeding generations. As it is, whatever may have been written in the Middle Ages, was either a mere re-echo of the classic writings, a copying of the Arabian physicians, or a farrago of nonsense into which spells and magic largely entered. When a fresh interest began to be excited, and men began slowly to perceive that the elixir of life was a vain imagining, their minds turned more to actual observation, and among other things the science of dietetics attracted much notice. The older writers had already written much on diet, and even Hippocrates had pointed out the close relation between food and work, a relation which has been fully recognized only in our own generation. Various treatises on food and regimen were written later, of which the two that might claim notice are

the one entitled "Tacuinus Domus," or "Tables of Health," published under the name of "Elluchasem Elimithar," and written, it is said, by two Jewish physicians at the request of Charlemagne. This is a curious old book, and very "rarely met with," as remarked by Mackenzie in his "History of Health," "except in public libraries, which is no great loss, being but a mean, perplexed, and whimsical performance, and scarce worth taking notice of, but only because it happens to be sometimes quoted by the learned." We possess a very fine copy of this book, which is a beautiful specimen of the printing of the early part of the sixteenth century, in our library at Netley. It is quaintly illustrated throughout with woodcuts of much spirit, representing every article and operation mentioned in the book which it is possible to illustrate. But the most celebrated mediæval work on the subject is undoubtedly the renowned "Regimen Sanitatis Salerni," the code of the famous university of Salerno, which is believed to have been compiled by John of Milan in 1099. So much was it esteemed that it was called the "Flower of Physic:" "Hoc opus optatur, quod flos medicinæ vocatur." Haller enumerates twenty editions, and it was translated into various languages—among others into English by Paynell (1579 and 1609) and by Dr. P. Holland, whose version is the best known. It was also the subject of numerous and voluminous commentaries, such as that by Arnoldus de Villa Nova, none of which, however, added much that was valuable to the original. We may well believe that this Code of Salerno is a summing up of the hygienic knowledge and experience of the time, most of it probably borrowed from the ancient writers, and suited to the habits of the age. Some of it is no doubt fantastic, but much of it is sound sense. Some of the precepts might well fit many towns of the present day, the metropolis among others:

"Lucidus ac mundus sit vitæ habitabilis aër,
Infectus neque sit, nec oleus fœtore cloacæ."

Dr. Holland's translation is not very faithful; some may render it this way:

"Dwell in air both clear and pure,
Free from taint or smell of sewer."

I do not know, however, if our friends of the Blue Ribbon persuasion would quite approve of the next precept:

"Si nocturne tibi noceat potatio vini,
Hoc tu manè bibas iterum, et fuerit medicîna."

Which I take the liberty of rendering thus:

"If overnight your drink has hit you,
Take a hair of the dog that bit you!"

Talking of dogs, I am sure all would rejoice if the receipt for the cure of a mad dog's bite were only efficacious, as it is certainly simple, and Dr. Holland translates it thus:

"A mad dog's byting may recured be,
With onyans, hony, vinegar, these three."

But we must not dwell any longer on this quaint book, although it was long the basis on which works on hygiene were founded. A list of writers who followed, more or less obscure, is given by Mackenzie, in his "History of Health," and by Sir John Sinclair, in his "Health and Longevity." Indeed, it may be said that no writings on science during the dark period were worth notice, except those attributed to our own Roger Bacon.

One of the first really practical writers on the subject of hygiene was the well-known Ludovico Cornaro, a noble Venetian, who, after a youth of intemperance and excess, reformed his ways and kept so strict a watch over his diet and habits, that he prolonged his life to the age of 100 years, dying in April, 1566. Twelve ounces of solid food

and fourteen ounces of liquid, in this case wine, were all he allowed himself, but then he led a life that was less life than mere vegetation, for he was careful to avoid heat, cold, fatigue, grief, watchings, and every other excess that could hurt his health. "How," says Sir John Sinclair, "could the business of the world be carried on if every man, like Cornaro, were to begin to follow such a system at the fortieth year of his age?" Yet the value of Cornaro's treatise was very great, for it was an indisputable proof that life might be maintained, and even health, upon much smaller amounts of food than were often taken, and further, that temperance and moderation are the best resources against both disease and accident. He recounts how he had been upset in a carriage, and been in consequence severely bruised and had an arm and leg dislocated. The doctors wished to bleed and purge him, but he, confident in his temperate habits, desired merely that his limbs should be set and he himself be let alone, after which he made a rapid and complete recovery. The advanced age to which he lived, and also the great ages of Pope Paul Farnese, Cardinal Bembo, and the Doges Lando and Donato, whom he cites, all of whom were men of regular and temperate lives, contrast remarkably with the short lives of the average of men of the time, old men being very rare, and even those who had passed the half century uncommon.

Various writers followed Cornaro, few of them of much note, save the famous Jerome Cardan, one of the most learned of the physicians of the Renaissance, but somewhat whimsical in his hygienic views. He opposed the views of Galen, and in particular objected to exercise that caused the smallest amount of fatigue or perspiration, or accelerated the respiration. He considers it to be a proof that Galen was wrong, seeing that he died at the age of seventy-seven, which, Cardan says, cannot properly be considered old age. Cardan, however, died himself a youth of seventy-five! He adhered to the principles of Cornaro in diet, and showed that he understood to some extent hereditary influence, as he considered that one of the chances of living to a great age was to be descended from a long-lived family.

Of the other writers of the period I will only refer to Thomas Philologus, of Ravenna, on account of his strong protest against intramural interment, thus anticipating by some three centuries the happily fruitful labors of our distinguished countryman, Edwin Chadwick.

The next writer of eminence was the celebrated Sanctorius, a native of Istria and a professor of Padua. He wrote a work on health, entitled "*Medicina Statica*," and he also began the era of exact observation by his well-known experiments with the weighing-chair, by which he endeavored to show the weight of the insensible perspiration. His experiments were very crude and inaccurate; but they were in the right direction, and his work may be considered as marking an epoch in the advance of scientific observation. The aphorisms in his book are couched in quaint, and even fantastic, language, but many of them are sound when stripped of the vagueness and mannerism of the time. He is particularly severe upon a certain "*Staticomastix*," who had criticised him, and had asserted that a plentiful perspiration did not take away from the body one ounce of weight.

The writers from the time of Sanctorius down to the end of the seventeenth century call for little attention, as they seem to have added but little to the knowledge of the time. The remarkable physical discoveries of the close of that century and throughout the whole of the next certainly paved the way for more exact observation in medi-

cine, both in its purely medical and its etiological aspects. Accordingly, we have the observations of Boerhaave and Haller, and a host of other names of distinction, all representatives of progressive medicine, either directly or indirectly connected with the advance of hygiene. Sketches of the various writings of this and preceding periods are given by Mackenzie in his "*History of Health*," by Sir John Sinclair, and by Hallé in his long article on Hygiène in the "*Encyclopédie Méthodique*." And I may here pause for a little to consider the name of the science which we have adopted. It has been objected to that we have taken a foreign word when an English one would do, and that there is no reason why the plain word "health" should not answer our purpose. To this we may reply that the foreign word better defines the science or art, and is less likely to lead to confusion; that the word is now adopted and used in every country of the world, and is therefore common property; and that by its use we accomplish the same end as when we apply a scientific name to a disease, or to a plant, an animal, or a chemical compound. Each of these, under its scientific name, is easily recognized and accurately described. The word "hygiene" itself is derived from the Greek *ἱγίαινα*, "I am in good health," and was apparently first definitely used by Ambrose Paré, according to Littré. Its use in this country was not general until quite recent years, the expression "medical police" being more usually employed. In Germany the kindred expression "*Sanitäts-Polizei*" was adopted, as well as the more truly Teutonic word "*Gesundheitspflege*;" but now the word "hygiene" (formerly written "hygieine") is coming into regular use. There is therefore some advantage in having a common title for our science, even although it be of foreign origin. But, after all, a good half of our tongue is of foreign origin, and as it is one of the most assimilative of all the languages of the earth, we need not reject a word that has much to recommend it on mere grounds of sentimental nationalism.

It is a little difficult in a necessarily restricted lecture to convey any exact idea of the way in which modern hygiene became formulated into so much of a science as it can at present lay claim to; but I will attempt to make a brief sketch of its more salient points. In the eighteenth century there were several important questions inquired into, and to a large extent solved, of which the chief were (1) The influence of air as a factor in the spread of disease; (2) the true cause and prevention of scurvy; and (3) the prophylaxis of small-pox. Taking the last first, we may say that the introduction of inoculation was a most important step, even although we must admit that it introduced a greater danger to the community at large than could be compensated for by the protection to individuals. But it was the first step on the road which led at the close of the century to vaccination, one of the most signal triumphs of preventive medicine, and in our own time to the magnificent results obtained by the renowned Pasteur, results which seem pregnant with so much hope for the future of our race.

The inquiry into the causes of scurvy was another step in advance, of the most signal importance. No one in the present day can form any idea of the ravages that terrible disease produced. All long voyages were imperilled by it, whilst the very existence of England depended upon her fleet, which had frequently to return to port absolutely crippled with scurvy, in some cases as many as ten thousand men being landed from the Channel fleet helpless. Although so far back as the

seventeenth century the efficacy of fruits and fresh vegetables as preventives had been surmised if not actually noted, it is really to the renowned Captain Cook that the credit is mainly due of having established this important fact. That eminent navigator never lost an opportunity of taking on board fruits and fresh vegetables whenever he could, and the result was that he was able to bring home from a lengthened voyage crews in almost perfect health and condition, a thing never before known. It took many years, however, to impress this fact sufficiently upon the authorities, and it was not until 1796 that the medical officers of the navy (among whom was the renowned Sir Gilbert Blane) obtained the regulation ordering lime-juice to be supplied to our seamen. The effect was magical; scurvy lost its terrors, and it may be that the supremacy of England at sea during the Napoleonic wars was in part owing to the improved condition of her seamen during that gigantic struggle. We have still a monument of the extent of the disease in the immense naval hospital of Haslar, the largest in this country, which was built of such dimensions mainly to admit the extraordinary number of scurvy patients which were being continually landed from our fleets. We have not yet got entirely rid of this enemy, but I think we know now how to combat it, in spite of heretical opinions which find expression from time to time.

The recognition of foul air as a factor in disease was certainly begun in the last century, when the brilliant discoveries in pneumatic chemistry made by Lavoisier, Cavendish, Priestley, Black, and Rutherford threw such a flood of light upon a previously obscure subject, and opened the whole immense vista of the boundless science of modern chemistry. It was only then that the physiology of respiration could be even partially understood, and the changes recognized which take place in the respired air from the lungs of man. The great disaster of the "black hole" of Calcutta, and the terrible effects of the gaol fever, investigated by Howard and others, pointed to foul air as a main factor in the propagation of disease and death; and this was further corroborated by the observations made by military surgeons that outbreaks of typhus (or putrid fever) were most rapidly arrested when troops were encamped and scattered widely over the surface of the ground. It was reserved for the latter researches of Neil Arnott and other hygienic observers of the present century to prove the still more important fact that foul air is the main cause of the still more general and fatal class of destructive lung diseases, which in this and in other lands cut off so many of the brightest and the best.

Another important discovery of the last century was the determination of the cause of the well-known lead colic by Sir George Baker. This opened up the large field of metallic poisoning which has received so much elucidation and proved of such importance in reference to the water-supply of large communities.

In the present century we have to point to the establishment of the fact of the water carriage of disease, with which the name of Snow is so honorably associated, the differentiation of continued fevers by Stewart and Jenner, and their connection with the poison of infected excreta by the labors of Budd and other eminent men. To those we must add the elaborate investigations into the modes of propagation of cholera, dysentery, and other tropical diseases, and the means by which scarlet fever, diphtheria, etc., are carried from place to place by various channels of communication. It would be unadvisable, even if it were possible, to enter into details on these points, but there is one branch of the subject on which we

must dwell for a little. No inquiry can assume a scientific form unless it has a numerical basis to work upon, and therefore it behoves us to note the starting-point of such a basis in hygiene, if we can find it. This we do find in the collection of statistics, a beginning of which was made a long time ago in the bills of mortality kept in this country. We know how imperfect those were, and how even the population of this country was not correctly known until within the lifetime of men still living. But still beginnings were made, and the question taken up more and more enthusiastically by enlightened men, until at last the Government Statistical Department was formed, and that remarkable series of reports begun which will immortalize the name of William Farr. From that time the future of hygiene was assured; for there was sound ground to work on, and if we add to that the valuable reports on the health of towns published by the Commission of which the present Duke of Buccleuch was president, we shall have stated some of the most important foundations of modern sanitary science. Those reports disclosed a state of things little dreamt of, and the statistical returns compiled by Dr. Farr showed how much the life and health of the nation were dependent upon the conditions in which its individual members were placed. The establishment of the General Board of Health, under Mr. Chadwick, was one of the valuable outcomes of this remarkable movement. Although the original Board of Health was brought to an end in 1854, yet its work has been continued and expanded under Mr. Simon, his colleagues and successors, in spite of many difficulties and obstacles.

The part which the public services, such as the Army and Navy, played in the progress of hygiene was very important, as might indeed be expected; for under no other circumstances could bodies of men be so well observed, and the effects of surroundings and conditions upon health noted. Accordingly we have a long roll of names connected with those services which must ever be remembered with honor; in the Navy we have such men as Lind, Blane, Trotter, Burnett, etc.; and in the Army, Pringle, one of the most philosophical physicians who ever lived, Brocklesby, Fergusson, McGrigor, and a host of others. The labors of the late Sir Alexander Tulloch, Deputy Inspector-General Marshall, and Assistant-Surgeon (now Surgeon-General) Balfour, in collecting and arranging the army statistics, were of the highest value, and it is not too much to say that the publication of the first army medical statistical report marked an epoch in hygiene, especially in that part that deals with climatology. It exposed the fallacy of the common notions of acclimatization, of the advantages of a seasoning fever, and similar ideas. It showed also that it was possible for men of temperate habits and in hygienic conditions to live and thrive in the tropics, whilst the death and sickness that were unfortunately so common were due much more to the ignorance and folly of man than the influence of climate in any form. The truth of that is to be seen now when life in the West Indies is actually healthier, especially for young soldiers, than service at home, whereas sixty years ago a tour of service there was looked upon as almost a sentence of death. It is true we have still yellow fever to combat, but we know now much better how to deal with it when it does come, and how to obviate its invasion when it is threatened. The army medical statistics are continued now yearly, but it is a matter of regret that they have been allowed to be published in so abstract and undetailed a shape as to deprive them of much of their utility. It is to be hoped that this mistake may be remedied, and that the

saving of a trifling sum, which is said to be the reason, may be recognized as a truly false economy. But perhaps the most remarkable contribution the Army has made to sanitation has been by the evidence given to the Royal Commission of 1857, which met after the Crimean war to investigate the causes of the sickness and mortality of our troops. The results of that Commission are well known, and from its publication may be dated the reforms which have been productive of much advantage both to our own and foreign armies, and to the civil population as well. The paramount influence of foul air in the production of lung disease was proved to demonstration, and the art of ventilation was placed upon a secure foundation. The Barrack Hospital Committee, of which Dr. Sutherland and Captain Douglas Galton were the active members, laid down a series of regulations for the construction of barracks and hospitals, which have been followed with the utmost benefit both at home and abroad. Following this came the Indian Commission, which did for that vast dependency what the Home Commission had done for the rest of the empire. The mortality in India was found to be inordinate, and it was equally clearly traced to insanitary habits and surroundings. To recognize an evil and its cause is half way to curing it, and after a lapse of a quarter of a century we can point, not certainly to perfection, but to such an improvement as might fairly at one time have been looked upon as chimerical. The death-rate of the army at home is only two-fifths of what it was before the Crimean war; the death-rate in India is only one-third, and the death-rate in the West Indies one-tenth.

In civil life it has recently been shown that the improvements of later times have resulted in a diminution of 2 per 1000 in the general death-rate, and with the knowledge we now have of the causes of disease we may be sure that a general death-rate of not more than 15 per 1000 may be confidently looked for. We have not yet got rid of the fatal endemics in our midst, but they are in some directions diminishing, and we have good hope for the future; whilst it seems probable that neither cholera nor any other introduced pestilence could establish a foothold in our land. The remarkable immunity of soldiers and prisoners in the last epidemic shows what can be done when people can be compelled to lead fairly hygienic lives.

I might extend this lecture by reference to the various theories of disease propagation, but time will not permit of it, even if it were otherwise desirable. I may, however, say that no one theory yet promulgated completely satisfies the requirements of the case, and that there may be some basis of truth even in the most conflicting views. So much has been done hitherto, and so much activity is being shown in investigation, that we cannot fail ere long to find the key to many of the mysteries that now baffle and perplex us. It is quite clear that it is only by a knowledge of the causes of disease that hygiene can be advanced, and that it can never be in any way perfected without a complete system of etiology; and we are at present in this position, that practical hygiene has to some extent outstripped the knowledge of disease causes. We look, therefore, anxiously towards the pathological investigations of the time, and we deeply deplore the well-meaning but misguided zeal which is at present placing such grave obstacles in the way of the only means by which true science can advance—namely, direct experiment.

Although there are many names I might refer to as great writers in hygiene, abroad as well as at home, there is one which we cannot omit in a lecture like this, more especially as it is the first delivered

in this museum which has been founded to his memory. Edmund Alexander Parkes did more than any other man in this or any age to make hygiene a positive fact, a practical science, based upon not only philosophical conceptions but actual experiment. Starting in life as an army medical officer he was able to produce during his short service in India and Burmah works upon dysentery and cholera, which will always be of the greatest value. Retiring into civil life he became eminent as a physician and teacher, and in 1855 he undertook the organization of the hospital at Renkioi, in the Dardanelles, which was a perfect model of successful hygienic administration. Struggling with distressing and dangerous disease he continued to lead a life of intellectual activity not often accomplished by the most robust; and when, in 1860, the Army Medical School was established by Lord Herbert, of Lea, Sir James Clark had no hesitation in advising that Dr. Parkes should be secured if possible as the Professor of Hygiene. How excellent the foresight of that eminent physician was we all know, for Dr. Parkes was not only the first professor of the science in this country in point of time, but also the first in every sense of the word. The publication of his well-known "Manual of Practical Hygiene" gave us for the first time a work on the subject, which was not merely a string of opinions and surmises, but at every point brought opinion to the test of figure and experiment, where it was possible, and thus laid the foundation for a real science in the future. Similarly with his teaching he pressed upon the Government to establish practical laboratories for his pupils, where they could do for themselves as much of the experimental work as time and opportunity allowed; and he impressed upon those who studied under him the necessity of testing everything by actual investigation and bringing all statements to the proof of figures before accepting them as true. There was never probably a man of calmer and more judicial mind, a man more rigidly critical of his own work, or more kindly disposed to allow every credit to the work of others. Having known him personally for many years, during thirteen of which I was his assistant and colleague, I can bear confident testimony to the exceeding beauty of his character, in which "sweetness and light" were never more truly displayed, and the scrupulous accuracy and care with which every investigation of his was carried out. The science of hygiene could have no purer and better founder and its votaries no brighter and more spotless example.

Address

ON

EYE SYMPTOMS IN DISEASES OF THE SPINAL CORD.

Delivered before the Ophthalmological Society June 7th, 1883.

By W. R. GOWERS, M.D., F.R.C.P.

MR. PRESIDENT AND GENTLEMEN—In the memorandum which, at the request of the Council, I have drawn up to serve as a guide to the discussion this evening, I have mentioned certain points regarding two classes of eye symptoms met with in spinal disease, to which it seemed to me, the attention of the Society might with advantage be chiefly directed. These are "optic nerve atrophy" and "internal ocular paralysis." These topics do

not comprehend the whole of the subjects announced for discussion. There are many others, such as optic neuritis, nystagmus, and palsy of the extra-ocular muscles, which equally deserve attention. But optic neuritis is extremely rare in association with spinal disease, the meaning of nystagmus is uncertain, and the subject of the palsies of the external muscles is so large that, while we shall, I am sure, welcome any new facts regarding these points which may be brought forward, it seems better to reserve their special discussion for a future day, and to consider to-night those topics on which we have all had some experience, and about which our knowledge is sufficient to define our ignorance, to indicate the new facts we most need, and the direction in which they must be chiefly sought.

The two subjects to be considered accord conveniently with the composition of our Society. Optic nerve atrophy, affecting vision, falls chiefly under the notice of the ophthalmic surgeon; while the most common intra-ocular palsy, that of the iris, causing no symptoms of which the patient is aware, comes as an isolated eye symptom under the attention of the physician. At the same time, the ophthalmic surgeon, with his exact study of all the morbid elements in the eye, is able to correct and supplement the observations of the physician on intra-ocular palsies, and the medical observer can perhaps supply facts regarding some points connected with atrophy which rarely come under the ophthalmic surgeon's notice.

Two general facts respecting these symptoms deserve attention. The first is that we must regard them as associations, and not effects, of the spinal lesion. The evidence of this is: (1) That disease of any nature may exist in any part of the spinal cord without the occurrence of ocular symptoms, if we except the very rare paralysis of the dilators of the pupil in disease of the sympathetic tract in the cervical region. (2) The ocular symptoms, which may be absent when the cord disease is advanced, may exist in extreme degree when such disease is in a very early stage. (3) With the single exception of the sympathetic symptoms just mentioned, we know of no anatomical connection or functional mechanism by which the spinal cord disease can produce the ocular symptoms.

The second general fact is that these associated ocular symptoms are always the result of degenerative processes, and their presence shows that the cord disease is also essentially degenerative in its nature. In many cases we do not need the eye symptom to tell us this. The slow, progressive character of the spinal symptoms is sufficient evidence of the fact. But it is not always so. Degenerative processes of the cord sometimes present sudden exacerbations which may conceal the nature of the underlying process. In these cases the eye symptoms give us information of the highest importance. Their significance in this respect is not confined to spinal disease, and it is difficult to exaggerate the practical value of symptoms which, so readily ascertained, at once put us on the track of the morbid tendency from which a patient is suffering.

It may seem surprising, numerous as are the degenerative diseases of the spinal cord, that the chief association of eye symptoms should be with one of them alone, with locomotor ataxy, tabes dorsalis. But recent pathological discoveries, if they have not penetrated the mystery, at least enable us to comprehend it. As long as ataxy was believed to be a disease, limited to the posterior columns of the spinal cord, the association with it of a peripheral degeneration in the optic nerve was an anomaly. But the brilliant researches of Pier-

ret, confirmed as they have been in part by Déjerine, and anticipated in a slight degree by Westphal, have enlarged, and by enlarging altered, our conception of the malady. Pierret has shown that the degeneration in the optic nerve is not the only peripheral lesion, and that that in the cord is not the only central change in this remarkable disease. He has demonstrated that there is, often at least, an independent degeneration in the cutaneous nerves, commencing in their extremity, to which the optic change is strictly analogous. He has shown, moreover, that there may be a degeneration at the central termination of the optic as well of other cranial nerves analogous to that in the posterior columns of the cord. He has thus enlarged our conception of the affection from a limited disease of the spinal cord to a "wide sensory neurosis," as he aptly terms it, in which the optic nerve atrophy falls into its definite place. The relation which the intraocular palsy bears to the other symptoms of the disease is a point to which I shall return presently. To what extent the degeneration ordinarily preponderates in the central or in the peripheral sensory tracts, only future observation can show. At present we have no means of ascertaining during life the occurrence of the peripheral spinal or the central optic changes. We must still therefore in our clinical study content ourselves with observing the relation between the two which we can recognize.

What proportion of cases of primary atrophy of the optic nerves are connected with spinal disease? So rarely is atrophy associated with other lesions, that the question may practically stand, In what proportion of the cases of atrophy are there indications of ataxy? As the earliest of these, the loss of the knee-jerk may be conveniently taken without risk of more than the most trifling error. The answers which have been given to the question have varied between wide limits. It is only from ophthalmic surgeons that an answer can be looked for, and the combined experience of the members of this Society would certainly yield a result very near the truth. For my own part I will only venture on one very general statement. It is certain that atrophy may precede the symptoms of ataxy which bring the patient under the physician's care. I have seen one case in which the atrophy existed for twenty and another in which it existed for fifteen years previous to the locomotor symptoms. But we know that the loss of the knee-jerk may exist for an almost indefinite time before locomotion suffers. It has not, I think, yet been proved that atrophy ever precedes the loss of the knee-jerk or lightning pains in the limbs, and we are not justified, in an inquiry into facts, to assume that any case will be followed by spinal symptoms in which none are present at the time of observation.

The converse question—In what proportion of cases of tabes does optic nerve atrophy occur?—is one to which an answer is difficult to obtain. It is difficult to obtain because the optic and spinal symptoms tend to separate the patients, and often to keep them separate. My own statistics yield about 20 per cent. of atrophy, but I think it is probable that this has been increased by accidental circumstances, and that the estimate, which I gave some years ago, of 15 per cent., will not be found far from the truth.

The period of the disease at which atrophy commences is a point of very great practical importance. For the purpose of ascertaining facts, we may conveniently divide the course of the disease into three stages—first, in which there is no affection of the patient's gait; the chief symptoms are the loss of the knee-jerk, rheumatoid

and lightning pains, and often unsteadiness in standing with bare feet, toes and heels together, and closed eyes. Second, in which there is a distinct ataxic gait, but the patient is able to walk alone or with the aid of a stick. Third, in which the patient is no longer able to walk except with the assistance of another person. There is no doubt that it is common for atrophy not only to commence, but to advance to a considerable degree, in the first stage of the disease. In the cases which have come under my own observation atrophy has commenced twice as frequently in the first as in the second stage, and very rarely in the third; but I think it would be found from a comparison of the experience of ophthalmic surgeons and of physicians, that the real excess in the first stage is still greater than this. Moreover, I think that there is a peculiar relation between the symptoms, which increases the difficulty of arriving at a conclusion from partial statistics. It is that when atrophy commences in the early stage the progressive tendency of the atrophy is often strong, and that of the spinal disease is slight, and conversely when the atrophy commences later in the disease, after the alteration of gait has become well marked, the tendency of the atrophy to progress is much less marked. Of course, exceptions are not rare, but I have seen many cases which illustrate the statement. In some early cases atrophy has progressed to complete loss of sight, and for two, three, and even five years there has been no increase in the spinal symptoms, no affection of gait, even after the steady influence of vision has been withdrawn. On the other hand, in several cases, amblyopia, coming on during the second stage, has remained stationary for one or two years, and in some has even improved. For instance, a man came under treatment with the second stage well developed, but still able to walk. Vision had lately failed. There was no affection of accommodation, no distinct limitation of the fields, but acuity was reduced to 1-7th R. and 1-10th L. Two years later the spinal symptoms had increased, so that he was scarcely able to walk without help, but vision had improved to R. 1-3½ and L. 1-4½.

I have not succeeded in tracing any relation between the character of the spinal symptoms and the occurrence of atrophy. It is well known that the atrophy usually commences in one eye before the other, and sometimes reaches a considerable degree before the second eye suffers. I have not met with any case in which sight was entirely lost in one eye while the other was unaffected. Which eye usually suffers first can only be decided by the collection of cases on an extensive scale. The symptoms of the atrophy, the characters of the impairment of vision, their uniformity or diversity, constitute a problem of some practical, and still greater pathological, interest. It is frequently said that color vision becomes impaired, and the field limited, before central vision fails. Certainly, however, the field for white does not always become limited before acuity of vision is reduced. I have seen several cases in which, when roughly tested with a small object, no peripheral limitation of the field could be found, although acuity and color vision were considerably impaired. I may mention one case, in the first stage of tabes, with grey atrophy of both discs, apparently equally advanced in the two. There was a considerable difference not only in the degree, but in the mode in which vision was affected in the two eyes. In the right there was only qualitative perception of light, and even this was limited to a narrow zone around the fixing point. With the left eye only No. 16, Jäger, could be read at eighteen inches. No green field could be found. That for red was much

limited. Those for yellow, blue, and white appeared to be normal. Carefully tested with a white object, half a centimetre square, the patient's field for white was the same as my own. A year later acuity had failed still further. He could only read No. 50, Jäger. Color vision was nearly the same as on the previous occasion. The field for white presented only a slight peripheral limitation on the inner and lower part. There was no central loss. I suspect that a careful examination of the mode of failure would show that it presents many variations, just as does the loss of sensation in the legs. Pain may be lost before touch, or touch before pain. The loss may be confined to the soles of the feet, or the soles may alone retain sensibility, which is impaired elsewhere.

Irregular defects in the fields of vision are of considerable interest in connection with another question. Do the symptoms ever suggest that the process which impairs vision is greater in extent and intensity behind the eyeball than at the visible extremity of the nerve? Two cases of ataxy have been recorded, in which there was temporal hemiopia, and one of them I showed to this Society, and have recorded another in which there was a defect in each inner and lower quadrant—viz., partial nasal hemiopia. These cases suggest that the damage to the nerves reached its chief degree at the chiasma. In connection with this question of retro-ocular damage another condition deserves notice, the occurrence of amblyopia without any change in the appearance of the optic discs, or of much greater loss of sight in one eye than the other when the ophthalmoscopic appearances are slight and equal in the two. I have more than once seen this. One patient, for instance, who had no affection of accommodation, and whose discs had a perfectly normal appearance, could only read with one eye No. 2, and with the other No. 10 test type. These cases certainly deserve study.

The impairment of vision sometimes increases very rapidly. A similar rapid increase is occasionally observed in the spinal symptoms. I have more than once known a patient who could walk fairly well lose in a day or two all power of locomotion. Do the cases with sudden failure of sight, or of rapid but steady course, present any differences in the aspect of their discs from those in which the downward progress is slow? In some patients the disc is clear and excavated; in others it appears to be occupied by a grey, soft, gelatinous-looking tissue, and the vessels are sometimes slightly narrowed. Does any difference in course correspond to this difference in aspect? In the patient with temporal hemiopia the loss came on very rapidly, and the gelatinous aspect of the disc was very conspicuous. Is the colloid-looking tissue seen between the fasciculi in sections of the nerve more abundant in these cases than in others?

Regarding the connection of optic nerve atrophy with other spinal diseases, I have little to say. I have only twice seen it in cases of slight lateral sclerosis, and three times in insular sclerosis, never in progressive muscular atrophy or myelitis. Doubtless the slight frequency with which it occurs in these affections, compared with ataxy, is to be associated with the fact that they for the most part affect the motor, and tabes the sensory, nervous tracts. In general paralysis of the insane atrophy is somewhat more common, and may be an early symptom; but the question of its frequency, and the spinal symptoms with which it is associated in this disease, I will leave to those who have had larger opportunities of watching the course of the affection.

I pass next to the second part of the subject—the conditions of the internal muscles of the eye—

ball, of the iris, and ciliary muscle, which are met with in spinal disease. These conditions and their probable mechanism have been more than once brought before the notice of the members of this Society. Of the four muscular actions—contraction of the ciliary muscle on accommodation, contraction of the sphincter iridis occurring with accommodation, contraction of the sphincter iridis on stimulation of the optic nerve, and contraction of the dilator fibres of the iris on stimulation of the skin—of these actions some or all may be lost in association with spinal disease. They depend on at least three centres capable of separate action and liable to separate disease, all of which probably lie in a tract beneath the aqueduct of Sylvius below the front part of the corpora quadrigemina. The experiments of Hensen and Voelcker make it probable that the anterior portion of the tract governs accommodation, and the centre next behind it, the reflex contraction of the iris. To the outer side of the latter is a centre on which depends the reflex sensory dilatation of the iris. The efferent paths of the two former are through the third nerve. We as yet know little as to the centre and path for the contraction of the iris which is associated with accommodation. We do not know whether the nucleus for the ciliary muscle is connected with the mechanism for contraction of the pupil at the centre, or in the lenticular ganglion, or in the ganglionic mechanism within the eye. The latter is, on the whole, unlikely, and it is not improbable that the connection is established in the lenticular ganglion. If the connection were at the centre—that is, if the centre for the ciliary muscle caused contraction of the pupil by acting on the adjacent centre for reflex contraction—the pupil ought not to preserve its action on accommodation, when it no longer acts to light. But as is well known, the light reflex is lost when the associated action is preserved. The path by which stimulation of the skin causes reflex dilatation of the iris is more circuitous. The afferent impulse reaches the centre by the cervical part of the spinal cord, when the skin of the neck is stimulated, and the efferent impulse descends the cervical cord, probably passes through a subsidiary centre in the lower part of the cervical enlargement, and passes to the superior thoracic ganglion of the sympathetic, and then ascends the sympathetic to the eye.

Like atrophy of the optic nerve, paralysis of the internal muscles of the eyeball are as frequent in locomotor ataxy as they are rare in other diseases of the spinal cord. The most frequent condition is loss of reflex action to light, while the pupil still contracts on an effort at accommodation, reflex iridoplegia, the Argyll-Robertson phenomenon, as it is termed. With this is often associated, as Erb first pointed out, a loss of the dilatation on stimulation of the skin. How far the association is invariable will be presently considered. Next in frequency, but very much less common, is paralysis of all the muscles within the eye, both cycloplegia and iridoplegia, the "ophthalmoplegia interna" of Hutchinson. The rarest of all is loss of accommodation, cycloplegia, without loss of reflex action. How frequently are these conditions met with in ataxy? Of seventy-two cases of primary degenerative ataxy of which I have notes, the internal muscles of the eyeball were normal in only six; some defect existed in sixty-six, or 92 per cent. Loss of reflex action to light was the only condition in forty-eight; but to these should probably be added six others, in which action to light was very slight, although just recognizable, and one in which the loss existed in one eye only. Thus there was total loss of the light reflex in

about two-thirds, and either total or partial loss in about three-quarters of the whole number of cases. In the remaining eleven cases (15 per cent. of the whole) the pupil did not contract on an effort at accommodation, and in most of these it was clear that accommodation was also lost. In six there was total loss of accommodation and the light reflex, ophthalmoplegia interna. In two cases accommodation was lost in one eye, and action to light in both. In ten cases accommodation was lost in both eyes, and the light reflex in one only. In two cases accommodation was lost, but the action to light was perfect.

It is well known that these intra-ocular paralyses often occur early in the course of tabes, but the point deserves more exact examination. Of the seventy-two cases twenty-five were in the first stage, twenty-nine in the second, and eighteen in the third. The percentage of the cases with intra-ocular palsy was in the first stage eighty-four, in the second stage ninety-three, and in the third 100. Thus in no case, in the third stage, were they absent. These facts show that in the majority of cases (four-fifths) these ocular complications occur early, but also that cases which escape in the early stage usually suffer during the subsequent course of the disease.

Do these paralyses precede the earliest symptoms of ataxy—occur before even the loss of the knee-jerk? To prove this it is not enough to find, for instance, the loss of light reflex without spinal symptoms, because we are not justified in assuming, any more than in the case of optic nerve atrophy, that the spinal symptoms will follow. Proof of the sequence can only be supplied by the demonstration of its occurrence, by the observation, for example, of a case in which loss of the light reflex at first existing alone was succeeded by the loss of the knee-jerk. Such a case has not come under my own observation. The nearest approximation to it was supplied by two cases in which there was total loss of the light reflex and an unequal knee-jerk, and in one of these, two months later, the knee-jerk could no longer be obtained on the side on which it was, at first, the slightest.

When the light reflex is lost the pupils are often, but not invariably, small, a point to which attention has been directed by Mr. Hutchinson. In two-thirds of the cases they were below $2\frac{1}{2}$ mm. in diameter. In the remainder they were larger, 3 mm. or $3\frac{1}{2}$ mm., and occasionally 4 mm., $4\frac{1}{2}$ mm., or 5 mm. When there is loss of accommodation they are rarely very small, rarely less than $2\frac{1}{2}$ mm., and they are often 4 mm. or 5 mm. in diameter. Inequality in size is common in both conditions, and so also is slight irregularity in shape. I have not succeeded, as a rule, in tracing any relation between the size of the pupil and the other symptoms of the disease. One exceptional case deserves mention. In this, on the side on which the pupil was the smaller, there was unilateral sweating over the head and face; this may be taken as evidence of lessened action of the sympathetic, which, it will be remembered, supplies also the dilator fibres of the iris. In the conditions in which we meet with loss of the light reflex it is sometimes modified in a peculiar manner. The pupil contracts under the influence of light, but immediately dilates again to its previous size, and this is maintained, often after a few conspicuous oscillations. Does this condition pass into total loss of the reflex?

The reflex dilatation of the pupil when the skin is stimulated has risen into importance since Erb pointed out that its loss is associated with the loss of the light reflex. It still remains rather a matter of curiosity than of practical value, but certainly deserves further study. It is a phenomenon

closely allied to the contraction of arteries which may be produced in animals by the stimulus of pain. The dilatation of the pupil may be obtained by stimulation of the skin of the face as well as of the neck, and also from other parts, but the neck is the most convenient place. Erb employed the faradaic brush, but the phenomenon can be obtained with equal readiness by any other painful stimulation. The point of a quill pen, for instance, answers well. Like the light reflex, it is double; stimulation of one side causes dilatation of both pupils. It is not always easy to recognize, and is certainly sometimes absent under normal conditions, especially in persons beyond middle life. In testing for it care must be taken that the pupils are not contracted either under the influence of a strong light or of accommodation. Without doubt the statement of Erb, that this skin reflex is usually absent when the light reflex is lost, is true of the majority of cases, but it is not true of all. I have seen several cases in which there was no contraction to light, but well-marked dilatation on stimulating the skin. In these cases the pupils were large; but the skin reflex may be lost even when the pupils are not below middle size. The skin reflex may be preserved when the accommodation is lost. Thus, in one patient there was loss of accommodation and no contraction, on an attempt to accommodate, in either eye. The right pupil, 4 mm. in diameter, did not act to light, while the left, 2 mm. wide, did contract. Both pupils dilated when the skin was stimulated.

A peculiar interest attaches to the early occurrence of these intraocular palsies in tabes. Almost all the other symptoms are on the side of the sensory system. Here only have we an early lesion in motor structures. It is true the loss of reflex action may be regarded as due to a lesion on the sensory side of the reflex mechanism. But this is improbable, because the loss of accommodation sometimes associated with it can only be due to a degeneration in motor structures. It is extremely probable that the loss of the skin reflex is of the same nature. Hence, while recognizing the peculiar interest which, as Dr. Buzzard has pointed out, attaches to the coincidence of the loss of the knee-jerk and of the light reflex as early symptom of tabes, we must also recognize the difference which almost certainly exists between them, the one being due to a sensory, the other to a motor, lesion.

I have met with this affection of the intraocular muscles in no other disease limited to the spinal cord but ataxy, if I except one singular case of old-standing wrist-drop, the origin of which was obscure. In lateral sclerosis, insular sclerosis, spinal muscular atrophy, and various forms of myelitis they have been absent. Even in cases of combined lateral and posterior sclerosis, in which there is ataxy of gait, inability to stand with the eyes closed, weakness and excessive knee-jerk, these pupil states are absent; evidence, with other differences, that the process of posterior sclerosis is not the same in site or character as in ordinary tabes.

On the other hand, in general paralysis of the insane, these ocular conditions are frequent, at least in hospital cases. The examples of this disease which are most frequent among hospital out-patients present certain apparent peculiarities. The physical symptoms are the same as in the classical form, indications of spinal degeneration are frequent, especially of lateral sclerosis, but the mental symptoms are less characteristic. There is usually some mental failure, loss of memory, etc., but there are rarely the optimism, delusions, and expansive delirium, so common in asylums. It may be said, and perhaps it is true, that these are

merely cases of the classical form in an early stage, but certainly their progressive character is little marked. I have watched a few of these cases for a year and a half or two years, without being able to observe any considerable increase in the mental symptoms. In this form the affection of the pupils is almost as frequent as in tabes. Of nine cases, in all of which tabetic symptoms were absent, in six the light reflex was lost, and in one other it was lessened. In no instance was accommodation lost. Of the frequency of these symptoms in asylum cases of general paralysis I hope we shall hear more to-night.

Intraocular palsy may occur without spinal disease (as Mr. Hutchinson has shown), and such cases deserve careful study. I have notes of fifteen, in eleven of which there was loss of reflex action to light, accommodation being preserved. In four accommodation was also lost. Two patients were the subjects of epileptoid attacks, with some indication of brain failure. In four there had been slight hemiplegia, and in two of these there was also some mental change. In two there was optic nerve atrophy, unequal in the two eyes, and slight enough in one eye to establish the independence of the reflex loss. In two there was no other nervous symptom, and in the rest only slight and indefinite symptoms. Mr. Hutchinson has shown how frequently syphilis is to be traced in the past history of the subjects of ophthalmoplegia interna, and the same lesson is taught by the cases now under consideration. In no less than seven of the fifteen there was a history of constitutional syphilis; two others had had suspicious sores, and in another syphilis, although not proved, was in a high degree probable. I may mention a striking instance of this relation. A woman whose husband had had constitutional syphilis came under treatment for an attack of hemiplegia, followed by chronic mental disturbance and weakness of one third nerve. In each eye there was total ophthalmoplegia interna, with large pupils. The husband, who presented no nervous symptoms, had very small pupils, with loss of the light reflex. The relation of these symptoms to syphilis is of special interest on account of their frequency in ataxy, and of the much disputed relation of ataxy and syphilis. Like tabes, the pupil symptoms are doubtless due to a degenerative process; but we are on that account as little justified in denying as we should be in affirming a causal relationship. It is a question of fact, and not of theory as to what syphilis can or cannot cause, or at least only so far of theory as it may be necessary to modify our theories in harmony with the facts.

I regret that I am unable to offer any fresh contribution to our knowledge of the pathological anatomy of these affections; but I trust that the deficiency may be supplemented by others. I have thought it better to keep to the region of clinical observation, than to venture into the fair but infertile field of speculation as to the causes which determine the association of the symptoms. For these we must still wait for facts, and we may reasonably anticipate that they will come. In few departments of medical ophthalmology has progress been more rapid, and it may be added, in few has it been more rich in its practical applications.

A bill has been introduced in the Minnesota Senate, requiring the provision of seats for all females employed in factories and stores. Reforms which are left in monarchical England to be brought about by the humanity and good sense of the people, are enforced by law in free Republican America.

Gulstonian Lectures

ON

STERILITY IN WOMAN.

Delivered in the Royal College of Physicians, London,

By J. MATTHEWS DUNCAN, M.D., F.R.C.P.L.,

Physician-Accoucheur and Lecturer on Midwifery at St. Bartholomew's Hospital, etc.

LECTURE III.

ITS PREVENTION AND CURE.

MR. PRESIDENT, VICE-PRESIDENT, AND GENTLEMEN—As in past ages, so also in modern, sterility has been an object of great interest, of study, and of experiment. The acquisition of wealth has at all times stimulated the agriculturist, the gardener, and the breeder; and the desire of offspring has no less stimulated men and women. At no time has the subject had more importance than at present, for the growth of science and the love of daring speculation bring now on the field a class of men of trained intellect, who invade it, not to make money or secure offspring, but in search of knowledge. It is to such men that Nature opens her secrets, and the divulging of truth through them is the just pride of philosophy.

A true theory of sterility, even though it be lamentably incomplete, is of very great importance in medical practice. Thousands of women are seeking what they call cure, and their advisers should surely take care to know what they can offer in return for the confidence placed in them. According as medical men have their course illuminated by knowledge so will they be wise in advising; and if increase of knowledge, acting directly or by dispelling illusions, destroys faith in remedies, it may yet, in this negative way, add to the usefulness of the adviser. It has been said by Brodie of John Hunter that by teaching us when we are not to interfere with the ordinary course of events he has contributed more towards the advancement of the healing art than all the inventors of remedies who had gone before him.

The course and the details of the argument in these lectures point to a law or laws of sterility not yet clearly formulated; and it is to be expected that progress will be obtained from inquiries such as have been here described, as well as from investigations of the intimate state of the reproductive organs, including those parts of the nervous system which govern them or are governed by them.

Deficient reproductive energy or want of sexual vigor is a theory too vague to be satisfactory. It is only a general idea which loosely binds together, meantime at least, the items of knowledge we have acquired as to sterility. Of course it is a general idea to whose entertainment no known fact is hostile. But it is flimsy, like a ghost, and a fact might find it difficult to prove its steel; for, like a ghost, it might be cut by a sword without being destroyed or even damaged in the eyes of those who see it. Deficient reproductive energy is held to be proved by all the conditions which produce or which attend sterility in plants, animals, and man. In woman it is shown by absolute sterility, by relative sterility, by excessive production, and by imperfect production, which may be abortion, or miscarriage, or morbid pregnancy, or children diseased or difficult to rear, or destined to peculiar diseases during extra-uterine life. Deficient reproductive energy cannot be regarded as a substantive disease with specific characters, course, and remedies. It is a constitutional con-

dition, which, according to its cause, may affect a population or affect certain classes. Cold or heat may render a whole population sterile. Underfeeding or overfeeding, or premature or post-mature marriage, may cause sterility in certain classes within a population. Sterility, the result of deficient reproductive energy, is an imperfection which does not show itself by measurable, tangible qualities such as a dwarf exhibits, but by absence of function, or a stunted or otherwise imperfect performance of function.

The consideration of the great causes of sterility, exhibited as they are in their results in populations and in classes of women, makes it almost certain that local causes, whether acting as impediments to conception or as unfavorable to pregnancy and to intra-uterine life, have very little scope for operation. These local causes have a clinical interest as affecting individuals; for they have not been supposed, far less shown, to have any connection, or even accidental association, with the great causes whose scope is wide and certain. In the production of cancer of the womb there may be great operating causes, such as age and multiparity, and there may be minor local causes, such as the so-called ulceration of the cervix uteri and its injudicious treatment; and these minor causes, although doing little harm to a population or a class of women, may be of the highest practical importance to individuals.

In women, the chief and best demonstrated sources of, or attendants on, sterility are juvenility or prematurity, elderliness or post-maturity, dysmenorrhoea, and disorder of sexual appetite and pleasure. Of these the influence of age has been most fully shown, and it is that which is most under control with a view to prevention.

As in cases of constitutional diseases or of epidemic fevers, so here, the good done by prevention immeasurably exceeds, or may immeasurably exceed, any possible good by cure; and this, whether the good done is to a population or class or to an individual. The superiority of prevention is partly because the good is to a population or class, not to mere individuals. Prevention is to be, in part, effected by avoidance of unions of immature women or of elderly women; in other words, by securing that women are married at the age of nubility, or best age of marriage, with a view to fertility and the rearing of healthy children, and the safety of the mothers, and this age is fairly well ascertained to be, for a population or mass of women, not under twenty and not above twenty-five.

In the breeding of domestic animals and of animals in confinement, man can interfere easily and without restraint, except from his own interests, but it is otherwise in woman. She enjoys liberty within wide limits, and she is more or less subject to the restraint of social, moral, and religious law or custom. These restraints diminish the power of the medical adviser to guide; and, in general he can do most good by diffusing knowledge as to the prognostics from marriage entered into under various conditions.

At present the law of England legitimizes marriage at a very early, a too early, age; and it, wisely no doubt, does not interfere with late marriages. "Without the sanction," says Major Graham, "of the laws of physiology, or of common sense, a girl may—but in the present day rarely does—marry at the age of twelve, a boy at the age of fourteen, under the existing laws of England; but the consent of parents and guardians is required in certain cases where either party has not attained the age of twenty-one; and the proportional number of either boys or girls who marry under the age of twenty is happily small. The

age," he adds, "of marriage cannot be directly fixed by laws; but legislation, by prescribing the minimum age of marriage, and the age of majority, does exercise a considerable influence on good numbers of the people directly, and on all indirectly. It becomes the custom or the fashion not to marry below the age of majority. Thus in England about 9,000 young persons of the age of twenty and under twenty-one married in the year 1851; while about 139,000 married in the four years after they were of age, as it is called, or in the years of age, twenty-one to twenty-five. The age of majority is twenty-five years in France; and the age of twenty-five divided the minors from the majors in Roman law. The advanced age of majority, or of what becomes practically the lowest age of marriage, retards marriage indefinitely in many cases, and will probably be found, on investigation, to account, at least partially, for the comparatively small number of children to a marriage in France. By raising or depressing the age of majority, the Legislature then has the power to exercise considerable control over the population." These remarks of Major Graham are valuable in themselves, and indicate the view taken by a politician. The law of majority has no doubt great influence, and by it the State can modify the age at marriage to some extent; but the laws of love, of self-interest, and of social convenience are much more powerful.

The sterility of near relations, of interbreeding, or of breeding in and in, as it is often called, is generally recognized, though far from well proved in man, and forms what seems a contradiction in terms, an inherited sterility. It is believed to be shown not only by absolute sterility and its accompaniments, but also by the production of idiots and ill-formed children. Restraint by knowledge of these risks of intermarriage is no doubt a powerful preventive of sterility, but not so potent as it ought to be.

There is, as already pointed out, a sterility dependent on some inscrutable incompatibility of the parties, as in Augustus and Livia, Napoleon and Josephine. Cases like the following are not very rare, and I have actually observed them. A man marries successively three childless widows and has children by each of them. A woman is married successively, and within childbearing limits, to three men, and has children by only one of them. Such cases, if very rare, might carry little weight, but they are so common as to have occurred within the knowledge of most observant people. Sterility of this kind we cannot foresee and prevent; and religion, morals, and law continue to interdict the cure that might result from a change of husband. Unfortunately, however, among large classes—chiefly, I am told, in Wales and some parts of Scotland—custom permits, and local morals do not interdict a practice which produces many illustrations of this mutual incompatibility. The practice is called bundling, or keeping company, and consists in parents permitting daughters to cohabit with an eligible man on the understanding that, if pregnancy ensues, the legal marriage tie is made. A woman proving sterile may be deserted by her follower, and gets another with whom the result is different.

In ancient times much was known and taught regarding the avoidance of sterility, and most of it was in accord with what is still taught, but little was done with a view to the cure. The physiology of reproduction was little advanced, and its primary or elementary conditions quite unknown. When certain winds were believed to cause sterility, and fecundation was supposed to be effected by an aura-seminalis, we could not look for rationality in practice. Accordingly, such cures of

sterility as were then practiced appear to us ridiculous or fantastic.

In modern times the physiology of reproduction is comparatively far advanced, and the necessity of the physical conjunction of the male and female elements is especially recognized. But it may be doubted whether the cures of sterility are much more rational than those of the ancients, for the laws of sterility have been investigated with no great amount of success; and especially do we remain uncertain as to the physiology of the conveyance of the spermatozoa to the Fallopian tubes.

During the last thirty years gynecology has made great and rapid strides of substantial progress, and naturally sterility, as part of it, has swollen in bulk; but the growth of it has not been satisfactory, for it has not a sure foundation. While our general knowledge of sterility in woman has made little advance, and especially that part of it which might be turned to practical account, the curing of sterility has reached great dimensions. As in other departments of therapeutics, there has been a great failure of logic; the *post hoc* and the *propter hoc* have been confused—a coincidence has been regarded as a consequence. The credulity of patients and of doctors has been a basis for useless and often injurious practice.

It is scarcely an exaggeration to say that, in recent practical works on sterility, there is exhibited entire ignorance or entire neglect of the laws of fertility. Every woman from fifteen to forty-five is regarded as likely to breed. If she is sterile, a cure is at once set agoing; and if a child is not born, the failure is not debited to the nature of the case, but to the want of ingenuity in the doctor. A reputation for curing sterility is spoken of as if it were founded on substantial claims. The prevalent methods of curing sterility are founded on an implied theory that it in most cases arises from impediments in the way of the spermatozoa reaching the ovum. Without sufficient evidence strictures are assumed to exist, versions and flexions of the womb are held so to distort the interior passage as to prevent progress of the spermatozoa, cervical catarrh is believed to stop them by mechanical obstruction, or by chemically poisoning them; and for these real or imagined evils sterile women are made the subject of treatment. It is the theory of mechanical obstruction that by its simplicity and directness has possessed the profession and the public, and accordingly many operations and modifications of operations, and very many instruments have been devised to do away with the obstruction. The theory has had real rational support, in the fact that dysmenorrhœa of a spasmodic kind does, as already shown, frequently accompany the sterility, and in the supposition that the same obstruction which causes sterility by impeding the entrance of semen causes also dysmenorrhœa by impeding the exit of menstrual blood, or *vice versa*. It has had still more satisfactory support in the observation that the cure of the dysmenorrhœa does occasionally bring with it cure of the sterility.

The very zeal with which the mechanical theory of sterility has been fostered, and its treatment in many ways pursued, has led to its present decadence, and there is now increased attention paid to other departments of fertility than conception. Especially and justly, the difficulties of naturally starting and healthily continuing pregnancy are brought prominently into view. The mechanical obstruction theory has begun to shrivel, because of the impression produced by the enormous, though inexact, proportion of the failures of the attempts to cure founded on it. Even the ignorant sterile women could see that, if the theory of causation were true, there was an

easy and plain theory of cure, and they could also see that the failure of the so-called cure was prejudicial to, if not destructive of, the theory. The importance of the difficulties of pregnancy now brought into prominence will, on account of its great reconditeness, be received with no enthusiasm, such as welcomed the obstruction theory, and the physicians who entertain it can offer no such brilliant prospects of cure to their confiding patients. It is, however, a decided step of progress in a subject of great practical importance.

It is in Germany that this department of sterility has been chiefly studied, and Grūnewaldt, of St. Petersburg, is its best exponent. Recognizing the importance of this work, I take the liberty of using it to show the great incompleteness of even the most advanced accounts of the subject. For Grūnewaldt, sterility is truly never a disease, but a symptom of a disease. Nature has, he says, set no limits to female breeding other than the natural changes in the sexual organs that are observed in the senile state. Sterility is one of the most frequently occurring disturbances of function caused by diseases of the female sexual organs. In these views, and in his whole work, it is implied that sterility depends on disease of the sexual organs, including chiefly endometritis, mesometritis, perimetritis, and parametritis. The difficulties of conception, he says, have only a slight importance compared with the disorders of the more important vital processes of pregnancy, and these disorders affect chiefly the tissues of the uterus.

It would involve a useless recapitulation of the substance of these lectures were I to set about showing how partial and imperfect is that theory of sterility which makes it depend on local disorder or disease, whether the disease impedes conception or interferes with the progress of pregnancy. Taken together, the obstruction theory and this theory of Grūnewaldt, do but cover a small part of sterility, which may be described as the part affecting scattered and sparse individuals, and giving thus its importance to these individuals, and to their advisers.

The obstruction theory and the theory of Grūnewaldt make no room for that kind of prevention which we have described as of paramount importance. On the other hand, they open up great, indeed almost unlimited, fields, for the activity of curers. But the failures of curers is so notorious and the curing of sterility has so bad an odor in the nostrils of many, probably of the majority, of the best in the profession, that it is worth while to ask the question, Is sterility curable?

Before this question there comes another which is of great importance. Should sterility be cured, as it is called? That, in the interest of the community, it should be prevented I have no doubt; but, in this department of the subject, statesmen and economists have taken much interest, and I shall not meddle in it. I am of opinion also that it should, if possible, be cured. Yet a good argument may be made out for not curing it, in many cases at least. For the laws of sterility show that if it is, what is called, cured, there is a risk of some of its alternatives or attendants—morbid pregnancy, abortion, miscarriage, weakly children, excessive family, death of the mother, and others. But the practitioner hopes, by appropriate cures, to conduct his patient and her offspring in safety through these perils; and we do not, meantime, feel disposed to cavil with this perhaps over-estimated view of his rational expectations.

It will be admitted that reputation, even with well-informed medical men, is not sufficient to prove the reality of a so-called cure, and we are constantly meeting with instances of exaggerated

credulity in reported cures of young women married between twenty and twenty-five, and who had not lived three years in the married state, for it is common for such ardent young women to thus prematurely regard themselves as doomed to persistent sterility, and seek advice with a view to averting their dreaded fate. But there can, I think, be no doubt that sterility is often cured, and such cases as the following do all but absolutely prove that cure is possible, and the sufficiency of the proof will not be controverted by anyone if it is added that such cases, though rare, are sufficiently numerous to prevent by their number, apart from their other circumstances, the confusion of a coincidence with a consequence.

A. B—, married at twenty years of age, menstruated regularly since thirteen, has had dysmenorrhoea most of her life, but not very severe, has never been pregnant. Has had no uterine treatment till now, when the cervix was canalized by bougies in the usual way twenty-two years after marriage. No known change was made in her conjugal or other habits. She became pregnant at once after the treatment, and had a living healthy child at forty-two years of age. Now, five years after the birth, pregnancy has not recurred.

C. D—, married at nineteen years of age, began to menstruate at thirteen, and is regular, with pain for a short time on the first day. After fifteen years of married life has had no pregnancy. Has had much uterine treatment. Cervix canalized by bougies, and for the first time, according to her. No change made in conjugal or other habits. On resumption of cohabitation, two months after the treatment, became pregnant, and had a healthy child at thirty-five years of age. Since this birth three years have elapsed, and she has been twice pregnant.

It is, however, desirable to go further than merely prove that cure is possible, that a cure has been effected; and I believe the most important means of curing sterility or relative sterility is improvement of the general health. In the case of plants, the value of digging about and dunging is well known, and so is the value of proper exposure to the sun, and so is the value and, indeed, the necessity of good air, not the air of large cities; and the use of these, when previously withheld, is certainly curative of sterility in many kinds. The cure is sometimes, as in apple or pear trees removed from the shady side of a wall to a better exposure, accompanied by other changes, in leafage and in growth of wood, which make better general health evident to the eye. But the cure may have no accompaniment of other signs of better general health, for some London trees which are sterile have a fine outward show of healthy vigor, and it can scarcely be doubted that return to a purer atmosphere would restore their fertility, though it could do little to improve their appearance. In the case of animals, a similar influence of general health may be noted. The starving of fowls diminishes or even arrests their fertility. We cannot doubt that the agouti, released from confinement and restored to its natural habitat, would produce healthy offspring instead of dead and ill-formed; and that, similarly treated, the lioness would have cubs without cleft-palate.

In the case of woman, the restoration to, or improvement of, general health involves such a variety of considerations as renders it very difficult of treatment, and the whole matter comes as much under the care of the general physician as of the gynecologist. But it may be mentioned that special means have been recommended, and are much used, such as the waters and baths of Germany. These are of different kinds: and the Schwalbach, Spa, Franzensbad, Ems, and Marien-

bad have great reputation. That they are often of some kind of service I have no doubt, just as I daresay that horse-riding, said to be recommended by Boerhaave against abortion, may also be sometimes valuable as a remedy of that tendency.

It may well be objected that general health is too vague a term, and that it would be better to profess ignorance than to ascribe to it such important and definite a result as sterility, and it will be justly asserted that the great mass of sterile women have the appearance of good health. The difficulty of the subject is well expressed by Darwin in a passage I have quoted treating of the causes of sterility in animals. After all, I think it best, in the present imperfect state of our knowledge, to group a large number of injurious ill-defined influences under the head of general health, and to consider its improvement a means of cure. Although an animal sterile under confinement appears healthy, one cannot positively object to the statement that sterility is evidence that it is actually unhealthy, and the cure by restoration of freedom seems to confirm the view. Whatever may be the objections to the term "general health," everyone will recognize the importance of investigating the subject with a view to increasing our power over it; for it carries with it a strong influence not only towards the cure of simple sterility, but also towards the safety of the mother, the avoidance of morbid pregnancy, of miscarriage, of dead, ill-formed, and unhealthy children, and of excessive families.

Over-feeding and the production of fat are often spoken of as if they were identical; but this is plainly not the case, for many excessive feeders are not fat. What is the influence on sterility of over-feeding or feeding by particular foods without fattening, I do not know; but there are analogies which dispose the mind to suspect that influence may be thus exerted. Plants are habitually spoken of by gardeners as overfed by rich soils and manures, but they do not get fat. Mr. Thomson, recently showing me his tomato plants, pointed out some set among strong manure, growing luxuriantly in wood and leaves, but producing little fruit; others, which had been similarly placed, he had restored to due fruit-bearing, with diminished production of branches and leaves, by diminishing the contact of their pots with the rich manure. The growth of stems and leaves some may regard as the equivalent of fat in animals, but in that case stoppage of growth would be equivalent to resorption of fat, which would be driving analogy too far.

Although the injurious influence of fatness in women on fertility is universally admitted, it has not been altogether proved. But universal consent is strong evidence, and it is corroborated by all we know of the power of this same condition in the lower animals. Generally, young women before commencing to breed are fat or at least plump. When they bear children they lose in weight by diminution of fat; again, as they cease to bear children, to resume the fat condition, the fat being now, however, differently disposed of in the body. The fat of the immature and of the post-mature is, within moderate limits, an indication of health. The fat of sterility is not an indication of health, but is, so far as I know, itself healthy, and indicates no active or positive disease. To obesity I only make allusion. I have known grossly fat women bear children; but facts about obesity are too few to justify its separation from the common exaggerated fatness of sterility here referred to.

Spencer makes a distinction between normal plethora and abnormal plethora as indicated by fat, and connects sterility only with the latter. I

quote his ingenious remarks not so much for the sake of giving his description of a distinction, the force of which I cannot see, as for the sake of stating his general argument regarding overfeeding or plethora as indicated by fatness. Medicine recognizes no normal plethora. For physicians plethora is always an abnormal condition whether accompanied by much deposit of fat or not. "Many facts," says Spencer, "may be brought to prove that fatness is not accompanied by fertility but by barrenness; and the inference drawn is that high feeding is unfavorable to genesis. . . . There is a distinction between what may be called normal plethora and an abnormal plethora, liable to be confounded with it. The one is a mark of constitutional wealth and this is the plethora which we have found to be associated with unusual fecundity. Abnormal plethora, which, as truly alleged, is accompanied by infecundity, is a superfluity of force evolving materials joined with either a positive or a relative deficiency of tissue-forming materials: the increased bulk indicating this state being really the bulk of so much inert or dead matter. Note, first, a few of the facts which show us that obesity implies physiological impoverishment. . . . Neither in brutes nor men does it ordinarily occur either in youth or in that early maturity during which the vigor is the greatest and the digestion the best; it does not habitually accompany the highest power of taking up nutritive materials. When fatness arises in the prime of life, whether from peculiarity of food or other circumstances, it is not the sign of an increased total vitality. . . . Of like meaning is the fact that women who have had several children, and animals after they have gone on bearing young for some time, frequently become fat and lose their fecundity as they do this. In such cases, the fatness is not to be taken as the cause of the infecundity; but the constitutional exhaustion which the previous production of offspring has left shows itself at once in the failing fecundity and the commencing fatness."

The fatness of sterility is not apparently a matter of high or of low general health, and seems to be of a different origin from that fatness which comes on men and women at the great climacteric, and on the latter whether they have borne children or not. Whatever may be its natural history it is known to be in some degree under the control of the physician. Not by medicine, but by diet and exercise, he can restrain its production or cause its removal. For success in removing fat the co-operation of the patient is necessary, for on her part there is required change of habits and restraint of appetite. Little can be said regarding the cure of sterility by reduction of fat, but experience has furnished no reason to doubt the favorable influence generally expected from it.

The regulation of desire and pleasure cannot be passed over without some remarks. Of the moral condition of those in whom these feelings are absent, or in whom they are in excess, I shall say nothing; and this silence is not because the moral condition is either unimportant or without influence on bodily health and on sterility, but because there is little that requires to be said. The healthy performance of the function of childbearing is surely connected with a well-regulated condition of desire and pleasure; and a well-regulated condition is not a reduction to a minimum or total absence, neither is it excess. I have already said that both desire and pleasure may be, and not rarely are, entirely absent; and it is my opinion, founded partly on the distinct testimony or concurrence of married women who are examples of the evil, that an education injudiciously ascetic, as it may be called, sometimes produces this de-

fiency, which is a source of much disappointment and disaster in married life; and this view is corroborated by what is quite certain—namely, that by indulgence the feelings may be, and not rarely are, produced or increased. Writing on sterility, Ambrose Paré gives directions how to increase desire with a view to conception. Equally important is excess of desire and pleasure, and its reduction within moderate limits is equally advantageous. Religion, morals, bodily health, and childbearing all combine to exalt the value and importance of moderation, and to show the evils of absence or of excess. The influence of separation of married people, or of living without cohabitation for a long time—a period, say, of several months—is very widely recognized; and it is probably dependent on the increase of desire and pleasure in those who have little of either, and on the restoration of them in those who have been rendered nearly impotent by excess. This power of separation has appeared to me to be far more frequently operative in women who have had a family than in those who are absolutely sterile; and remarkable cases are not rare.

I have heard and read of, but have not personally witnessed the disappearance of sterility after recovery from a fever; and this result is ascribed to the prolonged separation caused by the illness. The explanation may be correct, but it does not appear to be the natural one, for fevers are powerfully injurious to general health, and are known to disorder the ovarian and uterine functions.

I have already spoken of sterility as caused by marriage, especially in the young, and we know the sterility of prostitutes and the sterility of confined animals who couple freely or excessively, and it is probable that all these infertilities may have a bond of union in their being due to excessive desire and pleasure, or to excessive sexual indulgence, or to both combined.

In animals, especially in cows and mares, the semen is described as being not rarely expelled from the vagina soon after coitus; and this failure to retain is said to be, in some cases, owing to the animal not being duly in heat. Attempts are made to cause retention by dashing cold water over the buttocks and external parts. A like failure to retain the semen is frequently complained of by women, who describe it as coming away either immediately after coitus, and without leaving the horizontal position, or only on getting up. In either case women often attribute sterility to this failure of retention, and seek a cure of it with a view to fertility. Further, I have repeatedly been distinctly informed by careful women who habitually have this disagreeable imperfection, that conception has followed the rare occasions on which they have, as they noticed at the time, retained the semen. That this non-retention is often only partial is made probable by the occurrence of pregnancies in women who describe themselves as invariably suffering from it. It is rarely complained of except by the sterile, and I believe it is rare among the fertile. I have also a very strong impression, which I have no data to corroborate statistically, that it is especially common among those sterile women who have not sexual pleasure. I know nothing that modifies this condition, but believe that the production of sexual pleasure may have favorable influence. It probably depends on the failure of the timely dilatation of the cervix uteri, and perhaps of the uterine openings of the tubes so as to admit the semen, and on the failure of the simultaneous production of a condition of increased temporary negative abdominal pressure, or of that adspiratory action of the abdomen which numerous old and recent

authors invoke to explain the mechanism of fecundation; or it may depend on the failure of both of these conditions of ordinary successful coitus. Before leaving the subject I must add that the facts as to this profluvium seminis are not of the highest degree of security; for, so far at least as I am concerned, they are not more than the statements of intelligent wives. They are probably quite accurate, as they are certainly given in good faith; but it is possible that mucous discharges or glandular secretion through the ducts of Cowper or Duverney may be, in some cases, mistaken for semen.

The immoderately great consumption of alcoholic drinks by women, without their necessarily ever reaching the stage of drunkenness, is so common and so potent a cause of disorder and disease that it requires special mention. It is possible that much of the influence of this drinking might be justly ranked as part of mere overfeeding, whose injurious effects we have already spoken of, but this is far from certain. Indeed, while I am unable to give any strong evidence of the specially injurious action of alcohol, considered as an article of diet, I am much disposed to this view, being led to it by the good results in practice which I believe justly attributable to desisting from the use of it. The instances on which I rely are cases in which I have by physical examination and other modes of inquiry, been unable to discover any evidence of disease of the internal genital organs. It would not make the conclusion more assured to enumerate cases which are not in number or other circumstances sufficient for a demonstration. But I may mention the leading features of one which could not but strike the most careless observer. This patient was brought to me to be cured of sterility, and, as some prolonged treatment was expected, she proposed to reside near me for a time. She was between twenty and thirty years of age, and had been several years living in fruitless marriage, absolute sterility. On two occasions, with at least two years of interval, I declared my inability to do anything against the sterility by local means because I could discover no disorder or disease of the womb or its appendages. Having some suspicion of too liberal use of alcoholic drinks, I recommended teetotalism. After the lapse of a few years the patient, now a happy mother, was again brought to me on account of some trifling complaint, and I was told as follows: Her drinking habits having increased, she was induced to go into seclusion with rigid surveillance, and in this she lived for about a year without any kind of alcoholic drink. When she came home again she had lost much flesh, but was in good health, and she maintained what were now teetotal habits. She immediately became pregnant, and pregnancy recurred. Such cases are not singular, and induce a belief in a special hostility of alcoholic drinking to fertility.

But alcoholic drinking has, in addition to the general or constitutional disorder which it produces, well ascertained power, in certain cases, to induce disease of the internal genital organs. That which is most easily and distinctly made out is chronic ovaritis. It often comes and goes in the presence or absence of the cause. When it is present sterility is not always a result, but frequently so, and its cure is often followed by the disappearance of the sterility.

We have, lastly, to consider the power of various local and chiefly uterine diseases and disorders, which have too much engrossed the attention of the profession hitherto. As I have already remarked, there can be no rational doubt that these local affections have a very limited scope of action;

are, indeed, quite subordinate to the great causes of sterility affecting populations or classes. That they should have been the chief study of practitioners, as distinguished from statesmen or medical officers of health, is not only natural but in a sense just; for the practitioner cares not for the population or the class, but for the individual. If he is to do any good to the individual it is by discovering something amiss and providing a remedy that he must work. And where is a practitioner first to look for a special cause of sterility if not in the essential organs of generation? Here he finds several diseases, only in recent years the subject of scientific investigation, so-called ulcerations, displacements, strictures, subinvolution, and others, upon which he easily founds a theory, generally a mechanical one, of the sterility which he at once proceeds to attempt to cure. If he fails to cure that does not discourage him; for, in the present state of therapeutics, the reputation of remedies is founded more upon faith than upon evidence.

The wisest practitioner is he who, giving due weight to all items of knowledge acquired in regard to a disease or an unnatural condition, sets limits to his faith or his expectations, and scrutinizes the evidence on which a treatment is based, and this all the more severely if a certain result of the treatment is gain to himself.

Spasmodic dysmenorrhœa is the most striking morbid condition connected with sterility. It has its seat in the womb or its neighborhood, and it is by most gynecologists regarded as a purely local affection, having as its cause obstruction to the passage of the menstrual blood from the womb into the vagina by local or general congenital contraction of the canal of the cervix uteri. The nature of the affection and the place it occupies in the theory of sterility make me believe it to be a local affection in only a very limited sense—only in the same sense as irregular action of the heart or of the bronchi is a local affection. Its frequency, apart from numerous other considerations, is enough to make the pathologist hesitate to accept an alleged deformity of the cervix uteri as its cause. Besides, when the very rare alleged cause has really presented itself in rare cases of real pinpoint os uteri, dysmenorrhœa has not been always present; in my practice it has been always absent.

When evidence is led in favor of the obstruction theory of dysmenorrhœa the argument from the success of treatment by enlargement of the passage is generally held to be irresistible, and its force to be, if that is possible, increased by the cure of sterility which often accompanies the cure of the dysmenorrhœa, or, at least, follows the enlargement of the passage. The frequent success in curing or relieving dysmenorrhœa by this treatment, and the occasional success in curing sterility, are not matters of doubt. I have, indeed, no hesitation in saying that while many other pieces of advice are of great value in the treatment of the associated conditions of dysmenorrhœa and sterility, and in the treatment of them when not associated, this is the only medical interference that approaches in dignity to a cure. By this means, and chiefly by this alone, have cures such as concern us here been effected. In attestation of this utility we may cite the very great number of much vaunted means by which the object is effected, by very many kinds of knives, many dilators, many expanders, many scissors, by tents of various kinds, by bougies of various shapes, all of them, when put into use, producing enlargement of a part or of the whole of the passage through the cervix uteri.

For those who deny the existence of contraction it is not necessary to say a word further against the explanation of cure by mere enlargement. For

them that is certainly not the explanation. And it is easy to frame theories of the cure of dysmenorrhœa by enlargement of the passages, which may have the great superiority over that founded on obstruction, that they may also explain the cure of the associated sterility. Now, though the very simple cervical obstruction theory has been held sufficient to account for the sterility as well as for the dysmenorrhœa it is plainly in this respect impotent.

While it is doubtful whether any menstrual blood is regularly passed through the internal extremities of the tubes into the uterus, it may justly be held sufficient by the dysmenorrhœal obstruction theorists to consider the passage of menses through the cervix alone. But they, of course, extend their theory of causation and cure to sterility, and here it is semen whose passage has to be studied, not menstrual fluid, and the cervix is not the only narrowed part of the semen's route, for it must pass not only through the cervix, but also through the Fallopian tubes. And if the seminal obstruction theorists find impediments in the cervix with its comparatively considerable dimensions, such as to allow their knives or scissors to work, what will they say of the closed capillary channel of the internal extremity of a tube? Their cure of sterility merely enlarges a passage where there was no apparent mechanical obstruction, and leaves untouched a passage where there is apparent entire impermeability.

That the obstruction theory (in all except its absolutely certain applications, as in imperforate hymen—cases to which we here make no reference) is excessively exaggerated must be plain to everyone who regards the almost innumerable cases of fecundation in extraordinary circumstances—cases without penetration; cases of impregnation in peculiar conditions, through the rectum or through the urethra; cases in advanced uterine cancer; cases in procidentia with great cervical hypertrophy; cases in extreme distortion by fibroids; and others. In this matter the appeal to comparative anatomy is most instructive, and the argument from it very evident. The apparent mechanical difficulties in the way of the semen passing the cervix are, in some mammals, increased in an extreme and often a curious manner, without any consequent obstruction. To this matter Kehrér and Lott have paid particular attention, and have shown that the apparent mechanical difficulties affect the construction of the male organ in its relation to the female passage as well as the female passage itself.

To me it appears theoretically reasonable to connect the dysmenorrhœa and sterility with rigidity of the cervix, and the opinion that it is so is confirmed by its being actually discovered in most cases. Anyone familiar with the use of increasingly sized bougies in dilating the cervix must recognize the greater force required in dysmenorrhœal than in healthy women, and the increase of painfulness of the process as the force used, slight though it is, increases. The overcoming of this rigidity by temporary dilatation, not the overcoming of a mechanical obstruction, seems to me in some mysterious way to exert a generally beneficial influence on that part of the process of fecundation in which the uterus is implicated during insemination. For it may be held as almost certain that, during the natural sexual orgasm in coitus, the internal ends of the tubes, which we almost never see but as absolutely closed passages, are temporarily opened inside, and that the same happens to the cervix; and while it is probable that such wide opening of the cervix is not essential for fecundation, it must be held as facilitating it or rendering it more probable. Besides, this

opening is an indication that the whole nervous arrangements as well as the physical organs are co-operating to produce the object in view. The opening here pointed out has, in its natural or healthy performance, and in the obstacle from rigidity, close analogy with similar processes going on during the premonitory and first stages of labour; and the dysmenorrhoeal pains have analogy in the irregular painful and useless contractions and pains of these stages of labour, and of the hours immediately following delivery.

No other disease, local or presumably local, has such importance in the theory of sterility as spasmodic dysmenorrhoea. This great place is established by the frequent association of the two conditions, and by the probable connection of the dysmenorrhoeal neurosis with profuvium seminis, with disorder of sexual desire and pleasure, and with other derangements of the sexual orgasm of coitus. But dysmenorrhoea has its place confirmed in a unique way, for its cure is universally admitted to be a direct step towards the cure of sterility, and this can be said of no other local condition.

During recent times no disease has more engaged the attention of gynecologists than the catarrh and peculiar changes of the cervix uteri connected with it, known generally by the name of ulceration of the neck of the womb. To it, even when in a very slight form, has been ascribed a very great pathological importance, and the Croonian Lectures of West seem to have had less effect in bringing the profession to a just judgment of its comparative insignificance than the overshadowing influence of some other temporary novelty. Among other evils which this very prevalent disease has been alleged to produce is sterility; but there is not a tittle of evidence that it has any special influence in preventing conception; and we have, for guidance as to this matter, our best help in the fact that conception and natural pregnancy are extremely common during its continuance. Among twenty-six cases observed by Grünwaldt, with a view to the study of the changes of the cervix uteri in the first month of pregnancy, he found only eleven with a quite healthy state of the cervical mucous membrane. Six had papillary and nine catarrhal ulceration, which no doubt existed before conception.

Almost identical statements may be truly made regarding versions and flexions, and I do not repeat them. But in this department of gynecology increase of knowledge not only tends to diminish importance, but to show that the great mass of versions and flexions are conditions of simple health.

The importance of those diseases which prevent the commencement of uterine pregnancy, or render such commencement improbable or difficult, needs only to be mentioned. To Grünwaldt we owe a careful statement of the extent and potency of this class of diseases, and for them he, as already said, vindicates a morbid superiority over those conditions which prevent conception.

The diseases and disorders of the genital organs, whether they act in preventing conception, in preventing uterine pregnancy, or in interfering with its natural healthy progress, are operative in individual cases, and demand the most careful study of the practical physician, for it is chiefly through his power over them that he can hope to cure sterility. That in the early stages of the study of these diseases their influence should be exaggerated is natural. At all times there can be no doubt their study and treatment will be most important, not only on their own account, but with a view to the improvement of the general health. In the case of those local diseases which may be

proved to have no special influence in diminishing fertility, their removal, by increasing the general health, will help towards a removal of sterility.

Lectures

ON

PHTHISIS.

Delivered at Charing Cross Hospital,

By T. HENRY GREEN, M.D., F.R.C.P.,

Physician to the Hospital, Senior Assistant-Physician to the Hospital for Consumption and Diseases of the Chest, Brompton.

LECTURE IV.

Further consideration of the lung lesion.—Extent and distribution of the pulmonary consolidation.—Quiescence and activity of the phthisical process.—Physical signs indicative of quiescence and activity.—Symptoms indicative of quiescence and activity; pyrexia; digestion and assimilation; loss of weight; cough; expectoration; hæmoptysis.—Symptoms of phthisis.—Other elements of prognostic value; inherited predisposition; constitutional condition; age.

GENTLEMEN—In our consideration of the clinical varieties of phthisis we have seen the necessity of taking into account both the lung lesion and the symptoms which accompany it. Last time we were occupied in discussing the lung lesion with reference to: (1) Its characters and the secondary changes it underwent. We have now to consider it with reference to: (2) Its extent and distribution; and (3) its quiescent or progressive nature.

2. *The Extent and Distribution of the Pulmonary Consolidation.*—It is necessary to consider both the extent of lung involved and the distribution of the consolidation. With regard to the former it is only needful to say that, *quoad* area of lung implicated, the more limited this is the better the prognosis. The distribution of the consolidation is also an element of much prognostic import. Speaking generally, it may be said that a massed is more favorable than a disseminated distribution of the lesion. The phthisical process at its commencement is usually confined to a single portion of the upper part of one lung. Physical signs, therefore, which indicate the existence of separate centres of consolidation in the same, or the implication of the opposite, lung, imply, for the most part, that the disease is progressing. This progressive tendency we are about to consider.

3. *The Quiescent or Progressive Nature of the Consolidation.*—The great characteristic of phthisical consolidation, as you will remember from our previous pathological considerations, is its tendency to spread, either by continuity or by the dissemination of the inflammatory products by vessels or bronchi, so that distant portions of the lung become involved. This infective property, although it varies in degree very considerably in different cases and under different circumstances, probably exists in all phthisical lesions, except in those old indurations which have become exclusively fibroid. Given therefore the existence of phthisis, even if the local process is not progressive at the time of observation, we anticipate the probability that it may sooner or later become so. The question, therefore, we have to consider is what signs and symptoms are indicative of the quiescence and activity of the lung lesion respectively. Our opin-

ion on this head will be based upon a consideration of the results of physical examination of the chest and also of the symptoms of the disease.

Firstly, with regard to physical signs. Here I must ask you to bear in mind what we stated in the preceding lecture respecting the predominating characters of the pulmonary lesion, their physical diagnosis and clinical import. Remember the distinction between consolidations which consist almost exclusively of intra-alveolar products and those in which there is marked implication of the walls of the alveoli with increase of interlobular connective tissue; and note that the former only are capable of complete resolution. The physical signs which in a case of intra-alveolar consolidation are of favorable import are, as we have already stated, the gradual disappearance of the dry and moist crepitant râles, with diminution in the percussion dullness and in the deficiency of the respiration; those which indicate progress of the disease are the persistence of the crepitant râles and dullness, with, owing to the implication of the alveolar walls, the supervention of some shrinking of the lung. Speaking generally, it may be said that in all cases crepitant sounds are significant of activity of the disease. When softening of a consolidation is taking place, as indicated by the existence of the so-called moist crackling, it must be borne in mind that there is always a danger that the phthisical progress will involve adjacent or distant portions of the lung. With the completion of the softening process we carefully consider the cavity which is its outcome. The subject of cavity is so important that I propose to speak of it somewhat fully on a subsequent occasion. In its present connection I would only remark that the most valuable information respecting its quiescent or progressive nature is to be derived from an examination of the immediately adjacent portions of the lung. The absence here of any crepitant râles or of other signs of progressive consolidation is favorable as indicating a tendency to fibroid limitation of the excavation. In the cavity itself the absence of moist râles with the existence of dry crackling sounds point to quiescence and tendency to contract.

All signs indicating spreading of the disease, whether by continuity or otherwise, are obviously of unfavorable import. This is, perhaps, especially the case where outlying portions of the lung become involved. Stethoscopic investigation beyond the area of primary disease is consequently of the utmost importance, and crepitation or other adventitious sounds here are carefully to be looked for. Lastly, signs of bronchial catarrh in portions of the lung not obviously consolidated, are always to be regarded with suspicion, inasmuch as such catarrh is frequently, but by no means invariably, accompanied by activity of the disease. Here, however, as in other points, we shall be guided largely by symptoms.

Symptoms are even more valuable than physical signs as evidence of the quiescence or activity of the phthisical process. Of these pyrexia is pre-eminently the most important, and its existence in the course of phthisis, in the absence of other causes, must be regarded as a certain sign of the activity of the disease. You will remember the two causes of fever in phthisis—the progressive implication of the lung, and the softening of the phthisical consolidation; and that the pyrexia due to the latter is much more remittent in its type than is that due to the former. A continued though more or less irregular fever is most characteristic of progressive consolidation and this is, therefore, of much graver import than is the purely remittent type which is met with principally during the softening of the more acute and localized lesions.

Inasmuch, however, as consolidation and softening are so frequently associated, the pyrexia is most commonly the combined result of the two processes. These three charts well represent the differences of which I am speaking. You will not forget the frequency with which the febrile movement occurs in the early part of the afternoon, and subsides before eight or nine o'clock, the usual time for taking the evening temperature. Hence the importance of including the afternoon in our observations. The entire absence of fever certainly indicates the quiescence, though not necessarily, the complete inactivity, of the phthisical process.

Of other general symptoms, the processes of digestion and assimilation, the weight, and the pulse are also of value, as indications of the progress or the arrest of the disease. For the most part, however, they are so indirectly. Whatever impairs the general health favors the phthisical process, and whatever improves it tends to cause its arrest. Hence failure of digestion and assimilation is always of unfavorable import, and even if not at the time associated with activity of the disease, it is very likely soon to become so. Loss of weight has a similar significance. With regard to the pulse, it is only necessary to say that continued increase in its frequency, as being the result of a febrile process or of general weakness, points to progress.

The lung symptoms which are of value in this connection are cough, expectoration, and hæmoptysis. The gradual disappearance of cough, except in the latest stages of the disease when the respiratory function is in abeyance, is obviously of favorable significance; but a continuance and even increase of this symptom is not necessarily of bad omen. Arrest of the phthisical process, with diminution of the catarrhal secretion, and a tendency to slight fibrosis and contraction, is very frequently attended by increase of cough, which, owing to the absence of secretion, becomes more troublesome to the patient. This fact it is important to remember.

The significance of the sputa in phthisis varies according as it originates mainly in the bronchi, in softening consolidation, or in cavities. In cases of chronic phthisis with more or less bronchial dilatation, and also in cases of excavation, the expectoration of large quantities of muco-purulent material indicates a persistence of the catarrhal process, which if long continued is likely to lead to an increase in the pulmonary induration. In early phthisis also the sputa originate principally in the bronchi, and much expectoration usually indicates activity of the disease. During the process of softening the amount of expectoration varies according to whether or not there is a free communication between the softening masses and large bronchi. It may, therefore, be stated generally with regard to the expectoration in phthisis that diminution in amount is of favorable import, while the persistence of large quantities of sputa is indicative of more or less activity of the phthisical process.

Of hæmoptysis we shall have to speak on a future occasion. I would, however, remind you here that the prognostic value of this symptom is not the same in recent as in old lesions. In the former, the bleeding is usually capillary in its origin and its occurrence is usually associated with a certain amount of activity of the disease, the degree of which, as we shall see, is to be estimated by the thermometer. In old lesions, on the other hand, the blood more frequently originates from a small artery in a cavity, and although the immediate danger from the hæmoptysis is greater, there is, owing to the induration around, much less

liability to the progressive implication of the lung.

This completes our consideration of the lung lesion. Of that other factor, the symptoms which accompany the disease, but little remains to be said, inasmuch as most of these have been already alluded to when speaking of the quiescence or activity of the phthisical process. You will, however, remember that symptoms are of the utmost importance; some of them, and especially those we have termed constitutional as distinct from lung symptoms, being in most cases of greater value than physical signs as evidence of the course of the disease. Pyrexia and marked impairment of digestion and assimilation are always unfavorable, and whilst they last are pretty sure indications of progress.

There remain three other circumstances which should always be taken into account in forming an opinion as to the probable course of phthisis: hereditary predisposition, constitutional state, and the age of the patient. The unfavorable influence of heredity is so marked and so universally recognized that its consideration need not now detain us. The offspring of phthisical parents inherit a constitutional feebleness which not only renders them abnormally liable to become phthisical, but probably also in many cases, abnormally incapable of resisting injurious influences of other kinds, and thus their period of life tends to be shortened. This inherited weakness not infrequently impresses upon the individual physical peculiarities which enable us easily to recognize it—the small thorax, long eye-lashes, and back covered with long downy hairs, with which you are all familiar. In those in whom inherited tendency is thus marked the course of phthisis is especially unfavorable.

The constitutional condition most favorable to the development of phthisis is, as you are aware, that inherited one to which we have just alluded. But in addition to this transmitted influence other conditions of constitution may be inherited or acquired which render the individual abnormally prone to become phthisical. It may be stated generally that all conditions of constitutional enfeeblement, whether due to impaired vitality of the parents, or the result of unfavorable hygienic surroundings or of disease after birth, favor the development and the progress of phthisis, and the existence of such constitutional weakness should not be lost sight of in making a prognosis.

With regard to age, early adult life is undoubtedly the period most favorable to phthisis. In middle and advanced life the disease is less prone to occur, and its course is usually more protracted.

My own experience in the treatment of affections of the eye has given me, I have thought that I might with most advantage take up those forms of ophthalmic disease that are of the most frequent occurrence, those which the members of this Society are certain to meet with in the pursuit of their profession, and the treatment of which they are in many instances compelled to undertake. I have sometimes regretted to hear practitioners say they know nothing of diseases of the eye, and that they regard it as a special subject which is too vast in extent to allow them even to attempt to learn. I hold rather that every surgeon and physician should be familiar with ophthalmic disease, though it may not be given to each to become a skilful operator. There are many affections which every practitioner may be called upon to treat, and upon whose knowledge the patient would confidently rely, though few might be willing to submit themselves for the operations of cataract, artificial pupil, or squint to any but those who are accustomed to this work, because it is well known to the laity that such proceedings require constant practice, proper instruments, and experience in the after-treatment.

The formation of special departments in all our hospitals for the investigation and treatment of particular forms of disease has its advantages and disadvantages. On the one hand, by collecting in one place and at the same time a large number of patients suffering from disease of the same organ, excellent opportunities are afforded for studying their relations, for classifying them into groups, for recognizing minute distinctions, and of following their course and observing the effects of treatment. It is, moreover, of great importance to the teacher, by enabling him to make his lectures clinical, and to demonstrate upon the living subject the points on which he dwells in the classroom. It is of still greater value to the student, by facilitating his work and affording him, if he is intelligent and attentive, the opportunity of seeing many examples of the diseases of each organ in a very short space of time. Lastly, it is of the greatest value to the patient, by giving him the services of skilled and highly trained men, at whose disposal are all the appliances that experience can suggest. These are undoubted advantages. On the other hand, there are some disadvantages in the system. By withdrawing all or nearly all the patients suffering from the diseases of a particular organ from the general wards, it becomes imperative that the student should attend in the special wards, or he is likely to leave the hospital entirely ignorant of a whole class of diseases. But as a matter of fact the requirements of modern examinations are such that the student can hardly spare any time from that which he must devote to the pursuit of general medicine and surgery, in order to follow particular branches. He may perhaps once or twice in the course of his last year present himself in the special wards, but he finds himself almost in another atmosphere. Not only the diseases, but their very names, are new to him. He quickly perceives that some considerable time and a succession of visits must be paid to prove of service, and he either thinks he will postpone his labors in this direction to a more convenient season, when he forgets to return, or which perhaps never comes, or he comforts himself by reflecting that even if he is perfectly ignorant of the diseases of the eye he may still manage to struggle through his examination, providing he can escape the single written question on such subject which it is just to say is often given in his paper, whilst if the exigencies of his future practice ever cross his mind, he comforts himself with the reflection that in the event of his being

Lectures

ON

AFFECTIONS OF THE EYE IN RELATION TO MEDICINE AND SURGERY.

Delivered at the Harveian Society.

By HENRY POWER, M.B. Lond., F.R.C.S. Eng.,

Senior Ophthalmic Surgeon and Lecturer on Ophthalmic Surgery, St. Bartholomew's Hospital.

LECTURE I.

GENTLEMEN—In considering how I could best fulfil the intentions with which this series of lectures was instituted by the founders, and render serviceable such knowledge as a somewhat length-

called upon to treat a difficult case he will always be able to obtain a special opinion, or if the worst comes, and an eye is lost, nature has given us two, and a man can see nearly as well with one as with both. I need hardly say how suddenly a change comes over him with the first serious case that occurs in practice. It may be of iritis or of glaucoma. Then the possibilities of blindness in his patient force themselves upon him, resulting, he cannot but feel, from his own ignorance. The professors of obstetric medicine and surgery are in some of these respects placed at an advantage to the ophthalmic surgeon. In the first place, gynaecology forms a very important and, indeed, essential part of the medical curriculum. The student is well aware that he will be strictly examined upon it. He has to obtain special certificates showing that he has attended so many lectures and so many cases, and he has had it well drummed into him, if his father happen to be a practitioner, that a knowledge of it is absolutely necessary in country practice, and will always prove serviceable to him whether he practice at home or abroad, whilst he knows that it is not at all unlikely he may be called upon to treat a difficult case upon his own responsibility at an early period of his career, and under circumstances in which his proceedings are sure to be sharply criticised.

In making these observations I trust I may not be regarded as in any way discrediting the knowledge of diseases of the eye possessed by a large and steadily increasing number of practitioners, nor of under-estimating their zeal and attention in the study of these affections. Many men now leave our hospitals with a very sound practical knowledge of this class of affections, and in after-life obtain the opinion and assistance of a specialist only when an operation is required, or to obtain his support to a line of treatment they have themselves inaugurated, and as a safeguard against subsequent mishap. There can be no doubt, however, that what is done by the few more intelligent students should be rendered imperative on all, and that the time at the disposal of the student should include another year to enable him to pursue the study of medicine and surgery in the special departments of the eye, ear, larynx, and skin, and that the attendance upon lectures and in the wards, and the attainment of some knowledge in these subjects, should be rendered compulsory. That space of time would be sufficient to familiarize the student with the principal forms of disease and with the use of the instruments employed in the diagnosis and treatment of each class of affection, such as the ophthalmoscope, laryngoscope, Eustachian catheter, and the like; and the student would thus be better prepared for the battle of life, and cases of iritis, in which adhesions have been allowed to occur which might have been prevented, and cases of glaucoma which have been allowed to progress till the patient is blind, and beyond the resources of surgery, happily even now rare, would be altogether unknown.

The most painstaking student, however, after the lapse of a few years is apt to become a little rusty in departments which do not often fall under his notice, and things that were once very familiar are quite forgotten. This is especially the case with the use of the ophthalmoscope, which not only takes some time to learn, but is soon lost, for few cases fall to the lot of the young practitioner to enable him to keep up his knowledge, and after the lapse of some years he hesitates to rely on his own judgment to decide whether the margins of the optic disc are in a given case really blurred and indistinct, or whether the media are cloudy, or whether it is only an error of refraction, or what degree of whiteness of the optic nerve has passed

beyond physiological limits. I am therefore somewhat doubtful whether the ophthalmoscope will ever be widely used by the general surgeon; and I have thought, remembering the practical character of our meetings, that it would prove acceptable to the members of the Society, if instead of attempting to give a description of exceptional forms of internal disease of the eye, I were to discuss some of those affections which are of every-day occurrence, and to place before you such information as modern research has obtained upon diseases that every practitioner may be called upon to treat, or which his advice may prevent. I propose then to take as the subjects of these lectures purulent ophthalmia, keratitis, and myopia.

Before commencing the subject of purulent ophthalmia, perhaps I may be allowed briefly to describe the anatomy and histological characters of the conjunctiva, which will enable me to explain more intelligibly the changes that occur in disease. It is, as is well known, a mucous membrane which lines the lids, and is continuous with the skin at their margin anteriorly, whilst posteriorly it is reflected upon the globe. It is thus divisible into a tarsal and an ocular or bulbar portion, which are connected by a fold, termed the conjunctival fold, or retrotarsal portion of the membrane. The tarsal portion is composed of mucous membrane directly and firmly applied to the tarsal cartilage, with little or no submucous connective tissue. This part is highly vascular, and presents numerous small, low, conical papillae near the free edge, which become broader and more prominent near the sinus. The deeper epithelial cells are columnar, the more superficial tessellated. Distributed amongst them are many goblet cells. The ocular portion of the membrane is destitute of papillae, and presents flattened epithelium. The submucous tissue contains much elastic tissue in the fold, and is therefore very extensible, and as in the scleral portion, contains a few small collections of fat cells. The conjunctiva and the sclerotic are very closely united near the border of the cornea, but rather loosely elsewhere. The vessels are divisible into two sets, the superficial and the deep. The superficial arteries are derived in part from the ophthalmic muscular branches, and in part from the anterior ciliary arteries; the deep, or episcleral arteries spring from the muscular and from the palpebral arteries, and are comparatively few. The superficial veins are few in number, and communicate at the periphery of the cornea with the canal of Schlemm. The deep veins are numerous, and end in the muscular veins. The nerves are derived from the ophthalmic division of the fifth pair; they present many terminal bulbs. The glands of the conjunctiva are the acinous glands, or glands of Krause, sometimes also called accessory lacrymal glands. These are particularly found in the upper fold of the conjunctiva, arranged transversely from the inner extremity of the lacrymal gland towards the inner part of the eyelid, in which direction they increase in size. Usually there are from twelve to eighteen, though Krause in one instance counted forty-two. In the fold of the lower lid there are only from two to six. The excretory duct is thin-walled, and perforates the conjunctiva obliquely. Besides these there are certain spherical or completely closed follicles, which very closely resemble the solitary glands of the intestine, and lie immediately beneath the surface of the membrane. They possess an investing membrane, and are traversed by a plexus of connective tissue, in the meshes of which are numerous leucocytes, resembling or identical with lymph-corpuscles. Loops of blood-vessels appear in their interior on section. Their diameter is about 0.4 mm., or

about one-fiftieth of an inch, and they are chiefly found in the fornix according to Krause, though Waldeyer denies their existence, and thinks that, if there be any in man, they are only to be found scattered here and there. In the ox they form masses known as the "plaques de Bresch," which are sometimes regarded as normal and sometimes as abnormal textures. The lymphatics of the conjunctiva bulbi are very numerous, but they are more sparingly present in the other portions of the membrane. At the margin of the cornea they form a delicate close-meshed plexus of very fine vessels with dilatations at the points of junction. The plexus terminates towards the cornea in a series of flat arches, and this ring of vessels, having a breadth of about one millimetre, is named the *circulus lymphaticus*; sometimes a single large vessel forms the boundary of the plexus and surrounds the cornea in a somewhat interrupted circular form. This is connected with a number of radially arranged vessels proceeding from the cornea itself, whilst other vessels proceed to the lids, and, running laterally inwards or outwards, open into vessels provided with valves, which again enter the superficial facial lymphatic glands and the sub-maxillary glands. The lymphatics everywhere occupy a position subjacent to the bloodvessels.

Having thus epitomized the chief facts in the histology of the conjunctiva, I may now pass on to consider that form of disease which is termed purulent ophthalmia, and especially that form of it which is apt to occur in the new-born child, the well-known ophthalmia neonatorum. Estimates have been given by different authors of the number of cases of blindness referable to this cause that are found in blind asylums. By one writer it is placed as high as 70 per cent. The tables of Cohn, however, which are of recent date, seem to show that diseases of the conjunctiva, though constituting nearly one-half of all the diseases of the eye, yet in the form of the purulent ophthalmia of infants is the cause of only 33 per cent. of all cases of blindness, whether in or out of asylums, occurring between the ages of five and twenty years. At every ophthalmic hospital cases continue to present themselves which are evidently suffering from the consequences of this disease. In the worst cases the eye is atrophied and squared by the action of the recti muscles or reduced to a button; in others the cornea is perfectly opaque or is replaced by cicatricial tissue, proving that it has formerly been violently inflamed, and has sloughed. In others, again, the whole globe is enlarged, showing that the inflammation has softened the tissue of the sclerotic and cornea, and that they have yielded to the steady pressure of the contents of the globe, so that the eye bulges between the lids; whilst in the less severe cases a white spot, or leucoma, to the inner surface of which the iris is often adherent, indicates the former presence of a penetrating ulcer. In almost all of these latter cases the vision is greatly impaired, the pupil being displaced, and the capsule of the lens being often the seat of a deposit of lymph. Of course many of these cases have been under the care of midwives, or under no care at all; others are incurable from the moment they are first seen, resisting all remedial means; but in some I am disposed to think better results might have been obtained if the serious nature of the affection had been earlier recognized, and if the surgeon, instead of giving verbal directions to perhaps a careless or ignorant nurse, had himself taken the trouble to attend to the infant. It is in the early stages of the complaint that most advantage can be obtained from treatment; and on the principle that example is better than precept, the benefit obtained by the surgeon himself showing

how the remedies should be applied, is far better than any instructions, however clear and precise they may be.

The general characters of the disease must be familiar to all my hearers, and I do not intend to enter very minutely into the symptoms. In the majority of cases the presence of yellow secretion first attracts notice, and the disease is said to commence upon the third day after birth; but it sometimes begins a little earlier, or is retarded to the fifth, sixth, or seventh day, or even somewhat later. The secretion rapidly increases; the conjunctiva, both of the lids and of the globe, becomes red and chemosed. The lids swell and assume a red or livid tint. The pain seems to be inconsiderable, or, at least, considering the violence of the inflammation, is not a characteristic feature of the disease, perhaps because the tissues are so loose that swelling is readily effected and there is little or no pressure on the nerves. The secretion, at first thin and yellowish, soon becomes thicker, with flocculi of puro-mucous material floating in it, and then of a full yellow color, the very type of the pus laudable of the older writers. On wiping it away, the surface of the lid often presents a kind of thin membrane which can be picked off with forceps, sometimes leaving only a reddened surface beneath it, but sometimes a bleeding surface, and then tending to the diphtheritic form. Hæmorrhage from the over-charged vessels sometimes occurs spontaneously, and frequently occurs on merely raising the lids. The eyes, owing to the swelling of the lids, are constantly kept in the closed condition, and the child is unable to raise them by the action of the levator palpebræ. Moreover, as the edges of the lids adhere in consequence of the drying up of the secretion during sleep, the pus accumulates behind them and bulges them out to a remarkable extent. After remaining for some time in this condition of acute inflammation, the disease, sometimes spontaneously, or with the aid only of simple remedies, begins to subside and passes into a chronic state, in which the conjunctiva remains villous and granular, with swollen papillæ, ready on slight provocation to suffer a relapse, but slowly tending to recovery. In a large number of cases, however, the nutrition of the cornea is interfered with by the obstruction to the capillary circulation in the ciliary region, and sooner or later it presents a partial or general haziness. When the cloud is partial, it is often situated near the periphery of the cornea, and close inspection will then show that at this point, and more or less concealed by the chemosed conjunctiva, there is an ulcer or sharply defined groove. When this has once formed the chances are greatly in favor of its becoming progressively deeper, and at length perforating; the aqueous then escapes, and the iris becomes applied to the inner surface of the opening. For a day or two no apparent harm is done, but soon a little black speck appears at the site of the ulcer, which is the delicate tissue of the iris thrust forward by the pressure of the aqueous accumulating behind it, and covered by the membrane of Descemet. It continues to increase till it becomes nearly as large as the head of a fusée, producing a considerable amount of irritation and lachrymation. The protrusion may either remain, becoming invested with cicatricial tissue, or it may gradually flatten down and become nearly level with the rest of the cornea, leaving only a displaced pupil. Various opinions have been held as to whether the corneal lesions are due to the character and quality of the pus or to the degree of chemosis. It is certain that the mere contact of pus with the cornea is productive of but little harm. In cases of suppuration of the lacrymal sac pus is often poured into the conjunc-

tival sac by regurgitation through the canaliculi, or through an artificial opening, for a considerable period without occasioning infiltration or ulceration of the tissue of the cornea, which remains bright and polished. The early period at which lesion of the cornea occurs, as well as the received views on the etiology of the disease, have led many to suspect that the pus may contain some virus capable of directly eroding its tissue. But it is obvious that a powerful disturbing influence must be exerted on the cornea by the chemotic infiltration of the conjunctiva, since, when this is strongly expressed, as it is in most cases of purulent ophthalmia, the vessels of the ciliary region must be compressed, the venous circulation retarded, and the conditions favorable to diapedesis or emigration of white corpuscles from the vessels induced. The importance of such compression is particularly well shown in cases of diphtheritic conjunctivitis, happily almost unknown in this country, though familiar enough to practitioners in Germany.

Arlt has justly observed that in the event of much chemosis and conjunctival infiltration occurring at the end of the second week, it is impossible ("Annal. d'Oc." 1880, p. 182) in all instances to preserve the cornea from becoming the seat of an abscess, and virulent blennorrhœa may be held to have been present.

If the cornea becomes generally hazy, the prospect is very discouraging. The haziness gradually deepens into opacity; the cornea becomes softened; pus forms between the lamellæ; it yields at some part of the periphery, or gives way altogether. The lens escapes, and the eye collapses, no vestige of vision remaining. In such cases mothers sometimes bring the lenses in a pill-box or wrapped in paper, saying that these had escaped from the eye, and half expecting apparently that they may be replaced.

(To be continued.)

Original Papers.

TWO CASES OF ENTERIC FEVER: A CONTRAST.

By JAMES FERGUSON, M.B.

THE following two cases when placed together form a useful contrast, and it will best serve practical purposes if we consider first their clinical aspects and then the post-mortem reports.

The first is that of J. P., aged nineteen, a sailor, admitted into the Perth Infirmary on August 29th. After a stormy passage from London, the lad had great difficulty in reaching the hospital on foot. The temperature on admission was 105° F.; pulse 120. Local signs: well-marked tenderness in the right iliac fossa and a slight general distension of the abdomen; there were but two characteristic spots. During the next eight days the temperature ranged from 100.6° to 105.8° F., reaching the former record only after liberal antipyretic treatment; the pulse was quick and feeble; nervous symptoms particularly prominent; the pupils dilated, and the face flushed and anxious. The tongue became brown, dry, and hard; the iliac tenderness soon spread, and frequent abdominal pain was noticed, though there was but little tympanites. Notwithstanding prompt treatment, diarrhœa persisted, the number of stools varying from four to ten per diem; latterly these were characteristic, but blood was only thrice noticed,

and then in small amount. Death from syncope occurred on the ninth day.

The case illustrates the crossing of two of Murchison's types, the irritative and the abdominal, both of which are grave. Remembering the hard usage which the youth received in the early and acute stage of the attack, we need not wonder at any aggravation of the symptoms or at the results. Possibly to the same cause, and more especially the rough medical treatment of the shipmaster, was due the extreme degree of tissue destruction to which the state of the intestine bore witness.

The second case, J. M., aged twenty-one, a domestic servant, was admitted on the 14th of October. The illness had begun with a week of malaise, headache, and obstinate constipation. On admission her temperature was 102.2° (8 P.M.), pulse 98; slight distension of abdomen, but neither pain nor tenderness. Mental and bodily inaptitude was marked, and persisted until the ninth day, after which nightly delirium and restlessness set in. Till the twelfth day the bowels remained constipated, but for two days after this there was slight diarrhœa. The temperature was generally somewhat high, though 104.4° F. was the maximum. On the seventh day an erythematous eruption was found on the chest, arms, and legs; but this faded away in two days, again appeared, and in two more days went entirely. The true rose-colored spots were never found, but a few of a deeper tint showed themselves in successive crops. A frequent loose cough with moist râles occurred, and the weakness of the patient rendered expectoration difficult. Coincident with these changes were increased frequency and weakness of the pulse, which reached from 120 to 128 in the morning, and once to 140 at 6 P.M. About 3 P.M. on the seventeenth day in bed, a suddenly increased pallor attracted attention, when the patient was found to be lying in a pool of blood, very dark and fluid, and with no admixture of solid matter. The patient was unconscious of her condition, though making faint response to questions. The pulse was almost imperceptible. A lead and opium pill was given, with an injection of iced water into the bowel, five grains of ergotine subcutaneously, and an iced bag applied over the abdomen. The patient rallied slightly, but at 2 A.M. a less copious hæmorrhage occurred, and she collapsed in half an hour more.

The remarkable absence of the classical signs in this case is noteworthy. Almost throughout the high temperature was the only striking symptom, but the obstinate constipation is not in my experience at all so rare as is usually stated. Jenner has noted a case in which the bowels were inactive all through, and in which death ensued, as in this, from hæmorrhage. He sets down as the most common cause of costiveness deep ulceration, and cautions against a ready recourse to laxatives. The absence of the typical eruption and the occurrence of an erythematous rash followed by darker spots are interesting in view of Murchison's observation, "Now and then the appearance of the lenticular spots is preceded for two or three days by a delicate scarlet rash all over the body. I have noted this rash in five out of forty-five patients admitted into hospital within the first eight days of the disease." This is the only case in which I have observed such appearances among seventy treated in this infirmary. Murchison's only detailed case was marked by prolonged constipation. The proverbial variety of forms assumed by this disease will be noted in these two cases, and more especially as regards the condition of the nervous system, the temperature, the abdominal symptoms, and, most impressive of all,

the contradistinction in the modes of death. In the first we had evidence of extreme destruction of tissue, and yet death was not immediately traceable to that cause; while in the other there were almost no signs whatever of local interference, yet breach of tissue of a most definable kind was the cause of death.

We have now to examine the portions of the intestines presenting the characteristic changes, with the mesentery and its glands from each case. On the peritoneal aspect of the intestine from the first case, about four feet from the upper end of the small bowel, spots of congestion began to occur, at first small, circular, and of pinkish hue, but as they passed downwards becoming larger, more longitudinal and livid, until they ended in patches with a yellow centre, surrounded by zones of deep congestion. Stripping off the peritoneal coat of the bowel revealed that localized spots of vascularity in that membrane accounted largely for these appearances. We now found towards the lower end of the ileum that a jet of water burst out in the process. This escape took place from three minute orifices, and corresponding with these was a congested state of the peritoneum, so that there was a perforation of the bowel, except in its outer coat. On opening the bowel, the glands were found to be deeply implicated, and with the exception of cicatrization, there were perhaps none of the characteristic changes unrepresented. There was a terrible amount of destruction, beginning in the solitary glands, about four feet from the pylorus, and as regards Peyer's patches, these were represented by spots of disease varying from half an inch to three inches in length, and also by two still larger areas of ulceration lying in the last nine inches of the bowel. Among thirty-one different spaces, the various stages of change were presented, and in the last ulcer of the series perforation had threatened as above described. This ulcer encircled the whole of the tube, and passed upwards on the ilio-cæcal valve, as far as its margin, involving the whole of its iliac, but leaving the cæcal aspect of the valve free from disease. Passing downwards, now in the large bowel, the vermiform appendix was found highly congested externally, while inside it was crammed with yellowish-green curdy matter. Over the cæcum, along the whole of the ascending, and about half way on the transverse colon, at first in great abundance, and gradually decreasing in number, were well-formed ulcers, closely resembling the diseased solitary glands of the upper bowel. The implication of the large bowel was exceptional, and very severe. The enlargement of the mesenteric glands was also extreme, some of these being twice or thrice the size of a pigeon's egg.

The post-mortem appearances in our second case contrast strongly with those above described. The changes in the small bowel were confined to the last three feet of its length, and were characterized by large and deep sloughs. It is noteworthy that this has been remarked as a feature of cases distinguished by prolonged constipation. Only four of the Peyerian patches were involved; but it may be mentioned that a limited amount of ulceration existed in the large bowel, which would indicate its implication in cases not necessarily of great severity in the upper track. The large bowel presented an appearance of red staining rather than of hyperæmia, and contrasted with the blanched hue of the duodenum, while this last state was also the opposite of that found in the first case. To complete the contrast, the mesenteric glands were here but slightly affected.

Perth.

REMOVAL OF THE BREAST, FOLLOWED BY SPONTANEOUS FRACTURE OF THE FEMUR.

UNION OF THE SAME, WITH FRACTURE AGAIN FOUR WEEKS AFTERWARDS BY A BONE-SETTER IN ATTEMPTING TO REDUCE A SO-CALLED DISLOCATION OF THE HIP-JOINT.

By JOHN HAMILTON, F.R.C.S. Ed.

THE notes of the following case may be considered somewhat interesting.

The patient, M. O—, aged fifty-six, enjoyed good health, with the exception of an occasional passage of nephritic calculi. She first noticed a slight lump at the inner side of the right nipple, about sixteen months since, which quickly increased until it attained the size of a small orange, attended at times with acute pain. On examination there was found to be no retraction of the nipple, and but slight adhesion of the skin over the tumour, which was of bony hardness, and freely movable on the parts underneath. There was slight enlargement of one or two axillary glands.

In consultation with Mr. Clements, of Burton, and Mr. Moon, I determined, with their approbation, to remove the breast, which I did completely under chloroform. The incision was necessarily a very extensive one, because of the largeness of the mamma and the necessity of removing the axillary glands. On its removal it was at once seen to be a well-marked case of *cirrhosis*. The wound was treated by simple sutures, supported by adhesive plaster strappings, and over all a well-adjusted pad of dry lint. The sutures were removed on the third day, and by the eighth it was entirely healed, without seeing throughout the slightest trace of pus. About three months afterwards the patient in crossing the floor of her bedroom felt something give way in her right thigh and suddenly fell to the ground. Being from home myself at the time, she was seen by Mr. Moon, of Gresley, who at once diagnosed fracture of the femur, and took the necessary steps to put it in a favorable position for union. On returning from my holidays a few days after the accident, I examined the thigh and satisfied myself as to there being a fracture. I explained to the patient's relatives the absolute necessity of rest, and in reply to their query told them how long I thought it would be necessary to keep her in splints. On visiting the patient again about a fortnight after, I was surprised to see the apparatus I had constructed for extension placed in one corner of the kitchen, and upon inquiring as to the meaning of its being there, I was informed by her husband—who has since died—that "it was all right." Not waiting for any further explanation I hurried upstairs, wondering to myself how it had got "all right" so soon. Upon inquiry of the patient, she said that she "was sorry I had made a mistake; a bone doctor had been over and found that her hip was out, and, as the patient admitted, took very strong measures for its reduction, one of which was to pull her out of bed. On leaving he assured her that she would be able to get about in a very short time—less than a week. My first impulse was to leave the house at once, but my curiosity got the better of my resolve. I examined the limb, and found, as I expected, the splints removed, the leg shortened by fully four inches, and the slightest manipulation causing intense pain. I now pointed out to the patient and her relatives the harm that had been done, and for the first time informed her (which for obvious reasons I did not

wish to do before) that the easy breaking of the bone was in some cases an occasional corollary of cancer, and to prove still further the uselessness of the bone-setter's procedure, left without doing anything to put the limb in position.

A few days after, at the earnest entreaty of her friends, I again visited her, and found that a very great revulsion of feeling had taken place. The former gratefulness to the "bone-doctor" had now given way to a strong feeling of resentment, and an action for damages was loudly spoken of, ending, however, in talk, the game being considered not worth the candle. I now endeavored to get the thigh once more into position, which I need not say without chloroform (the patient absolutely refusing to have any) was almost impossible, readjusted the splints, and at the expiration of three months there was again firm union. But I am sorry to say there is so much shortening as to almost make the limb an encumbrance rather than a help.

Swadlincote, Burton-on-Trent.

THE ANASTOMOSIS OF THE CORONARY ARTERIES.

By SAMUEL WEST, M.D.,

Physician to the Chest Hospital, Victoria-Park.

THE anastomosis of the coronary arteries is a question of very great importance in cardiac pathology; but the statements in works on anatomy differ, and even in special treatises upon the heart precise statements on this point are often wanting. It is quite certain in disease that one coronary artery is sufficient to maintain the nutrition of the heart. Cases are not very rare in which the mouth of one coronary artery is completely blocked by atheromatous change in the coats of the aorta, and still the heart's nutrition has for a long time been well provided for. In one such case which I have recently examined, the coronary artery, the mouth of which was completely obliterated, was of normal size and appearance even up to the obstruction, and contained blood, which must have been supplied to it from the unobstructed artery of the opposite side. In one of the later editions of Quain's Anatomy this note occurs, in small print:—"It has been customary to describe the transverse branches of the coronary arteries as anastomosing in the auriculo-ventricular sulcus, and the descending branches as anastomosing near the apex of the heart; and this description was never doubted until it was found by Hyrtl, as the result of separate injections of these vessels, that the branches of one coronary artery cannot be injected with material introduced into the other." This note has been removed, I find, from the last and recent edition, but there is still in the text a want of definiteness upon the point. With the view of satisfying myself I have lately made a series of injections of human hearts. The material I used was a mixture of carmine and gelatine, which was injected hot into hearts which had been thoroughly warmed in water. Some of these hearts were injected from the left coronary artery, and some from the right. In both cases the whole of the heart was beautifully injected, and microscopical sections showed that the injections had reached even the smallest capillaries. The injection passed with hardly any pressure, and with the greatest ease, into the vessels. So free was the anastomosis between the two coronary arteries, that on injecting into one artery the fluid ran in a considerable stream out of the mouth of

the other, and, by pressing in jerks upon the piston of the syringe, could be made to move also in jerks. The fact, then, of the very free and complete anastomosis of the coronary arteries is established. It is difficult to understand how Hyrtl could have arrived at such opposite conclusions. The most probable view is that he injected hearts recently removed from the body. The only failure which I experienced was with a heart injected as soon as removed. In this the injection failed to run over more than quite a small portion of the heart, not even over the whole of those parts to which the coronary artery injected was distributed. All the hearts, except this one, were macerated for some time in water, in order to get rid of all the blood-clots which might be in the vessels in the recent state. When this precaution is taken success is certain.

Wimpole-street, W.

THE CAUSATION OF CARDIAC AND PULMONARY DYSPNOEA IN DISEASES OF THE HEART.

By CHARLES STONHAM, M.R.C.S. Eng.,

Assistant Demonstrator of Anatomy in University College, London, and Clinical Assistant to the Western General Ophthalmic Hospital, etc.

In advanced cases of valvular disease of the left side of the heart in which there is want of compensation and pulmonary congestion with deficient oxygenation of the blood, dyspnoea is a prominent and very distressing symptom. The so-called pulmonary dyspnoea is persistent, and hitherto has been regarded as the consequence of pulmonary congestion with oedema of the lungs and pleurae. That these two conditions do certainly produce difficulty of breathing there can be no doubt, but I shall hope to show that there is a third cause constantly at work aggravating the condition, and moreover that this cause under certain conditions produces the paroxysms of cardiac dyspnoea. Attacks of dyspnoea, often of great severity, also occur from the impaction of an embolus in the lung, especially if it is of large size, but in such cases there is frequently a rigor, with high fever, pain in the side, and bloody expectoration. Such attacks are entirely different from those now under consideration, which occur just as the patient is dropping off to sleep. In its general characters the paroxysm simulates an asthmatic attack, but the breathing is more "panting" in character. The hypodermic injection of morphia ($\frac{1}{4}$ or $\frac{1}{2}$ gr.) at once gives relief, which is maintained for several hours afterwards. As yet this cardiac dyspnoea has not received any satisfactory explanation. Dr. J. Milner Fothergill, in his work on the "Heart and its Diseases" (2nd edition, p. 91), speaking of cardiac dyspnoea, says:—"... it is certainly connected with the descent of the diaphragm, and is occasioned by flatulence and fullness of the abdomen. In the horizontal position the contents of the abdomen press upon the diaphragm equally with the other portions of the abdominal walls; in the erect or sitting posture they fall away from the diaphragm by their own weight. Dr. Lauder Brunton teaches that in the supine position the diaphragm has to overcome the action of the abdominal muscles; when up only lateral pressure is called for. It is not suggested that this mechanical explanation is the full and complete explanation of orthopnoea." Now, in the first place, if flatus and distension play any part in the produc-

tion of cardiac dyspnoea, why does it occur when the patient is dropping off to sleep? Surely sleeping does not cause flatulence? And, secondly, with regard to position, cardiac dyspnoea certainly occurs with very great severity in patients who cannot lie down at all; but, at the same time, it is quite conceivable that this may play a part in its production, although, I should imagine, a very insignificant one.

With regard to Dr. Lauder Brunton's theory, it may be remarked that the abdominal muscles during orthopnoea, instead of hampering the action of the diaphragm, really help it, since they become indirectly inspiratory by fixing the lower ribs, and so allowing a more fixed point for the diaphragm to work from. And, lastly, I cannot see why morphia should act so quickly and beneficially if the above explanations are at all correct. We know from physiological experiments that the respiratory centre in the medulla oblongata is stimulated by the circulation of venous blood in it, and furthermore that it is the lack of oxygen, and not the excess of carbonic acid, that is responsible for this. Now, in those cases of heart disease in which cardiac dyspnoea is present there is pulmonary congestion; the blood generally is more venous than natural. This blood circulating in the medulla acts as a stimulus to it, and hence it is in a constant state of excitement, and more vigorous respiratory impulses are generated. I would submit that this condition of excitement of the centre combined with the congestion and oedema of the lungs, is the real cause of pulmonary dyspnoea.

Now, what further causes come into play in producing a paroxysm of cardiac dyspnoea? Firstly, let us inquire what happens during sleep, and then see if any changes occurring could influence the respiratory centre in any way. Sleep is brought about by cerebral anæmia, and hence the respiratory centre is less supplied with blood than during the waking hours, and therefore the oxygen going to it is still further lessened in amount, and the state of excitement is accentuated, and as a result the centre, which was before just kept within bounds, now breaks loose, so to speak, and a paroxysm of cardiac dyspnoea ensues. This explanation of the phenomenon is also borne out by the effects of treatment with the hypodermic injection of morphia. Morphia acts as a nervous sedative, lessening the irritability of the whole nervous system, central and peripheral, so that a greater stimulus is required to call forth any action. The irritability of the respiratory centre would accordingly be lessened, and hence the stimulus of the venous blood would not call forth such vigorous respiratory impulses. The dyspnoea would be relieved. Cheyne-Stokes' respiration, met with in cases of fatty degeneration of the heart, and sometimes in cerebral and renal diseases, has also been attributed to a want of oxygen. Professor Laycock thinks it is due to a sentient paresis of the respiratory centre not necessarily dependent on structural or other diseases of the heart, but Dr. Hayden goes further, and adds to this a want of oxygen; but Biot proved that the arterial circulation is increased, in some cases at least, during the apnoea, and not during dyspnoea. Traube held that it was due to over-action of the vagi by accumulated carbonic acid constantly stimulating their endings; this view is favored by Biot. Dr. Edis, however, says that this ascending and descending respiration is due to lessened irritability of the centre, so that carbonic acid is not sufficient stimulus.¹

University-street, W. C.

NOTE ON MURUNGAI OR MURUNGAH.

By E. M. HOLMES, F.L.S.,

Curator of the Pharmaceutical Museum.

THERE can be no doubt, I think, that the plant known to Mr. P. S. Brito under the above names is the *Moringa pterygosperma*, Gaertn. The name is variously written by different authorities, as Marung-gai (Waring), Mooringay (Jesudasan), or Mooringhy (Drury), and the specific botanical name is the Latinized version of the same word. My friend Dr. Ondaatje, of Ceylon, informs me that it is called the "drumstick" tree on account of the curious pod-like fruit, which when ripe is white, and bears some resemblance to a bone or short stick. The properties of the plant closely resemble those of horseradish, for which Dr. G. Bidie regards it as a perfect substitute.¹ On account of this similarity it is called by the Anglo-Indians the "horseradish" tree. The leaves, flowers, and immature fruits are sometimes used as a culinary vegetable, and are considered by the native doctors in India of value in the treatment of diseases of the liver and spleen. The juice of the fresh leaves is employed to hasten the suppuration of boils. The fresh root is rubefacient and even vesicant, but its application causes great pain. The decoction of the root bark has been given as an emmenagogue, but is said to be liable to produce abortion. The rubefacient and stimulating properties of the plant are also turned to account in the treatment of paralysis and leprosy, epilepsy and hysteria. A great deal more might be said about the medicinal properties of the plant, but all that could be adduced might be summed up in the above quoted opinion of Dr. Bidie. The plant yields a volatile oil, to which its properties are believed to be due. The oil has a very disagreeable odor, and is said by Bronghton to be different from either oil of mustard or oil of garlic.

Dr. Ondaatje informs me that so far as his knowledge extends, and he has practiced in Ceylon for thirty-six years, the leaves of the drumstick tree are never used in that island in the treatment of hydrophobia, nor is the plant known by its Malay name, Marung-gai, nor its Tamil name, Mooringa, but by the Hindu one, Sohunjana. He is of opinion that the leaves would not have the slightest therapeutic value in the treatment of hydrophobia. The tree is a very interesting one from a botanical point of view, being allied to the Leguminosæ in habit, and, indeed, was erroneously included by Linnaeus in the genus *Guilandina*. It resembles the plants of this family in having compound leaves, stipules, and flowers which chiefly differ from those of the tribe Cæsalpinieæ in the odd petal being inferior, in the one-celled anthers, tricarpeillary, ovary, and anatropous ovules. In the last two characters it approaches Violaceæ as well as in the three-valved fruit, parietal placentation, and hollow apex of the style. In properties it resembles the Cruciferae, Capparidaceæ, and Resedaceæ. By Grisebach it was placed in the Capparidaceæ and by other botanists it has been compared with the Polygalaceæ, Bignoniaceæ, and Sapindaceæ. In the classical "Genera Plantarum" of Benth and Hooker it follows Sapindaceæ as an anomalous genus of doubtful affinity. It is not surprising, therefore, that from description alone Dr. Trail should have referred "Murungai" to the Leguminosæ. Specimens of the pods and root bark can be seen in the museum of the Pharmaceutical Society of Great Britain.

¹ London Medical Record, 1880, p. 15.

¹ Madras Quart. Med. Journ., 1862, vol. v., p. 279.

REMARKABLE EFFECTS OF MASSAGE ON GASTRIC ASSIMILATION AND NERVOUS DEBILITY.

By J. BERESFORD RILEY, M.D.

WITH the exception of salicin and its compounds for rheumatic fever, there has not been, I venture to say, any therapeutic discovery of recent times so brilliant in its results as massage in the treatment of functional neurasthenia by Dr. Weir Mitchell, of Philadelphia, and the profession is much indebted to Dr. Playfair for its systematic introduction into this country about two years ago. I was so struck at the time with his article on the subject in *THE LANCET* that I determined to give it a trial on the first opportunity, and for this I had not long to wait, inasmuch as a typical case presented itself for treatment shortly after. About the middle of June, 1881, I saw, in consultation with my friend, Dr. Hine, of Leytonstone, Miss A. C—, aged twenty-one, who for four years previously had been more or less a complete invalid. At the time of my visit she was much emaciated and very anæmic, had a small, sluggish pulse, and an extremely apathetic expression of countenance; her menstrual periods were very irregular, and their character most capricious, being sometimes dysmenorrhagic and scanty, and at others profuse and painless. She had no appetite whatever, and for many months "had not taken sufficient food to keep a baby alive," her chief articles of diet being a little Nestlé's food or arrowroot and occasionally a few spoonfuls of beef-tea. The least particle of meat or vegetable gave her intense gastrodynia, which usually ended in noisy retchings until the offending matters were brought up. She had frequent attacks of dyspnoea, often followed by a kind of cataleptic swoon, which sometimes lasted for hours. For the last twelve months she had passed the greater part of her time in bed, and almost exclusively occupied the services of a most self-sacrificing sister. "The doctor was never out of the house on her account," and the whole family were in a chronic state of alarm at the constantly recurring prospects of her speedy demise. I felt that it would be unwise to at once propose massage in a highly nervous case like this, and so, after temporizing for a while, I gradually obtained the consent of the family to this mode of treatment, and for that purpose she was admitted into the Finsbury Home Hospital for Gentlewomen on July 13th. It is unnecessary for me to recapitulate the various steps of this proceeding, as they have already been so graphically described by the author in his little work, "*Fat and Blood, and how to make it.*" It will therefore be sufficient for me to state that after the first week all her abnormal symptoms began to disappear with a rapidity that was truly marvellous, that at the end of the second she was eating and digesting a quantity of food that was almost incredible, and that she left the hospital within two months with an appearance of health, strength, and energy that astonished those who had known her previous condition. She gained flesh and color rapidly under treatment, but I am sorry that I had not the means of ascertaining the exact amount of the latter.

The next case is that of a young married lady, twenty-one years of age, who had been under my care for some time for general debility, dyspepsia, and cervical catarrh, the results of a miscarriage eighteen months ago. She was a bright, intelligent patient, and felt acutely her constant drawbacks to the enjoyment of an easy and pleasant social position. She had no symptoms or

history of hysteria, and had been fairly strong until the time alluded to, but since then had gradually lost strength, was fatigued on the slightest exertion, and suffered intensely from acute gastrodynia without any apparently correlative cause. She made but very unsatisfactory progress towards recovery until she commenced treatment by massage on Nov. 10th, 1881, when the dyspeptic symptoms quickly disappeared, from which she has not since suffered, and she left the hospital within six weeks greatly improved in her health.

The third case I will briefly describe as that of a lady, thirty years of age, who had become feeble and dyspeptic from the conjoined effects of rapid child-bearing, menorrhagia, from subinvolution, and chronic ulceration of the cervix uteri. After a very protracted term of treatment, with but little reparative effort on the part of her constitution, the primary causes of her illness were nearly all removed, but she still remained in a very weak state, and suffered much from gastrodynia and the many other morbid symptoms of a feeble digestion. Medicines, and carefully carried-out dietetic rules, did her but little good, but in a few weeks, under the massage treatment, she improved rapidly; the thickly coated tongue became clean for the first time during my knowledge of her, and she left the hospital within a month, having made more progress during that time than almost the whole period anterior to it.

I feel that it would be wearisome to reiterate the history of all the cases that I have treated in this way; and so will content myself by expressing an opinion, founded on them, that in all cases of functional nerve prostration, and its various morbid consequences, massage will seldom fail to effect a rapid cure, and that its influence upon the assimilative and digestive functions of the stomach is especially remarkable; its effectiveness in other forms of disease has yet to be proved, but I am inclined to think that its application will have a much wider range than has at present been assigned to it, and that it will be supplementary to other treatment in most cases where long-continued rest is necessary. I am employing it at the present moment in this way with great advantage in a case of fibroid degeneration of the uterus, with severe and long-standing menorrhagia. The marked anemia is rapidly improving under its influence, the flesh becoming firmer, and the appetite and digestion greatly increased. It appears to do good also in another way—namely, by employing the patient's mind, and thus relieving the monotony of the recumbent position when long maintained.

I think I have already borne sufficient testimony to the value of massage in all functional derangements of the nervous system, but I have two cases under my care at the present moment which are such striking examples of its efficacy that I will ask to be allowed briefly to record them.

One is that of a young lady, about twenty-three years of age, the daughter of a Norfolk clergyman, who was sent to me three weeks ago suffering from hystero-epilepsy, with hysterical paralysis of a remarkable nature. She had been the subject of epilepsy since thirteen years of age, and had had an attack at night for many months, at least once a week. Since beginning treatment there has not been a single seizure, and the hysterical paraplegia, with incontinence of feces and urine, which prevented her from standing without assistance, has been so far relieved that she walked to church on Easter Sunday with one of the nurses. It may be said that ordinary treatment under bromide of potassium would have been as effectual, but though I admit that the epilepsy might have been equally well controlled by such means, I cannot

think that so pronounced a paralytic symptom would have yielded in so short a time.

The other case is that of a maiden lady, thirty-five years of age, who I went over to Holland to see in consultation with Dr. Van de Noorda, of La Hague, under whose care she had been for two years. She had also seen the celebrated Dr. Mezza, of Amsterdam, but all their remedies combined had failed to do her any good, and at the time of my visit she was getting rapidly worse, and had not left her room for more than a month. It appears that owing to over-study and too close application to her scholastic duties she had broken down and become so nervous and whimsical as to be a misery to herself and a source of worry and anxiety to all around her. The case was quite easy to understand—the old story of mental strain and nervous shock, without any physical disease whatever. I felt sure that massage and change of scene were the only means of saving her from the death or insanity that she believed would be the sole terminations to her sufferings, and with the consent of her friends and after a great deal of persuasion on my part she came over with me to London three weeks ago for that purpose, and is already able to walk about by herself, eat well, sleep better, and take an interest in life and her surroundings.

Finsbury-square, E.C.

CASE OF INTESTINAL OBSTRUCTION FROM VOLVULUS TREATED BY ABDOMINAL SECTION.

WITH REMARKS ON THE OPERATION.¹

By J. KINGSTON FOWLER, B.A., M.B., etc.,

Assistant Physician and Pathologist to the Middlesex Hospital; Assistant Physician to the Brompton Hospital for Consumption.

HENRY F—, aged forty, a wine porter, was admitted into the Middlesex Hospital under my care on August 7th, 1882, suffering from intestinal obstruction. His history up to the present attack presents no feature of interest. He has for some years worn a truss for double inguinal hernia; both ruptures are easily reducible, and have never caused him any serious discomfort. On August 3rd, about 6 P.M., whilst at work, he was suddenly seized with a severe pain just below the umbilicus; this was relieved by the application of hot flannels. On the 4th, his bowels acted slightly in the early morning, but since then nothing has passed per anum. He continued at work until the evening of the 5th, vomiting five to six times during the day, suffering from some abdominal pain, and being unable to take food. He then took to his bed, and remained there in much the same condition up to his admission at 7 P.M. on August 7th. He has passed very little urine. He has been under medical treatment, which appears to have consisted chiefly in the administration of castor oil and other purgatives.

On admission the patient was much collapsed, the expression was anxious, and the features pinched. The inguinal herniæ were easily reducible; the abdomen was moderately distended and tympanitic; no tumour could be found, and on examination of the rectum nothing abnormal was detected. The pulse was 76, small and compressible. There was some bronchial râles over both bases posteriorly. Shortly after admission he vomited twice, the vomited matters having a distinctly faecal odor.

I saw the patient at 8 o'clock, and ordered a large enema of warm water. Whilst this was being injected I auscultated the colon and cæcum, and distinctly traced the fluid as far as the right iliac fossa; beyond this point no gurgling was audible. On removing the enema tube the greater part of the fluid regurgitated unchanged. After a consultation with Mr. Hulke it was decided to open the peritoneal cavity at once, and search for the obstruction. Ether having been administered Mr. Hulke made an incision from an inch below the umbilicus downwards to within about two inches of the pubes, and exposed some dilated and rather congested coils of small intestine. The finger was passed into the abdomen, and the open inguinal canals carefully examined, and found to be empty. The site of the obstruction could not be ascertained. From the pelvis a collapsed portion of the ileum was withdrawn, and whilst the distended bowels were prevented from escaping Mr. Hulke proceeded to examine the collapsed portion piece by piece, a single loop only of bowel being exposed at a time. Very soon some coils were found adherent to each other, forming continuous V-shaped curves, like a "cracker;" their perpetual covering was thickened, the result of the old limited peritonitis. As the bowel beyond was still collapsed this was clearly not the site of the obstruction, and the examination was continued. A little further on a sense of resistance was felt; this was overcome by moderately firm traction, and immediately a marked change was noticed in the appearance of the bowel. Instead of being pale, contracted, and empty, it was now distended, of a rather dark purple color, and contained air and fluid. A narrow ring of deeper congestion was also noticed, and about eighteen inches further the bowel presented a similar appearance. As we now felt confident that the obstruction had been relieved, probably by the untwisting of a volvulus, it was decided to cease any further examination. The abdominal wound was closed by sutures, and a pad placed over each hernial opening. After the patient had been in bed about a quarter of an hour, there was a return of faecal vomiting. Half a grain of extract of opium was given by the mouth, and he was ordered an ounce of brandy in iced water immediately, and to have ice to suck at intervals. At 12.30 A.M. he again vomited faecal matter. A hypodermic injection of one-sixth of a grain of morphia was administered. At 9 P.M. there was a slight return of the vomiting, but it had lost its faecal character; he had slept at intervals during the night. He had no pain, and said he felt comfortable. The morphia injection was repeated, and he was ordered a mixture containing bicarbonate of soda, dilute hydrocyanic acid, and infusion of calumba, and a teaspoonful of brandy in iced water every three hours. He was kept during the day partially under the influence of morphia, and there was no return of the vomiting until midnight, when he was slightly sick after taking some brandy in milk and limewater. On the following morning (9th) it was noted that he had passed a good night, and had not vomited. The pulse was 96, full, and firm; the tongue was moist and furred; he said he felt much stronger. He vomited again at 10 A.M., but it was not faecal. He was ordered half an ounce of iced champagne every quarter of an hour, and Brand's essence frequently. Nutrient suppositories had been administered every four hours since the previous evening. At 4 P.M. he passed a copious semipultaceous motion, only slightly colored with bile, and subsequently two similar-looking stools. About 5 A.M. on the morning of the 10th he became much collapsed, wandered, refused food, and gradually sank at 12.45 P.M.

¹ Read before the Medical Society of London, Jan. 15th, 1883.

At the post-mortem examination the abdomen was moderately distended, and the edges of the incision were united by plastic exudation. There was no peritonitis. A portion of the ileum, eighteen inches in length, situated about two feet from the ileo-cæcal orifice, was somewhat congested and slightly diseased; the peritoneal coat was smooth and shiny. The whole mesentery was very long, measuring from seven to eight and a half inches from the spine to its attachment to the intestine. There were some pleural adhesions on both sides, and over the right lower lobe there was a little recent lymph. The lungs were crepitant, except the right lower lobe, which was completely consolidated, and in a condition of red hepatization. There was an excess of subpericardial fat over the right ventricle; the left ventricle was dilated, the muscular tissue soft and slightly fatty; there were some deposits of fat beneath the endocardium. The kidneys were congested, but otherwise normal.

Remarks.—One object which I have in view in bringing this case before the Society is to draw attention to some points in the treatment of certain cases of intestinal obstruction which I think of great importance. The first is the auscultation of the colon and cæcum during the administration of an enema. This should never be omitted, as it often affords valuable information as to the site of the obstruction, and so to some degree indicates the line of treatment to be followed. If during the injection the fluid can be distinctly heard gurgling in the cæcum, it may be considered almost certain that the obstruction is in the small intestine. If the flow of fluid is stopped at some intermediate point in the colon, it is very probable that the obstruction is situated at that spot, but the indication is not so certain, as a case is recorded in which fluid injected into the rectum flowed out as fast as it was poured in, and this being taken as an indication that the sigmoid flexure was the site of the obstruction, colotomy was performed in the left loin. On the patient's death from continuance of the obstruction, its site was found to be the small intestine. A possible fallacy in this test is that the movement of fluid in the bowel beyond the obstruction, owing to increased peristalsis, may be mistaken for the gurgling sound produced by the fluid injected. In the last four cases of obstruction, however, which I have met with, and have seen this test used, it has given trustworthy indications. I have lately repeated the experiments on the cadaver made by A. Hall in 1846, and by others since with the view of testing the competency of the ileo-cæcal valve, and find that on injecting water into the colon its passage into the ileum is arrested at the valve, and that the greater the tension of the fluid in the cæcum the more closely are the edges of the valve approximated. In one experiment some air passed through the orifice; this is probably due to the fact that in the cadaver the normal tonicity of the sphincter is lost. I think there can be no doubt that the ileo-cæcal valve in the living body under normal conditions does effectually prevent the passage of fluid or air from the cæcum to the ileum. I am aware that cases are recorded tending to prove that as the result of an anti-peristaltic action fluid and solid materials injected or placed in the rectum have passed the ileo-cæcal valve; but even if this be so, it does not follow that any mechanical effect can be produced on the interior of the small intestine by rectal injections. If therefore the obstruction appears to be in the small intestine, it is useless to persevere with enemata, the only effect they might possibly produce being an increased peristalsis in the lower portion of the

ileum, and all authorities agree that one object of treatment in intestinal obstruction is to diminish as much as possible the excessive peristalsis. If, however, the obstruction appear to be in the colon, there is a fair chance that it may give way before the continued use of warm enemata, or inflation of the bowel with air. Under almost all circumstances it is advisable to get the patient partially under the influence of morphia without delay, thereby checking the vomiting and peristalsis, relieving the pain, and warding off the onset of collapse.

There is some danger that the comparative calm thus induced may tempt us to postpone those operative measures by which alone in many cases the patient can be permanently relieved. This remark applies especially to cases of acute internal strangulation of the small intestine, which are extremely fatal. I have a strong conviction that this mortality might be diminished if resort were had to the operation of abdominal section before the patient's strength has been exhausted by constant vomiting. On looking back at this case, one's only regret is that the operation was not performed earlier; had it been, it is quite possible that a life might have been saved. In this, as in so many similar cases seen in hospital practice, valuable time had been lost before the patient's admission, the result being that although the operation was completely successful in relieving the obstruction, and was not followed by peritonitis, the patient sank from exhaustion. Speaking generally, the results of this operation cannot be said so far to have been very encouraging, but still a fair number of successful cases are on record, and the number is steadily increasing. The danger of the operation in my opinion arises chiefly from the manipulation of the distended intestines; this in the most careful hands is very liable to produce partial or complete rupture, an accident which in my own limited experience has happened three times to distinguished surgeons.

So far as I have observed the operation is usually performed in the following way:—The peritoneal cavity having been opened by an incision of the required length in the linea alba, between the umbilicus and the pubes, the fore-finger is passed in and careful search made for the cause of the obstruction. If this cannot be found, the operator proceeds to examine the whole length of the bowel, beginning with the portion of small intestine presenting at the incision; with one hand he withdraws a further portion and with the other returns the part already examined. Unfortunately there is no means of telling whether the bowel is being examined in the direction of the duodenum or of the cæcum. At one operation which I witnessed, after about fifteen feet of intestine had been examined, the duodenum was reached, when it became necessary to reverse and repeat the whole process. This done, it was evident that had the bowel been examined in the opposite direction the obstruction would have been reached almost immediately, an unfortunate but, under the usual mode of operation, unavoidable occurrence which prolonged the operation by nearly half an hour. It is obvious that such an amount of exposure and handling of the intestines as this method involves must greatly increase the risk of peritonitis and rupture. And beside the danger from peritonitis, rupture of the bowel, and shock of a prolonged operation thus entailed, there is, I believe, another risk, less serious, but still to be avoided if possible. It is this. Let us suppose the examination of the intestine to have been commenced at some point between the obstruction situated in the small intestine and the duodenum, and continued in the direction of the latter. As the successive

portions of bowel are withdrawn, the contents are gradually carried onward to the pylorus, and regurgitate into the stomach, where their presence must add to the already existing depression, and diminish the chances of recovery. In the case to which I have just alluded, where death occurred soon after the operation, and without any recurrence of vomiting, the stomach was found to contain more than two pints of fluid, which had evidently regurgitated from the intestine, possibly in the manner I have just described. In the performance of the operation of laparotomy, it should, I think, be laid down as an absolute rule that the distended bowel is only to be manipulated in case the surgeon after a most careful search is unable to find any contracted bowel; and I am not quite sure whether in such a case the patient's chance of recovery would not be almost as good if the operation were abandoned, and full doses of morphia administered.

There are many advantages in dealing with the collapsed bowel only; one is that it can be examined with much greater ease and in far less time than it takes to overlook an equal length of distended intestine; another is that if a considerable length be exposed at one time, there is no difficulty in returning it into the abdomen. There is no more painful sight than that of a surgeon struggling with a mass of intestines which, in spite of all care, have slipped out of the abdomen and refuse to return; as fast as one portion is replaced another escapes, and in the end he may be considered fortunate if the bowel does not rupture, or if he is not compelled to puncture to allow the gas to escape; a proceeding which, although considered by some to be entirely without danger, had much better be avoided, if possible. Another advantage of this method is that the collapsed intestine never leads to the duodenum; and, most important of all, there is much less risk of peritonitis resulting from exposure and handling of the collapsed bowel.

If, then, there be advantages in dealing with the collapsed bowel only, it becomes of great importance to know where it is likely to be found. The distended abdomen is tympanitic, and when it is opened distended bowel is always seen on the surface. This is only what might be expected: the air-containing portion naturally rises to the surface.

In making post-mortem examinations I have been struck with the fact that if the upper portion of the small intestine be distended, the lower and collapsed part of the ileum is nearly always seen lying in the pelvis. I believe that the same condition obtains in strangulation of the small intestine, and that the collapsed portion of the bowel, which it is of so much importance to secure, will in these cases be found in the pelvis, and may be most easily reached towards the right side. I ventured to suggest to Mr. Hulke before he commenced the operation that he would probably find the collapsed bowel in the pelvis, and on passing his finger deeply down he at once brought out a portion of the lower contracted end of the ileum. I have not been able to find any record that attention has already been drawn to the point. The explanation I believe is that during the violent and continued peristalsis and gradual distension of the bowel above the obstruction, the smaller and less active portion of bowel below, after expelling its contents, is forced downwards into the pelvis, whilst the distended, and therefore specifically lighter, portions rise to the surface. The pelvis also is too small to hold a distended loop. Another point to which I should like to call attention is that in cases of internal strangulation from bands care should be taken to make sure that the band di-

vided is the cause of the obstruction, and that there is not another present in the immediate neighborhood, which, if not assisting in the present, is at any rate a possible source of future trouble. I have lately met with two cases where at the autopsy a second band was found close to the divided one. I do not, however, think that the possible existence of a second band is of sufficient importance to justify any handling of the distended bowel when the immediate cause of the obstruction has been ascertained. It is not possible within the limits of this paper to discuss thoroughly the diagnosis and treatment of the different conditions which may give rise to intestinal obstruction. The various rules for distinguishing between obstruction of the large and small intestine are well known, but a very limited clinical experience is sufficient to teach one that cases are met with which transgress all rules and almost defy diagnosis, both regional and pathological. I have contented myself with drawing attention to a few points which appear to be important.

TUBERCLE BACILLI IN THE URINE.

By R. SHINGLETON SMITH, M.D., B.Sc., M.R.C.P.,
Physician to the Bristol Royal Infirmary.

THE following case has recently come under my observation, and is worthy of record.

A male patient, aged nineteen, who began to have symptoms of bladder disease at the age of fifteen, and for which he had been under frequent treatment ever since, was laid up early in February of this year with cystitis. I was asked to see him on the 25th of March, in consequence of other symptoms pointing to disease of the lungs. He had been wasting since Christmas, and now had a cough with high temperature, but at no time had hæmoptysis been observed. Mr. Greig Smith suspected there must be some commencing disease at the apices of the lungs, and found that the percussion note below the clavicles was not clear. A few days after this was remarked it was found that one of the rarer accidents of phthisis had occurred, and that there was subcutaneous emphysema across the upper part of the chest, and involving the loose cellular tissue of the neck. At the time of my visit, in consultation with Mr. Greig Smith, the patient was found to be much emaciated, with a hectic flush and a temperature (5.30 P.M.) of 103°. He had an occasional cough, but no expectoration. His principal complaint was a frequent desire to micturate, and pain in doing so; he could not go longer than two hours, and the passage always gave him acute pain. There was also occasional diarrhoea. On examining the chest there was the well-marked crackling of subcutaneous emphysema across the upper part of the thorax down to the third rib on both sides, and extending up the neck on both sides as high as the inferior maxilla and round to the occiput. The percussion note did not appear to be abnormal. The presence of air in the cellular tissue had altogether obscured the dulness of the percussion note which had been observed the day before. With the stethoscope coarse crepitation could be heard below and above both clavicles, as well as in all parts to which the air had extended. The presence of this emphysema crepitation quite obscured all other lung sounds; no bronchial breathing or bronchophony was present. The general condition of the patient, and the fact that emphysema had taken place, led to the conclusion that there was probably tuberculous disease in the lungs, but the hectic associated with the bladder symptoms appeared to be the predominating

feature. On April 2nd I again saw the patient, and continued to see him each day till his death nine days later. There had been a very marked change since my first visit. The emphysema had entirely disappeared, and now it was evident that there was considerable disease in the upper lobes of both lungs; there was marked dullness on percussion from the clavicle to the third rib in front, and at the supra-spinous fossæ behind; there was also coarse, bubbling crepitation, as of breaking-down lung, both in front and at the back of both upper lobes. There was frequent cough, but no expectoration; patient said he could not expectorate, but on being urged to try he coughed up and spat out on the handkerchief a plug of thick, yellow, tenacious, purulent matter, resembling the nummular sputum of phthisis, and which was found to contain immense numbers of tuberculous bacilli. The temperature was high, above 102°, and there was diarrhoea as often as five or six times in the day. The urine was copious, cloudy, with sediment of pus, but no casts, and only a trace of albumen; no blood.

It was now clear that the lung disease was of an active tuberculous character, and that this was the principal cause of the hectic and rapidly failing strength; but it occurred to me that it would be of some interest to examine the purulent urine for bacilli, as the cause of the disease in the bladder had been somewhat obscure, and had been suspected to be of a tuberculous nature. The only evidence of phthisis in the family was that his father died at forty-nine, after being ill for some years with what is called "bronchitis." On April 4th I obtained some of the urine for examination. It had a sediment of pus-corpuscles, amounting to about one-twentieth of the bulk of the urine, and about one-eighth of albumen; there was no trace of blood, and no casts or blood-corpuscles could be seen. On allowing a little of the sediment to dry on thin glass circles, and on treating them exactly as sputum is treated in testing for bacilli by Ehrlich's method, with the aniline gentian fluid, I had no difficulty in detecting a few bacilli on each of the slides. They were not numerous, and although I had myself no doubt of their presence, I thought it might be difficult to convince a less easily satisfied observer. On the following day I obtained another specimen of urine with characters much as before. On searching for bacilli in the same manner, I again found unquestionable evidence of their presence on each of the thin glasses which I had prepared. I have now before me three mounted slides, each one of which contains an average of three or four tuberculous bacilli in any one field, readily seen with Hartnack, No. 7, and ocular 4. The largest number counted in one field is twelve, and in many parts of the slides none are visible; they are not therefore numerous, as in most specimens of tuberculous sputum, where they are seen at a glance in great numbers, but they have to be looked for with some care. Their appearance is exactly similar to the bacilli found in the sputum of the same patient; they are well formed, of full size, spore-lated, and invariably isolated. One is found here and there, rarely two close together; no groups or masses are seen such as may be found in sputum—or better, in the caseous matter lining the cavities of lung. They have no connection with the pus cells amongst which they are found. No putrefactive or other bacilli are visible on the slides, inasmuch as they were treated with nitric acid (1 to 2), and so everything has the blue color redissolved from it except the bacilli; those therefore have the same appearance, dimensions, and chemical staining characters which are indicative of the bacilli of tubercle, and when treated in the same way the

bacilli of the urine exactly resemble those of the sputum of the same patient. On April 6th the patient's strength was rapidly failing; he was delirious, and passed urine in the bed almost unconsciously; on one occasion about two ounces of almost pure pus was passed, with much straining and with a great deal of pain. This was put aside and carefully examined, but although a dozen slides were prepared in exactly the same manner as before, no one of them contained anything which could be certainly identified as a bacillus. The patient became more and more unconscious, and gradually weaker; there was no exacerbation of cough or dyspnoea, not much pyrexia, and no return of diarrhoea. The urine continued to flow freely in the bed at longer intervals, and was clearer than before. Death took place from gradual exhaustion, on April 11th, 1883. Post-mortem examination was not allowed.

This case is probably one of the first in which the occurrence of tuberculous bacilli has been observed in the urine, and it is to be regretted that the friends of the patient would not give their consent to such an examination as would clear up any doubt as to the original nature of the bladder disease. That the immediate cause of death was acute tubercular phthisis, superadded to the debility induced by protracted hectic from bladder disease, there can be no question. The surgeon who formerly attended the patient believed the case to be one of strumous, probably tuberculous, disease of the urinary organs, and the examination of the urine during the last week of life quite bears out this view. It may be said that the few bacilli found in the urine may have been introduced accidentally from the air of the apartment, or may have been expectorated. Neither view will bear criticism, inasmuch as there was no expectoration at any time, excepting when the patient was urged to cough for the purpose. The nurse and the mother of the patient deny the possibility of this latter view. Moreover the urine was at once removed to the adjoining bath-room immediately after its passage. If the former hypothesis be adopted, it necessitates the existence of vast numbers of the bacilli in the air of the room in order that each drop might contain the numbers seen by the microscope. Doubtless the patient exhaled bacilli freely, as shown by Dr. Ransome to be the case with other phthisical patients; but the urine was not exposed to the air of the room for more than a few minutes, and the ordinary sediment in a medicine bottle of the urine could not contain such numbers as the few seen must imply. Furthermore, the urine passed on another occasion, that consisting of pure pus, did not contain bacilli, as it would be likely to do if those previously observed had been derived from the air in the room. It may accordingly be assumed that the bacilli found in the urine were discharged from the urinary passages. There were no symptoms and no evidences of any disease of the kidneys, but the whole history of the case in its early period was one of urethral and bladder mischief. It would be interesting to know whether at this period the urine contained tuberculous bacilli, but at this date Koch's great discovery had not been made. Probably the introduction accidentally or incidentally of the bacilli from without by means of the urethra may have been the first cause of the whole train of subsequent events. Tuberculous bacilli have been observed in the urine by Professor Rosentstein, of Leyden, in a patient whose symptoms had been of five years' duration, and it is interesting to observe that in the case now reported the bladder symptoms had been of four years' duration before the lungs became implicated, the latter having pre-

ceeded death by only four weeks. What the route was by which the lungs became infected we can only surmise. There is no evidence of any direct infection from communication with other patients, and it is probable that the source of infection was internal by means of blood and lymphatic vessels; the fact that the disease commenced in the apices of both lungs simultaneously quite bears out this view.

Clifton.

ON A CASE OF OBSTRUCTIVE JAUNDICE OF AN UNUSUAL NATURE.¹

By H. MALLINS, A.B., M.B., M.Ch., T.C.D.

M—, an officer in the Indian army, who had served during the Afghan campaign of 1878-79, proceeded, on the renewal of the war on Sept. 13th, 1879, to Dhaka, a fort situated at the Afghan end of the Khyber Pass. While stationed there he enjoyed good health until Oct. 13th, when he was attacked with intermittent fever of a very mild type. The attack, however, an unusual event in his case, was attended with a good deal of nausea and vomiting. Two days subsequently a decidedly yellow tinge of the conjunctivæ was noticed, and a week later well-marked jaundice was developed, with its usual accompaniments of whitish stools, dark-brown urine, etc. The appetite was not much impaired, but the ingestion of nearly every kind of food procurable was attended with so much subsequent nausea that the amount of nourishment taken was extremely small. Three weeks after the full development of jaundice, yellow vision and intense irritation of the skin, particularly that of the lower extremities, were complained of. No enlargement of the liver could be made out; very slight tenderness on pressure over the region of the gall-bladder was the only local indication. On Dec. 4th the emaciation, due no doubt to the want of sufficient nourishment, had become so marked that, acting on the counsel of his medical advisers, he returned to India to try the effect of a change to a hill climate. After a month's residence at one of the hill stations, there being no amelioration whatever in his condition, he applied for and obtained furlough to Europe. Several days delay occurred at Bombay prior to his embarkation. The second day after his arrival at that city, Jan. 18th, he had occasion to go to the closet, and while inspecting the excreta, as had been his wont since the commencement of the attack, discovered, to his great surprise, a large *ascaris lumbricoides*, apparently dead, one end of its body, to the extent of half an inch, being of a deep green color. The very next day the stools began to exhibit a slight amount of the normal bilious hue. Ten days after embarkation their color was quite natural, and before landing in England convalescence was satisfactorily established.

Remarks.—The subject of this record had undergone all the privations of the campaign of the previous year, including those of the terrible march back in June, historically known as "the march of death." It is more than probable that in quenching his thirst with some roadside water of doubtful quality he swallowed the ovum of the parasite with which he subsequently became infected. The immediate reappearance of bile in the stools which followed its expulsion, and the deep staining of one end of the parasite, render it very probable that in its migrations it entered the ductus communis, thus effectually plugging it and preventing the flow of bile. The mechanical

nature of the obstruction readily explains the failure of every remedy that was tried. The practical point deducible from the foregoing case would seem to be, that when a case of persistent jaundice—this case lasted exactly three months—is met with, in which no organic disease of the liver can be made out, and where there is no constitutional dyscrasia which would account for the symptom, the possibility of the plugging of the common bile-duct by a round worm should not be overlooked. There can be but little doubt that a few doses of *santonine* would have materially abridged the duration of the case above recorded.

Watton.

FRACTURE OF THE LARYNX BY DIRECT VIOLENCE.

By JAMES OLIVER, M.B.,

House-Physician to the Hospital for Women, London.

FRACTURE of the larynx by direct violence is an accident of so infrequent occurrence, and one which from a medico-legal point of view is of so great interest, that I deem it worth while to mention a case which recently came under my notice. The thyroid cartilage in its normal state is of such a structure that interference with its continuity can only result under very untoward circumstances. Like other structures of a similar nature in the human frame, however, the laryngeal cartilages are liable in advanced life to become the seat of ossific deposit, and then to be more easily fractured. The injury in my case had evidently resulted from the free use of a piece of wooden rail. The post-mortem appearances were in every respect those of death by suffocation, and need no mention. The larynx, with the pharynx, tongue, etc., were removed *en masse*, and examined. The thyroid cartilage, more especially the right half of it, was broken up into many pieces, one of which hung free in the lumen of the tube, evidencing great violence. Ossific change was very extensive. Corresponding with the inferior border of the body of the lower maxilla was a wound, incised in appearance, running from the middle line outwards to the left, and extending for about three inches. The wound was gaping, and exposed the bone for about an inch and a half. The left extremity of this wound was deeper than the right, and running from it was a smaller one, half an inch in length, directed towards the left angle of the mouth, and almost at right angles to the large wound. The junction of the two wounds had a thready appearance; they were apparently caused by a blow against the hard bone underlying. A small linear abrasion, about a quarter of an inch in width, could be detected on the skin over the prominent part of the thyroid cartilage, and which corresponded closely with others very similar, but much more extensive, on the scalp. The facts taken together all pointed to fracture by direct violence. Throttling is the more usual cause of fracture of the larynx; but when death results in this way the assailant usually maintains his grasp of the neck till the victim shows no sign of life, should circumstances permit of such. We must not, therefore, when this is the cause of death, expect to find ecchymosed spots over the larynx; for the blood being pressed out leaves parchment-like marks of a contused appearance, to which the blood never returns.

THE Duval Prize of the Paris Society of Surgery has been awarded to Dr. Deanos for an essay on "Lithotripsy in Prolonged Sitzings."

¹Read before the Norwich Medico-Chirurgical Society.

ON A CASE OF AN ENORMOUS MYXO-LIPOMATOUS TUMOUR WITHIN THE ABDOMEN.

By JOSEPH WIGLESWORTH, M.D. Lond.

Assistant Medical Officer Rainhill Asylum.

I AM indebted to Dr. Rogers for permission to publish the notes of the following case:—

Louisa B—, a congenital imbecile, aged forty-three, had been an inmate of Rainhill Asylum for twenty-seven years. She was short in stature, and of spare habit. She had very little intelligence, was almost destitute of the faculty of speech, and though usually quiet and orderly, displayed at times pugnacious tendencies. When she first came under my observation in October, 1879, she was suffering from a large abdominal tumour. This had been first noticed about twelve months previously; it was, however, then of considerable size, and had, as is so usually the case in demented patients, been accidentally discovered, the patient herself having in no way called attention to it. In November, 1879, she being then confined to bed, her abdomen presented the following characters. It was pretty uniformly distended, and measured round its most prominent part 39½ in.; distance from anterior superior iliac spine to umbilicus, right side, 10½ in.; left side, 9½ in.; whole of right side of abdomen dull on percussion, the dullness extending superiorly to within 3 inches of ensiform cartilage, and laterally across the median line to left flank, which, however, was resonant; fluctuation very distinct all over the tumour, not, however, extending from one side to the other, being apparently limited in various directions by septa. The patient had a constant cough and there were crepitant râles at the base of both lungs. On December 2nd the greatest circumference had increased to 40 in., the patient had become much more feeble and emaciated, and respiration was more embarrassed. On March 10th, 1880, the girth of the abdomen had increased to 43 in., the umbilicus was now obliterated, and the superficial veins of the abdomen and chest, chiefly on the right side, had become distended; the fluctuation wave was still very distinct; œdema of feet had also appeared. From this time the various pressure symptoms rapidly increased in intensity; the superficial veins of the abdominal walls became enormously distended and exhibited changes of distension in response to respiratory movements, collapsing on inspiration, and becoming distended on expiration; the superficial veins of the chest and neck were also enlarged, and both lower extremities were much swollen from œdema; the breathing continued to get more embarrassed, and she gradually sank and died on April 25th, 1880.

Autopsy.—It is unnecessary to describe the contents of the cranium, and as regards the thorax it may be simply stated that the costal arch was considerably expanded; the arch of the diaphragm reached to the lower border of the third rib on the right side, and the lungs were very œdematous, the structure of the right being much compressed and tough, though crepitant. Abdomen: The greater portion of the abdominal cavity was occupied by an elastic tumour, which was everywhere adherent to the abdominal walls and to the surrounding viscera. The colon was firmly adherent to the left border, and the small intestines—pushed over to the left side—and stomach were adherent in other parts. The anterior margin of the liver was flattened over the tumour to a depth of about three inches, and so thinned as to be in places not more than a line in thickness. The tumour had no very distinct pedicle, but the ad-

hesions appeared stronger and thicker towards the pelvis; it weighed on removal, 41½ lb.; on section it was solid throughout, and presented in parts a more or less gelatinous appearance, the main portion being, however, of a somewhat firmer consistence, and a pale-yellowish color; it was everywhere intersected by fibrous septa; from the gelatinous portions long strings of mucous fluid could be drawn out, and the yellowish portions presented for the most part the naked-eye appearance of fat; here and there distinct plates, small in size, of cartilaginous tissue, were cut into. In addition to the main tumour, there were two or three similar, but quite small masses, attached to different parts of the abdomen, and the appendices epiploicæ were in many places greatly hypertrophied, and apparently converted into mucous tissue. The right kidney was at first nowhere apparent, but it was subsequently discovered incorporated with the tumour, being buried to the depth of about an inch and a half; its structure, though somewhat distorted, was distinctly recognizable. The left kidney weighed 4½ oz.: it was about normal size, capsule adherent, and cortex a little fatty, but appeared essentially healthy. The spleen weighed 8½ oz.; enlarged, soft, and pulpy. The liver weighed 32 oz.; anterior margin flattened, as above described; substance slightly fatty. The gall-bladder contained eleven irregularly-shaped calculi, each about the size of a small marble; and a similar one was found impacted in the cystic duct. The uterus weighed 2 oz.; it was somewhat enlarged and retroflected. The ovaries were healthy. The tumour in all probability originated from the retroperitoneal tissue around the right kidney. A microscopical examination was made after partial hardening in bichromate of ammonia; sections obtained on the ether-freezing microtome showed well its intimate structure; delicate fibrous bands ran in all directions, and it contained in abundance the peculiar branched cells so characteristic of myxomatous tumours; sections obtained from the parts which to the naked eye had a gelatinous appearance were chiefly made up of these cells, though in almost all fields one or more of these cells could be found somewhat distended with fat, but in sections obtained from the parts which to the naked eye looked like fat, the fatty infiltration of the myxoma cells had gone on to an extreme degree, the section resembling that of a fatty tumour; these fat globules were remarkable for their large size; the tumour was very vascular, being everywhere permeated with large thin-walled capillaries. The tumour was therefore primarily a myxoma, which had undergone lipomatous degeneration; myxomata, as is well known, being very apt to take on this change.

I am acquainted with only three instances of large abdominal tumours of this nature recorded in medical literature. Two of these are related by Dr. Homans, of Boston, U.S.A., in which operative interference was resorted to with fatal results; the second of these two cases is indeed described as a pure lipoma, but taking into consideration the structure of the tumour above detailed, it seems legitimate to inquire whether it might not have been myxomatous in its primary nature. I am indebted to Dr. Homans' paper for a reference to a case brought before the London Pathological Society in February, 1868, by Mr. Cooper Forster. The tumour in this instance was described as fibro-fatty, but inasmuch as it contained "great numbers of irregular caudate nucleated cells," between which and true fat cells all stages of gradation were met with, it was probably of a nature essentially similar to the case above recorded. In Dr. Homans' two cases, and in my own case, the tumours clearly originated behind the peritoneum;

in Mr. Cooper Forster's case this point was unavoidably left undetermined.

Some considerations of importance present themselves in connection with these cases.

1. *As regards diagnosis.*—The tumour in the case here described was looked upon during life as being ovarian; so perfectly indeed did it resemble this that this view was unquestioned by all who saw the case, nor am I acquainted with any sign by which it could have been with certainty distinguished by physical examination alone. For reasons into which it is unnecessary here to enter, no operative interference of any kind was resorted to, and an opportunity was therefore afforded of witnessing the natural course of the growth which proved fatal by simple pressure. Paracentesis was not performed; had it been attempted the result would have necessarily modified the diagnosis. It was not, however, withheld from any doubt being entertained as to the presence of fluid, for the perfect fluctuation wave observed did not appear to leave room for any uncertainty in this respect, and this is a point to which it is necessary to direct special attention. In all the recorded cases the fluctuation wave has been perfect; this fact conveys a caution to those surgeons who are in the habit of operating upon ovarian tumours without previous paracentesis, for I do not believe that in women (and three out of the four cases occurred in women) these tumours can be certainly differentiated from ovarian, except by this means.

2. *With respect to treatment.*—The profession is indebted to the boldness and operative skill of Dr. Homans for a practical demonstration of the possibility of removing these tumours. The results obtained are not, however, encouraging. In my own case the very numerous and intricate adhesions must have rendered a successful operation quite impracticable, even had it been possible to remove the tumour, which I do not at all believe. And a similar view is suggested by a perusal of the account of the post-mortem examination in Mr. Cooper Forster's case. If therefore operative interference is to be undertaken with any hope of success, it must be resorted to at a comparatively early stage in the development of the growth.

ON A CASE OF SUTURE OF THE MUSCULO-SPIRAL NERVE FIVE MONTHS AFTER ITS COMPLETE DIVISION,

WITH ULTIMATE RESTORATION OF ITS FUNCTIONS.

By T. HOLMES,

Surgeon to St. George's Hospital.

CASES of suture of divided nerves are not yet so common as to be of no special interest, and more particularly when they show any point on which our experience is defective. The one which is here related is chiefly remarkable for the long period which elapsed before any decisive symptom of amendment ensued, as well as for the complete restoration of function ultimately obtained.

C. J. S—, an intelligent man, aged thirty, was admitted into St. George's Hospital on Feb. 23rd, 1881, on account of paralysis of the right wrist, the result of a wound received five months previously in falling through a skylight, for which he was treated at the Royal Free Hospital. He said that for a week after the accident he had entirely lost sensation in the forearm and hand, but this partly returned at that period, and had since remained in the same condition. On his admission there was the scar of an extensive irregular wound on the outer side of the back of the elbow.

(15)

The hand dropped completely when held with the palm downwards. He could pronate and supinate the forearm freely, with the elbow flexed, but could not extend the wrist or fingers in the slightest degree, and supination was impossible in the extended position of the forearm. There was decided loss of temperature over the outer aspect of the forearm, and sensibility had diminished in the same situation, as well as over the back of the wrist and hand. He complained of no pain in the arm, but there was a tender spot at the extreme end of the scar, just external to the biceps tendon and about three inches from its insertion. The limb was much wasted, the forearm being at its widest part nearly one inch less in circumference than its fellow. The electrical reaction of the muscles was not tested. On March 10th, 1881, the operation of suturing the nerve was performed. Esmarch's bandage having been applied, the lower end of the nerve was easily found under the scar; the upper one which seemed to have retracted, was discovered by a little dissection. It terminated in a large bulb, larger than a common pea; the other end was somewhat atrophied. The two ends were rather more than an inch apart. A little was taken off the lower end of the nerve, so as to refresh it, and a portion (but not the whole) of the bulbous upper end was removed. Then, on extending the limb, it was found possible to draw the ends of the nerve together, and a catgut suture was put through the sheath on one side and a suture of fine silk on the other, avoiding the nerve-fibres as far as possible. Examination of the portion removed from the bulbous end showed marked increase of endoneurial connective tissue pressing upon and constricting the nerve fibres, and atrophy of some of the latter; no fatty degeneration. The operation was performed antiseptically, and the wound united by first intention. On March 14th it is noted, "There is a tingling sensation experienced in the arm, localized to no particular area," and on March 15th, "There certainly seems to be some power of extension returning, for with the wrist held tight to the splint he can make slight movements of extension of the fingers." A few days later it was thought that the sensation at the back of the hand was more perfect. This, however, was dubious. He then left the hospital at his own wish, and nothing more was heard of him till March, 1883, two years after the operation, when he returned to show how completely he had recovered. There is now no perceptible difference between the two arms, though perhaps the affected arm (the right) is somewhat less muscular than it would naturally be. Sensation, however, is perfect, and all the movements of extension of the wrist and fingers are performed as well on one side as the other. He says that it was about a year before the improvement was very obvious to him; but then it began to amend rapidly, and now he uses the limb as well and easily as before the accident.

Remarks.—There have been now many cases published in which the operation of uniting the divided ends of large nerves has been practiced both immediately and at considerable intervals after their division. The case which most impressed the minds of surgeons, and which brought this operation prominently before the profession, was Mr. Wheelhouse's¹ in which a man was admitted into hospital on account of paralysis of the lower limb nine months after section of the great sciatic nerve. He was placed under Mr. Wheelhouse's care with a view to amputation, so completely useless was the limb; but regained the use

¹ See Mr. Favells' Address in Surgery, Brit. Med. Jour., Aug. 5th, 1876.

of his leg after the suture of the divided ends of the nerve. This man, as I understand from notes of his case which Mr. Wheelhouse has kindly sent me, was discharged from the hospital three months after his admission with slight but obvious symptoms of returning motion and sensation, and was able to return to work as an agricultural laborer in four months from that period, or rather more than half a year after the operation. He was again seen nearly two years after his first admission, when there was still some remnant of his injury, the leg being colder, the foot more extended, the limb rather smaller, and one of the toes ulcerated in consequence of its extended position. Ultimately this toe was amputated and an instrument applied to remedy the position of the foot, and when last seen he was in Mr. Wheelhouse's words "cured and able to do anything." This brilliant success led to the adoption of the operation in many similar cases with varying success; and also led to the practice of uniting the divided ends of nerves in recent wounds.² The latter class of cases, however, differs in many respects from those of old injury, for it is a matter of constant experience that nerves may regain their function, not only after complete division, but even after resection of considerable portions of their entire trunk. The trunk of the nerve in these cases is reproduced by a process which has been completely studied experimentally. Dr. Brown-Séquard³ exhibited to the Société de Biologie at Paris the hind limb of a monkey, "on which in two months and twelve days nearly the whole extent of the sciatic and tibial nerves had been reproduced after an excision of twelve centimetres (4½ in.). The motor and sensory functions had not yet returned." It is therefore impossible to say in any case of recovery of function after immediate suture whether the same result would not have followed had no suture been used.

Is the case of old injury and persistent loss of function really different? In other words, in such a case as Mr. Wheelhouse's, where the parts supplied by the divided nerve have been paralyzed for a long period, will they recover if left to themselves? That they do so in some cases I think certain. I perfectly remember the case of a police constable who, in the year 1866, received several stab-wounds, one of which severed the musculo-spiral nerve. He was treated for the direct effects of his injuries in Guy's Hospital by Mr. Birkett, but was under my observation for a considerable period afterwards, being employed at the Metropolitan Police Office in some light work. For a long time the hand and wrist dropped, and the extensor tendons were replaced by an apparatus of elastic bands. But slowly and after a long period of total paralysis the functions of the limb returned, and I have ascertained that the restoration of function is now complete. The man was not able to dispense with the apparatus for two years and a half, and it was about two years before any trace of improvement commenced. Now, however, both motion and sensation have so entirely returned that the arm is almost as strong as the other, and the only thing he complains of is that he feels the cold more in that arm. In that case, however, Mr. Birkett, who had charge of the case and, I believe, reported it in *THE LANCET* about that date, believed that the whole trunk of the nerve had not been severed, and such a partial injury would of course be more favorably situated for repair than one in which the severed ends of

the nerve are separated by a considerable interval as in my case. Dr. Brown-Séquard's experiment shows no doubt the theoretical possibility of the regeneration of a large extent of nerve in animals after excision, and some of the cases in which the functions of a nerve have been regained after excision of a portion of its trunk on account of neuralgia prove that the same result may occur in man. Yet we must allow that such a favorable issue is highly dubious, and in a case like that under consideration, in which a long period has elapsed, and where the upper end of the divided nerve is quite separate from the lower, and its nervous filaments are included in a large bulb of fibrous tissue, any restoration of its anatomical continuity appears hopeless.⁴

I have recently had the opportunity of consulting the Jacksonian Prize Essay by Mr. Bowlby on *Injuries of Nerves*. As this essay is not yet published (though it is, of course, accessible to the members of the College), I will not take the liberty of quoting from it, but I may say that Mr. Bowlby thinks that after the atrophy and subsequent regeneration of the filaments of the distal end of the nerve, which we know to take place as a consequence of their separation from the proximal end, there ensues in unfavorable cases a secondary atrophy. If the parts of the nerve be reunited before this secondary atrophy has set in, the operation will probably succeed, but not in the opposite case. This view is both ingenious and probable, and lends much force to the doctrine that in any case in which the symptoms of paralysis are persistent after complete division of a nerve its pieces should be sought for and reunited at the earliest possible period. The fact that spontaneous recovery does sometimes occur after a long period of total loss of function, though indubitable—as in the striking instance above related—is not to my mind any argument against this doctrine, for recovery is very uncertain without operation, while after suture it is both more probable and more speedy. At least such seems the result of our present experience.

I am not able to point to any statistical collections of cases which are really of any great value, for the total number of published cases of secondary suture is not large, and an equally large, or probably still larger, number are unpublished. Thus, in the article on *Nerve Suture* by Tillmanns, in a recent volume of Langenbeck's *Archiv*,⁵ thirteen cases of secondary suture are tabulated. Of these I should class eight as successful, three as dubious, and two as failures. But in two at least of the successful cases the success, though as much as could be hoped for, considering the time after operation, was not yet perfect. On the other hand, the three dubious cases were reported too soon after the operation to be classed as unsuccessful. Tillmanns' collection, however, is evidently imperfect, for he makes no mention of Mr. Wheelhouse's operation, which is the leading case in

² An interesting paper On the Immediate Suture of Divided Nerves, by Mr. H. Page, will be found in the *Brit. Med. Jour.*, May 7th, 1881.

³ *Comptes Rendus de la Soc. de Biol. de Paris*, 1882, p. 30. *System of Surgery*, 3rd Edition, Vol. ii., p. 214.

⁴ Dr. Weir Mitchell says: "The future of cases of entire severance of nerves will depend on the amount of nerve cut away, the sequent neuritis, and the fate of the surrounding tissues; but even when the portion lost has been an inch or more, we should not absolutely despair of a large return of function, when we remember the extraordinary regeneration of nerves after excisions for neuralgia." *Injuries of Nerves*, p. 226. This observation, however, and those which follow it as to the results of treatment refer to a period very soon after the accident, not to the prognosis and treatment of old injuries. And Dr. Mitchell's remarks on nerve suture also apply only to the immediate treatment of wounds. Mr. Page says, and I have no doubt with truth (after a proper distinction between clean cuts and lacerated wounds) that "the usual history of divided nerves in lacerated wounds has been one which has not told us of repair and of restored function, but rather of abolished function, neuralgia, and the many disturbances of nutrition to which such nerve lesions give rise."

⁵ *Ueber Nervenverletzungen und Nervenheft*, *Archiv f. Klin. Chir.*, 1882, vol. xxvii., p. 1.

this country, and, though not the first operation of its kind, was, I believe, original, as far as Mr. Wheelhouse was concerned, and first called the attention of English surgeons to the subject. Mr. Bowlby's paper contains references to twenty cases of secondary suture, with a much larger proportion of failures, in fact, I believe only six are classed as perfectly successful; but then Mr. Bowlby observes, what is a fatal objection to the value of the statistics of this operation hitherto, that in many of the most successful cases, as in mine above related, the success has been so long delayed that accounts which are published only a few weeks after operation are quite worthless. Thus, in a patient of Mr. Pick, on whom an operation very similar to the one above reported was performed on the musculo-spiral nerve, the operation was thought to have failed, and the lad was discharged, apparently with no benefit. Through the kindness of Mr. Coltart, of Epsom, we have lately ascertained that he has now, like my patient, entirely recovered. Mr. Pick may possibly record the case.

With regard to the time after the injury at which the operation should be undertaken, we are not yet in a position to lay down any certain rules. Obviously, if the parts are quite quiet and the wound completely healed, there can be no motive for deferring the operation, and both the theoretical considerations insisted on by Mr. Bowlby and the practical experience of cases warn us against too long delay. Yet a case is on record in which Mr. Jessop⁶ operated on the ulnar nerve with at any rate partial success nine years after its division. I lately united the median and ulnar nerves eight days after the accident, and was led to suspect that it would have been better to have waited till all inflammation in the wound had passed over, or even till the wound had entirely united; but the case is not yet complete, and further experience is wanted on this head. One thing I think we are justified in saying—viz., that there has been no instance hitherto recorded of any harm from the operation—no tetanus or acute neuritis—and this consideration adds force to the rule now, I believe, generally adopted to unite by suture the ends of all nerves which are seen divided in recent wounds.

A question is often raised in this operation as to the method of passing the sutures, whether through the tissue of the nerve itself or through the sheath only. I think all that we need say on this head is that the sutures should have a firm hold; whether they be passed through the thickness of the nerve or not seems of little consequence. In only one of the thirteen cases above referred to as quoted by Tillmanns was the precaution taken of including only the sheath in the suture. The material of the suture is probably a matter of some importance. Catgut is unirritating, but is not sure to hold beyond a few days, so that it seems a good plan to reinforce the catgut suture with one or two of fine silk (as in my case) or horse-hair. It does not seem necessary to remove more than a very small portion of either end of the nerve. In the above instance I purposely took away very little, in order to obviate tension as much as possible. Had the separation between the cut ends been less, I should have liked to excise the whole of the bulb on the upper, and all the wasted part of the lower, end; but I thought it better under the circumstances to remove very little, and the result justified the course adopted.

THREE CASES OF SUCCESSFUL REMOVAL OF TRACHEOTOMY TUBES.

By HENRY SMITH, M.B. Lond., S. Sci. Cert. Camb.

AMONG the legacies bequeathed by house-surgeons to their successors, it is no uncommon thing to find a child on whom tracheotomy has been performed for temporary laryngeal obstruction, and who beyond wearing a tube is otherwise well. It was my fortune to inherit three such cases on my appointment as house-surgeon to the Children's Hospital, Great Ormond-street, and for permission to publish them I am indebted to the kindness of Mr. Thomas Smith and Mr. Howard Marsh, under whose supervision and with whose approval the treatment adopted was carried out.

CASE 1.—William P—, aged thirteen months, was admitted to the Children's Hospital with diphtheria, and tracheotomy performed on Sept. 27th, 1880. In June, 1882, he was still wearing an indiarubber tube, and, though now able to do without it for hours together in the daytime, he had never slept without it since the operation. He could run about the ward without dyspnoea; his general health was fairly good, though he suffered from cough with copious expectoration of mucopus through the tube. Voice good; occasional sickness. On the evening of July 7th, 1882, the tube, having been out since the morning, was not replaced.—July 8th: Has passed a restless night, with noisy breathing and well-marked recession of the lower ribs.—10th: The tube, which had been out since the 7th inst., was replaced, as the child looked pale and languid, owing to broken rest. The little fellow, who was a general favorite in the hospital, had not hitherto been restricted in his diet either as to quantity or quality, and his occasional vomiting could generally be accounted for by some indiscretion of this kind. He was now put upon a plain diet and all indigestible food withheld, with the result that when the tube was left out on the 26th July no further occasion arose for its being used again. At first the opening into the trachea was covered with a piece of strapping, but as this could not easily be kept in place, a small pad of cotton-wool covered with gauze was substituted for it, and answered the purpose better. The boy's health improved very much—he became livelier, lost his cough, and his voice grew stronger, before he was transferred on Aug. 31st to the Convalescent Home at Highgate. When seen on February 22nd, 1883, he was very well, but an opening large enough to just admit a small probe was left in the trachea.

CASE 2.—William M—, aged four years, came under Mr. Marsh's care at the Children's Hospital on June 6th, 1882, wearing a silver tracheotomy tube. The operation was performed for laryngeal spasm on March 30th, 1881, at the Westminster Hospital, where several attempts had been made to get rid of the tube. On admission to the Children's Hospital he was well nourished and in fair health, but was troubled with cough and free expectoration of thick stringy mucopus. The tube was changed night and morning with considerable difficulty; for, objecting to be interfered with, he invariably worked himself into a passion, and struggled so violently that he had to be held down while it was being done. At these times he suffered from marked dyspnoea, clearly brought on by his own ill temper. Mr. Marsh, pointing out the injury likely to result to the delicate mucous membrane of the trachea from the constant pressure of a silver tube, told me to substitute an indiarubber one as soon as possible; so on June 20th, when the child had been got more under control, a Baker's tube was used; this he

⁶Tillmanns, op. cit., Case 11, Brit. Med. Journ., December 2nd, 1871.

liked better than the silver one, and resisted its changing much less. After removing it on the morning of June 27th, and noticing that he breathed quite comfortably, I determined to leave it out; but this not meeting with the boy's approval, he threw himself into a rage, and tossed himself about until he had brought on such urgent dyspnoea that it required some firmness to resist the temptation to replace the tube, which he called for; however, he was made to understand that it would not be put in, so after awhile he gave in and quieted down. He next refused to eat his dinner, saying he should choke without the tube, but a good appetite, with a little persuasion, furnished the best argument against this. He was kept quiet in bed and strictly watched. He went on with little difficulty of breathing until the evening, by which time the tracheal opening by contraction and puckering of the skin had become all but occluded. On falling asleep the dyspnoea became very great, and was accompanied by such recession of the ribs, that had he been suffering from acute laryngeal obstruction his trachea would certainly have been opened. On waking up, however, he breathed easily again. He was accordingly awakened at intervals, and so he passed the night. Every precaution was taken for dilating the opening at a moment's notice, should it have been thought absolutely necessary. The next day, though rather exhausted, the little fellow felt pleased at having gone a night without his tube, and refused to have it again when its reintroduction was suggested to him. The next night he slept right on without having to be roused, and continued to improve so that no further need arose of resorting to the tube. His cough left him and the wound closed. He left the hospital on August 3rd, for the Convalescent Home at Highgate, well. For some time after the tube was removed the breathing, during sleep, both in this case and the one above, was of a noisy, snoring character, but never stridulous.

CASE 3.—Frank S—, aged four years and five months, was admitted to the Hospital for Sick Children for diphtheria and tracheotomy performed on April 11th, 1882. In June he was still wearing a Baker's tube, as he had been liable to sudden attacks of dyspnoea if it were left out. These were supposed to be due to granulations in the trachea, as bleeding occurred each time the tube was changed. He suffered from bronchial catarrh and coughed up thick mucus through the tube. Voice good. On June 23rd an attempt to dispense with the tube, by gradually shortening it, was begun at Mr. Marsh's suggestion, with the result that no more bleeding occurred, but when the tube was about three-quarters of an inch long the breathing was worse than before. This was due, perhaps, partly to the end of the tube being against the posterior wall of the trachea, and partly to the fact that the child had caught cold and was then suffering from general pulmonary catarrh, as a longer tube did not relieve the dyspnoea entirely. On June 29th the tube was finally removed, the boy having gained confidence from seeing that his neighbor (Case 2) had got rid of his, and by the next day the wound had closed. On July 13th the patient was discharged well. This case differs from the other two chiefly in the much shorter time he had worn a tube and in its final removal being free from difficulty.

The importance of dispensing with the tube in cases of tracheotomy performed for temporary laryngeal obstruction as soon after that obstruction is removed as possible is generally admitted, because, apart from the inconvenience of wearing a tube and the actual injury it may do to the trachea, there is always danger in trusting these

cases, if children, to the care of friends, for should the tube become dislocated and a sudden attack of dyspnoea come on, a child would naturally be afraid and struggle, while his friends, alarmed, would stand helplessly by perhaps, or fail to replace the tube in time to save the child's life. Such a case has been known to occur. Again, the chronic bronchial catarrh which, I believe, is invariably present so long as the tube is worn, and which is probably due largely to breathing air not previously filtered, as it were, through the nose and mouth, as normally, is another reason for restoring the natural mode of breathing. One difficulty in the early treatment of these cases is the fear children have when the tube is taken out. So long as it is in they breathe without any trouble, but when out they have to make an effort they are not used to, and frequently, too, spasm comes on and they grow alarmed; but by leaving out the tube often, even for a minute or two, and by gaining the confidence of the children in other ways, this difficulty is generally soon removed. During the last ten months at the Children's Hospital in only two of seven successful cases of tracheotomy for diphtheria had I any great difficulty in the removal of the tube, and these yielded to importunity.

In a paper in vol. xlviii., p. 227, of the Medico-Chirurgical Society's Transactions, Mr. Smith has shown that tracheotomy, whether performed for diphtheria or acute laryngitis, "is liable to cause undue irritability and disorderly action of the muscles of the glottis, and to interrupt their usual rhythm," and that "perhaps this is the effect of the enforced cessation of all exercise of function in the larynx which the operation entails;" and in explanation of those cases where the tube can be dispensed with, except during sleep, he suggests that "the influence of the will may be necessary to regulate and secure the due action of these muscles, the perfection of whose movements has been impaired, and that on this account inspiration through the larynx during sleep is impossible." Considering, then, these things, may we not hope to restore to their normal involuntary character the impaired functions of the disused laryngeal muscles by letting them strive with the difficulty during sleep; in other words, by exercise, though their first efforts may be disorderly and clumsy, as in the cases given above?

CONDENSED MILK AS FOOD FOR INFANTS.

By F. DAWTREY DREWITT, M.A. M.D.,

Assistant Physician to the Victoria Hospital for Children, and to the West London Hospital, etc.

A TRUE Englishman's natural dislike of everything which has even the appearance of being unnecessarily artificial has caused a good deal of prejudice against condensed milk, and just now there seems to be such a marked exacerbation of that prejudice that a very valuable modern discovery is in danger of falling into disrepute. Everyone who has had anything to do with the crowds of sickly, ill-fed children with which London abounds must be aware that not only during the prevalence of that most fatal illness, summer diarrhoea, but through every month in the year, a large amount of infantile life is continually being saved by its use, and it would be a matter for regret if condensed milk should be condemned by those who have not yet attempted to give it a fair trial. The commonest objection to it is that it is too sweet. Of course it is very sweet; and in spite of our instinctive liking for sweet things, whether ripe fruit or raisins, chocolate or sugar-plums, an instinct

which is so marked in childhood, few persons would think of giving a baby condensed milk when the mother had milk enough of her own, and was able to suckle the child. But, on the other hand, cow's milk is not sweet enough, and when compared with human milk is very indigestible. It can only be made at all a possible food for babies by adding to it sugar and water and so making it more like condensed milk, but even then it is not so digestible as condensed milk; and it is not difficult to see the reason. Place some cow's milk with its added sugar and water in a wineglass, mix in another glass some condensed milk with water till it has, as far as one can judge by eye, about the same consistence and opacity; stand the two glasses side by side, and add to each, as the stomach does, a few drops of dilute nitrohydrochloric acid and watch the result. They both curdle, but the curd formed in the wineglass of condensed milk is distinctly more friable, more mixed with the watery part than the curd in the cow's milk, and after standing for some time this is still more evident, for the curd in the fresh milk separates completely from the fluid into a firm clot, while in the condensed milk it remains more granular, more broken up, and more mixed with the fluid. And, except among the very poor, who cannot afford to buy cow's milk, it is this hard clot of cow's milk which is more than anything else the *fons et origo* of that only too well-known incessant cry of dyspeptic hand-fed babies, and of all the vomiting and diarrhoea which so often carry them off—that hard indigestible clot, of which there is so little in human milk, and of which the analytical reports say with precise truth, as they might of a dinner of cheese, that it is so “nutritious,” so full of “nitrogenous matter.” And it is actually because of the small proportion of clot or casein which condensed milk contains that the second objection to it is made by the analysts. This clot or casein, which is so much the bane of hand-fed infants that the addition of oatmeal-water or gruel to cow's milk, even before the child is able to digest any starchy food at all, often makes the milk more digestible, for the simple reason that the suspended particles in the oatmeal-water are interspersed through the coagulum which is formed when the milk enters the stomach, and so help to make it soft and friable, just as water-weeds frozen into ice make the ice brittle and dangerous to skate on.

Condensed milk, of course, varies in quality, and it is important not to use any of the common cheap kinds. Of those which are generally seen in the shop windows, the out-patient mothers at our children's hospitals generally prefer the original Anglo-Swiss milk, the “one with the milkmaid on the tin,” as they call it, and it seems to me as good as any. And lately some unsweetened Swiss milk has been prepared, which has the appearance of being good, and certainly deserves a trial.

Then as to condensed milk causing rickets, I can only say that I found it very difficult to trace rickets to condensed milk properly given. Most hand-fed children are delicate, a very large proportion die, and a still larger proportion have some tendency to rickets. Oatmeal and other gruels seem to be directly concerned in bringing it about; but though I have seen very many children who have had to change their diet to condensed milk, I have seen none who have thereupon become rickety. One case I do remember among the out-patients at the Victoria Hospital for Children of a child a year old who had advanced rickets. It had been fed on condensed milk, the mother said, from birth, and yet it had never thriven. She had done her best for the child; the milk was of the best brand, and she never spared

it. She spread it thick on slices of bread, and gave it to the child whenever it cried. “and yet,” the poor woman said, “the child doesn't get on.” That condensed milk given in that form to babies, even without the bread, may cause rickets I do not attempt to deny. It appears to me to be rather to the credit of condensed milk that the baby survived.

Everything depends upon how condensed milk is given. It ought to be diluted with ten or twelve times its bulk of water, or with more than that if the child is thirsty; and if any tendency to sickness remains, about one-sixth of the water ought to be lime-water, which still further neutralizes the action of the acid of the stomach and delays the formation of the clot. The water should be boiling when added to the milk, especially in the summer. It gets rid of the infusoria in bad water or in a long-opened tin. Once a day a teaspoonful of Mellin's food may be given with the milk. It is one of the best of the semi-digested foods, and children like it. With such a diet infants who at once vomit cow's milk, who keep their knees drawn up in pain, who are wasted and wretched looking, or in danger of dying from diarrhoea, become contented and happy, rapidly gain flesh, and are able after a time to begin a little weak cow's milk and water or whey. And it is thus as a bridge across a bad time that I consider condensed milk to be of the greatest importance; but the bridge may extend over some months, and in the mean time the irritability of the intestinal tract subsides, and other forms of nourishment can be gradually administered.

Three or four years ago when I was a resident medical officer at the Children's Hospital in Great Ormond-street, where good cow's milk could always be procured, and where it was given with care and discretion, condensed milk formed nevertheless a valuable article of diet, and was and probably is still used in all the medical wards; but among the poor in their own homes, where the milk is often bad throughout the year, and sour for at least three months of it, condensed milk is simply an inestimable boon.

Brook-street, W.

AN OPERATION FOR THE RADICAL CURE OF FEMORAL HERNIA.

By WALTER H. BROWN, M.R.C.S.,

Surgeon to the Leeds Public Dispensary; Demonstrator of Anatomy, Leeds School of Medicine; Late House-Surgeon, Leeds General Infirmary.

A FEMALE, aged sixty, had for years been troubled with a large femoral hernia. Many varieties of truss had been tried, but all failed to afford relief, and the hernia has been strangulated two or three times for short periods. For reasons which I will give below I deemed it desirable to make an attempt to effect a radical cure, to which end I performed the following operation.

I made an incision as for strangulated bowel, and opened the sac. I reduced the bowel, and then found that the crural ring was large enough to admit three fingers; lying at the posterior part of the sac was a large portion of omentum, which was adherent to the sac, and, as in separating these adhesions the omentum was freely handled, I removed the portion which had been in the sac, and tied the stump with a stout silk ligature, leaving the end of the ligature long. I then dissected out the sac, and, after ligaturing the neck, removed the entire sac. I had next a large piece of omentum removed by a ligature within the abdominal cavity just opposite the cru-

ral ring, the ligature being brought out through a small opening I had made in the peritoneum close to the ligatured neck of the sac. It now occurred to me that I might use this omentum as a plug to close the crural ring. I therefore drew the omentum down until it was in contact with the neck of the sac, and found that it remained in its new position without much tension. I thus had the ligatured neck of the sac and the ligatured stump of the omentum to resist the return of the hernia. The wound was closed in the ordinary way, the two silk ligatures being brought out at the lower end.

It is unnecessary to give further details of the progress of the case as the woman made a good recovery. There was no disturbance of temperature, the wound healed by first intention save at the point through which the ligatures came; the ligature on the neck of the sac came away on the tenth day, but the one on the omentum remaining firm at the end of the sixteenth day, it was cut short and the wound healed in two days.

The operation was performed in accordance with Professor Lister's system of antiseptics, and the wound dressed with salicylic silk as introduced by Mr. McGill, of Leeds. It is now five months since the operation, and the result so far has been perfectly satisfactory. There is no hernia, the woman is enabled to perform her household and other duties in comfort; she wears a pad similar to that of an ordinary truss over the scar in order to support the necessarily weak ring. I am fully aware that an operation such as I have described is open to criticism, and I therefore wish before closing to draw attention to my reasons for operating. First, the patient being weary and discomfited by her ailment was willing to accept the risk of operation and possible failure after they had been fully explained. Secondly, a fair trial had been given to mechanical support, and the results had been entirely unsuccessful. Thirdly, I deemed it right to attempt a cure by operation, bearing in mind the fact that of late we have been in the habit of dealing more freely with cases which involve interference with the peritoneum. The brilliant results obtained by Mr. Banks, of Liverpool, and Mr. Spanton, of Hanley, in dealing with inguinal herniæ, led me to undertake the operation just described, and Mr. Spence, of York, has performed a similar operation with like success.

Of course the number of cases in which one would operate would be limited to those in which mechanical support had failed to give relief.

Leeds.

COMPLETE SUPPRESSION OF SALIVA AFTER MUMPS.

By A. St. C. Buxton.

COMPLETE suppression of saliva in both parotids and both submaxillaries is of extremely rare occurrence. A case has, however, quite recently come under my care, the features of which were as follows.

A lady of over middle age, while in the country, contracted mumps. As soon as the acute inflammation of the salivary glands had subsided, and all pain and swelling had disappeared, she returned to town, and I was called in to see her. She spoke with great difficulty, and was forced to sip water at very short intervals in order to be able to speak at all. She told me that ever since the pain in the parotids and submaxillaries had vanished her mouth had remained persistently quite dry.

On examination I found her tongue, gums, cheeks, palate, and pharynx—in fact as much as it was possible to see of the mouth and throat—in a fearfully dried up state. The tongue was thickly coated with a tough brown fur, which was horn-like. So hard was it that on striking it gently with a metal probe a distinct sound as of tapping the cover of a book with a cedar pencil was produced. The rest of the interior of the mouth was also extremely hard, and she experienced great stiffness in opening and closing the jaws. No swelling or tenderness on pressure existed about the salivary glands, and the orifices of Stenson's and Wharton's ducts were plainly seen. It is needless to say that she retained no sense of taste. She complained of the heat felt in the mouth, but the temperature was quite normal. Her sleep was greatly disturbed at night, and she awoke at short intervals with the most intense longing for cold water; but drinking afforded no relief. It is worthy of notice that for some three or four years she has been affected with paralysis agitans, both limbs of the right side being very shaky. She enjoys otherwise excellent general health, and, notwithstanding the trembling in the right leg, is able to walk well, and takes plenty of exercise out of doors. There was a great deal of difficulty in feeding her, for she absolutely refused milk and beef-tea, and the effort necessary to swallow jelly and other semi-solid food was very great. I prescribed gargles of potassic chlorate, and ordered glycerine to be applied locally to the interior of the mouth and surface of the tongue. I ordered also an infusion of fifty grains of jaborandi to be taken daily for four days. Although the glycerine afforded some slight relief to the mouth by its mechanical effect as a lubricator, there was positively no effect produced on the salivary glands. Copious perspiration (from the jaborandi) took place, and left her feeling very weak. I therefore abandoned that drug, and substituted mercuric iodide dissolved in excess of potassic iodide. I gave large doses for ten days with no result beyond the production of a feeling of malaise. It was evident that something must be done soon to excite the flow of saliva, for the patient had been in this condition for nearly three weeks, and was in the lowest depths of despair and misery. The next step which I took therefore was the application of a continuous current of electricity generated by a 30-cell battery (pint cells) of the Leclanché type. I introduced a very fine silver probe into Stenson's duct on one side, and pushed it gently on until I met with obstinate resistance to further entrance. The probe had then entered the duct about an inch. My assistant held the positive electrode firmly to the nape of the neck, while I cautiously applied the negative pole to the free end of the probe. I instantly noticed a contraction of the fibres of the buccinator, but as no pain resulted I fixed the wire to the probe and allowed the passage of the current to continue for ten minutes. While the probe was in the duct a thick white liquid oozed from the orifice. It looked something like pus. On removal of the probe a single drop of clear saliva followed it. Thinking that it was just within the bounds of possibility that a small abscess had existed somewhere about the duct and had been overlooked, and the probe had simply opened it and so cleared the obstruction to the flow of saliva into the mouth, I determined to thoroughly explore the other Stenson's duct and both Wharton's ducts before applying the current again. I passed the probe into all three remaining ducts as far as possible, removed it, compressed and squeezed the parts, but no pus followed. I repeated this again, but without finding a trace of pus. I then applied the current as before, with

precisely the same result as in the first instance. I had the satisfaction of seeing four drops of saliva, one at the orifice of each duct. I visited my patient an hour afterwards, and a gentle flow of saliva was discernible from each duct. For three days the quantity steadily increased, without any further use of the current, and at the end of that time almost the normal amount was being poured out. The mucous membrane lining the mouth and the tongue was rapidly resuming its natural appearance. I have not seen my patient since, but I received a letter two days later stating that she had greatly improved; that the tongue was feeling quite comfortable, and that she was able to taste. A somewhat similar case is mentioned in the *London Medical Record*, 1877. The suppression of saliva resulted on that occasion from tonsillitis, and the flow was restored by stimulation by continuous current "frequently reversed." I did not reverse my current, preferring to submit the glands to the continued action of the negative pole. I find no mention of the condition in any medical work in which I have searched, including Quain's Dictionary of Medicine.

The Grove, W.

ON A CASE OF LABIO-GLOSSO-PHARYNGEAL PARALYSIS OCCURRING AT THE AGE OF TWENTY-THREE YEARS.

By A. CHAMPNEYS CLARKE, L.K.Q.C.P.I., etc.,

On November 13th, 1882, I was sent for to see Mrs. B—, aged twenty-three years, the wife of a coal miner. I was informed that she had always enjoyed good health, had borne one healthy child, and was now six months advanced in pregnancy. The previous evening, while shoveling coals into the coal-house, standing at the time in the snow, she had been seized with what was described as a sort of stroke. I found her suffering from paralysis of the left side of the face and left arm; articulation was imperfect owing to paralysis of the left half of the tongue, which when protruded was drawn towards the right side of the mouth. She gradually recovered from the facial paralysis, and in a great measure the use of her left arm, only complaining of its being weak. On Feb. 11th I was again sent for to see Mrs. B—, as she was said to have had another stroke. On arrival I found she had just been delivered of a healthy child, after a short and easy labour. She was completely unable to articulate or swallow, the tongue lay immovable on the floor of the mouth behind the teeth, hollowed in the centre; she could not close her lips completely, and the saliva dribbled from the sides of the mouth. The patient, an intelligent woman, complained (by signs) of great pain in the neck and throat, the muscles of which were contracted. She was at first fed through a tube, but disliking this means she was spoon fed, the spoon being introduced well back. She made a rapid convalescence from her confinement, and at the end of a week could swallow with considerable difficulty, placing the food (gruel and beef-tea) well back in her mouth and throwing the head back. The stiffness passed off, and she can now (March 21st) take fluid and semi-solid food fairly well. She is able to go about her household duties, but the tongue still remains paralyzed, though by a great effort she can raise it as far as the edges of the teeth. She can close the lips at will, but when not called upon to do so the mouth hangs open and the saliva dribbles from the edges. She cannot articulate a single word, nor any letter in which the tongue has to be used.

The points of interest in this case are, I believe, the hitherto unknown occurrence of glosso-pharyngeal paralysis at so early an age; its being preceded by an attack of paralysis of the left arm and left side of the face, evidently brought on by exposure to cold during great exertion; the recovery from this attack, and after a period of three months the occurrence of an altogether different disease, bulbar paralysis, at a time when she was called upon for great exertion—that is, when labour commenced; and the gradual improvement from this disease. The case is still under my care, and will be watched with a view to future report. The treatment has been small doses of strychnia with iron, and faradization.

Durham.

ON THE USE OF JABORANDI OR PILOCARPINE IN THE COLLAPSE OF SCARLATINA MALIGNA.

By ROBERT PARK, M.D., etc.,

Physician for Diseases of Women and Children at Anderson's College Dispensary, etc.

On March 3rd I was sent for to see A. S—, aged five years who had been seized suddenly, early on the morning of the previous day, with violent vomiting and purging. Nothing would "lie on his stomach," even water, the mother said. When I saw him he exhibited all the objective symptoms of collapse. He moaned occasionally, "Oh, my belly." There was also the characteristic smell which exhales from the body of many patients with enteric or scarlet fevers. In the present case diagnosis was impossible. I inclined, however, to the belief that it was a case of scarlatina maligna, the season of the year and the history putting cholera out of the question, and such a sudden onset being very unusual for enteric. Moreover, the abdomen was flaccid and flabby. Temperature in axilla 101.5°; pulse 160. I ordered half a teaspoonful of brandy every hour, and the following mixture:—Liquid extract of jaborandi, three drachms (Richardson's); solution of acetate of ammonia, two ounces; syrup of poppies, four drachms; chloroform water to four ounces. A teaspoonful every two hours.

March 4th.—This day the child was very much *in statu quo*. However, purging had ceased, though he was sick, and vomited occasionally. He had scarcely passed any water during the last twenty-four hours. Eyes half open and glazed. Temperature in flexure of thigh, 96°. Dose of jaborandi doubled, and to be given every hour. Enema of turpentine and beef-tea; milk and soup and brandy *ad libitum*. Hot mustard applications were ordered also to the calves of the legs and feet, and to the abdomen. After a few hours, there being no signs of the physiological action of the jaborandi, unless, perhaps, a slight increase of strength in pulse, I gave him a few drops of amyl nitrite to sniff. This gave a temporary flip to the heart, but he soon relapsed into a semi-comatose condition, and it seemed as if death was going to be the issue. Thoroughly satisfied, however, that jaborandi was the remedy if it could only be got into circulation, I had some fresh solution of the active principle (pilocarpine) prepared and injected hypodermically, one-thirtieth of a grain, into the inner surface of the thigh, and this failing to produce any characteristic phenomena, I injected another one-thirtieth into the arm about twenty minutes afterwards. This produced an immediate improvement in the pulse, and he became more restless, and in a short time asked to be lifted, when a copious flow of clear urine was

passed, together with a watery stool, dark brown in color. None of the characteristic phenomena of pilocarpine were produced.—5th: The child has neither vomited nor purged during the night, but has passed water. There is a slight flush on the face; no sweating; no ptialism; extremities not so cold; respiration no longer sighing; pulse 140, and of better tone; ears warm; eyes no longer glazed; and upon the whole reaction, though faint, may be said to be fairly established. Treatment continued.—6th: Reaction complete, but not excessive. Pulse 140; temperature 102°.—7th: None of the symptoms peculiar to either enteric or scarlet fevers have made their appearance, but the strong fever smell is no longer obtrusive.—10th and 11th: The pulse still keeps quick, 140; temperature from 101° to 102°. The very thick creamy fur which has completely hidden the tongue for the last two days completely exfoliated to-day (11th), and has left the tongue raw and clean, and so tender that hardly anything can be borne by it. The same thing seems also to have happened with the stomach, as the little fellow positively screams when food enters it.—12th: The child is comparatively well to-day, but his pulse still keeps to 140, and he is very weak. He has also had, in answer to a small dose of castor oil, two stools of a tarry description. The urine examined on the 15th was normal in all respects, there being neither albumen nor tube casts present.

Remarks.—This case offers some special features for consideration—namely, the completeness and prolonged duration of the collapse, the exfoliation of the gastro-intestinal mucus, and the limited duration of the entire illness (eight days). The only case at all parallel with it that I have met with was at Stewarton, Ayrshire. It occurred in a boy, about six years old, the last of a family of four to take the fever. The vomiting, purging, and collapse, however, were of short duration, and a faint rash did appear on the skin, and recovery followed. The etiology of this case is very obscure, as no scarlet fever is known of in the neighborhood, I am informed by favor of Dr. Russell. This fact, taken with that of recovery, makes me almost think it may have been an acute gastro-bilious attack, or acute gastro-intestinal catarrh; but then the sudden onset, peculiar odor, pyrexia even during collapse, suppression of urine, and desquamation of gastro-intestinal mucus, appear to negative this idea. My theory is of course that the exanthem was determined to the gastro-intestinal surface, there causing complete suspension of all alimentation and rejection of the contents of the alimentary canal, and subsequent desquamation of the mucous membrane. In fact it became an endanthem, and in this connection it may be mentioned that the winds have been unusually bitterly cold and piercing here since March came in. The urine was not examined till the 16th, when it was found to be in all respects normal, and at this date the child is slowly gaining strength, though not yet able to walk.

Glasgow.

A CASE OF POPLITEAL ANEURISM.

By WARRINGTON HAWARD, F.R.C.S.,

Surgeon to St. George's Hospital.

THE following case seems worth recording, as a contribution to the evidence bearing upon the behavior of the catgut ligature as applied to large arteries in their continuity.

R. N—, aged fifty-seven, a butler, was admitted into St. George's Hospital, under my care, on July 8th, 1882, with an aneurism of about the

size of a cricket-ball in the left popliteal space. The tumour had the characteristic expansile pulsation, which was felt most forcibly on the inner side, where also it was most prominent. It could be moved on the bone; and its pulsation stopped when pressure was made upon the femoral artery in the groin. A loud bruit was audible over the tumour. The leg was swollen and the skin oedematous. The man was of tolerably healthy appearance, excepting that the capillaries of his face were somewhat dilated. His hair was grey, his pulse rather weak, and he had a slight cough. His urine was natural; so were the heart sounds. He stated that his father had died of heart disease. He himself had been in good health until the last two years, during which he had been subject to cough. He had never had syphilis, and had never been intemperate. Six weeks before admission he felt a pain in the left knee, which was persistent; but he noticed no swelling till a month had elapsed, and then he observed an oblong pulsating swelling behind the knee. He continued, however, to walk about for another week, when the pain became so severe that he took to his bed; he had therefore been resting in bed for a week before admission, during which time the tumour was still increasing.

The limb was raised, and for ten days the leg was kept in the flexed position. For the first few days the pulsation diminished, but it was then noticed that the tumour was increasing towards the inner side. It was therefore determined to ligature the femoral artery without further delay.

On July 20th the artery was tied in Scarpa's triangle with a carbolized catgut ligature prepared with chromic acid, in the manner recommended by Mr. Lister. Antiseptic precautions were observed, but no spray used. The ligature was cut short, a small drainage-tube inserted in the wound, and the incision closed with a continuous suture of carbolized silk. The dressing consisted of a pad of salicylated wool enclosed in encalyptus gauze.—22nd: The wound had healed excepting where the drainage-tube projected. The tube and stitches were removed, and a strip of plaster was placed across the wound. There was slight pulsation to be felt in the tumour.—25th: No pulsation felt in the aneurism. No fever or constitutional disturbance ensued upon the operation; the aneurism consolidated, and, with the exception of a little cough, he was quite comfortable on Aug. 9th. He was dressed and lay outside his bed. The aneurism continued to diminish, and his condition seemed satisfactory until Aug. 19th, when in the night he became suddenly delirious; the delirium was succeeded by drowsiness, and subsequently by coma, in which condition he died on the 22nd, a month and two days after the operation.

Permission could only be obtained to examine the limb, but this gave us the opportunity of ascertaining the condition of the ligature thirty-three days after its application. A careful dissection of the aneurism and its afferent and efferent vessels was made by Mr. Ross, the curator of the museum, with the following result:—The femoral artery was filled by a firm decolorized clot, which extended from the seat of ligature to the origin of the profunda, about an inch below Poupart's ligament. The remainder of the artery below the ligature, as well as the popliteal almost to its division, was also filled with a firm partially decolorized clot. The lower part of the popliteal artery presented a fusiform dilatation of about the size of the last joint of the thumb. From the upper part of the vessel projected a globular aneurism, the size of one's fist, which communicated with the artery by an opening about three quarters of an inch in di-

ameter. The sac was formed by the outer wall of the vessel and was filled with laminated clot, the outer layers of which were decolorized. The catgut ligature appeared unchanged; it surrounded the artery, being embedded between the outer coat of the vessel and a thin layer of fibrillated lymph. The knot was firm. The two inner coats of the vessel were divided at the seat of ligature; they were curled inwards, and were united where in apposition. The external coat of the artery where surrounded by the ligature was intact. The examination showed, therefore, that the chromicized catgut ligature, thirty-three days after its application, remained firmly around the artery in a perfectly harmless condition. There was no sign of irritation in the surrounding tissues, which were soundly healed.

The cause of death I suppose to have been cerebral hæmorrhage; but this was clearly quite unconnected with the operation, from which the man had completely recovered.

Savile-row, W.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendia, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

KING'S COLLEGE HOSPITAL.

PARALYSIS OF THE SERRATUS MAGNUS AND RHOMBOID;
ELECTRICITY; IMPROVEMENT; REMARKS.

(Under the care of Dr. FERRIER.)

For the report of the following case we are indebted to Dr. Norman Dalton, medical registrar:—

John C—, aged forty-four, presented himself at the out-patient department of this hospital on March 29th, complaining of weakness in the right upper limb. His attention had been drawn to an undue prominence of the right shoulder blade. The following notes were taken:—The patient works in a foundry at Woolwich and occasionally has the mixing of metals, including lead, but the latter only in small quantities. He has never had colic and there is no definite blue line on the gums. As a rule he works with a hammer all day, using the right arm only. He has been a free drinker all his life, and states that he had an attack of delirium tremens six or seven years ago. With this exception he has had excellent health. He has never had syphilis or ague, and he has never suffered from neuralgic pains. About eight weeks ago, on a Sunday, he found on waking that he had completely lost the use of his right upper limb. He could not raise his hand to his mouth nor remove his arm from his side. He had gone to bed feeling quite well, and neither before nor since has his general health suffered in any way. He is quite certain that no feverishness or other general symptom preceded or accompanied the onset of the paralysis. There was no draught in his bedroom, and his position during sleep had not been in any way cramped. He had had no blow on the shoulder. Besides the loss of power he had some pain in the muscles of the right upper arm and over the shoulder blade on the same side. There was no loss of sensation in the affected

limb, and he has had no twitching of the muscles.

On the Monday his condition remained about the same, but on Tuesday he had recovered sufficiently to return to work, and use the hammer with his right arm. In about a week he had completely recovered the use of his forearm, but the limb as a whole remained weak. He noticed this particularly when he had to push before him any heavy object (e.g., a truck). His fellow-workmen remarked that when at work his right shoulder-blade projected to an unusual extent, and he himself noticed that on leaning back in a chair, the right shoulder-blade was the first to touch the back, so that the lower angle became sore.

On stripping the patient his general muscular development was found to be good. There was no appreciable difference in size between the muscles on either side, except that the inferior digitations of the serratus magnus were very evident on the left side, and absent on the right. This became more evident on making the patient rapidly extend his arms forwards (as in striking straight from the shoulder), when the digitations on the left side started up into marked prominence, while those on the right did not become visible. This movement was also executed more forcibly with the left than with the right arm. On examining the back (his arms hanging by his side) it was found that the distance from the posterior border of the scapula to the middle line was as nearly as possible equal on the two sides. There was slight flattening in the position of the right rhomboid muscles. The angle of the right scapula was about one inch lower than the left; and, compared with the latter, it made a very marked projection, and its outline was much more evident. He could raise both arms with equal facility to a position at right angles to the trunk and in the same plane. In this position the prominence of the right scapula became more marked, it being possible to introduce the fingers between the lower angle and the ribs from behind. The left arm could be raised straight up above the head, while the right could scarcely be raised beyond the position at right angles to the trunk. On lifting the arm with the hand it could be raised to the same position as the left arm without difficulty and without causing pain, the structures about the joint offering no resistance. The undue prominence of the right scapula was most marked when he stood with both arms extended forwards at right angles to the trunk. In this position the whole bone stood out like a veritable hump on the right side of the back. The reaction of the right serratus magnus and of the right rhomboid muscles to the interrupted current was distinctly diminished, while their reaction to the constant current was increased. There was also qualitative change in the reactions, and the contractions were of the sluggish form seen in the reaction of degeneration. The other muscles on the right side, including the trapezium and the levator anguli scapulae, gave normal reactions, as did all the muscles on the left side. The urine contained about one-eighth albumen.

On April 12th the following note was made:—Under the influence of general treatment and occasional applications of electricity, faradaic and galvanic, the patient has steadily improved. He can now raise the right arm considerably beyond the position at right angles to the trunk. Faradaic excitability of the right rhomboids and serratus magnus has slightly improved (?). Their galvanic excitability is increased, the reaction being sluggish, acc = ccc. On April 26th he was seen again, and the affected muscles showed further signs of improvement.

Remarks by Dr. FERRIER.—Dr. Ferrier considered that this was a case of combined paralysis of the serratus magnus and rhomboid, resulting in all probability, as not unfrequently happens, from over-exertion. Though the patient was in some measure exposed to lead poisoning in his work, yet there was no indication of any of the toxic effects of lead otherwise. That the paralysis did not depend on a limited anterior polio-myelitis was shown in the entire freedom of the deltoid and other muscles which are innervated from the same segment of the spinal cord and its corresponding motor root. The cause of the paralysis was therefore most probably a peripheral affection of the nerve of the serratus magnus and rhomboid, induced by the constant strain and fatigue involved in the patient's occupation. The serratus magnus occasionally suffers alone, and some discussion has taken place as to the exact position which the scapula assumes under such conditions. Perhaps in some of the cases described the conjoint affection of the rhomboid has been overlooked. When the serratus magnus alone is paralyzed, the posterior border of the scapula is drawn nearer the vertebral column, and the inferior angle is somewhat raised and stands off the thoracic wall. This deformity, as has been well explained by Seeligmüller, is due to the unantagonized action of the rhomboid, together with the action of the muscles attached to the coracoid process. In this case, when the arm was hanging quietly by the side, there was no appreciable difference between the distance of the two scapulae from the vertebral column, and the right inferior angle was somewhat lower than the left. This was clearly due to the conjoint paralysis of the rhomboid. Had this not also been paralyzed the deformity described by Berger and others would undoubtedly have occurred. But the deformity was brought out in a most striking and pronounced manner when the arm was extended forward and slightly adducted. The scapula then turned on a horizontal axis passing through the spine, by the agency of the muscles attached to the coracoid process, and the posterior border not being kept applied to the thoracic wall, owing to the paralysis of the serratus magnus, stood off like a wing. The electrical reactions of the affected muscles were such as are characteristic either of peripheral paralysis or of anterior polio-myelitis. The comparatively rapid recovery was such as is seen in the milder forms of peripheral nerve lesion.

MANCHESTER WORKHOUSE HOSPITAL.

NOTES ON A COMPLICATED CASE OF ACUTE RHEUMATISM; ERYTHEMA TUBERCULATUM; ACUTE TONSILLITIS; DYSPHAGIA AND DYSPNOEA; TRACHEOTOMY; BRONCHO-PNEUMONIA; RECOVERY; REMARKS.

For the report of the following notes we are indebted to Mr. C. B. Voisey, M.R.C.S., resident assistant medical officer.

M. H—, aged thirty-one, married, laborer, was admitted on Nov. 14th, suffering from rheumatic fever, which he attributed to exposure to wet and cold a few days previously. For ten days before admission he had been in bed at home, suffering intense pain in the joints, and for one or two days was covered with a red and irritable rash, which he described as similar to the one (erythema tuberculatum) that developed during the time he was in hospital. Temperature on admission 103.4°. No albumen in the urine.

The notes taken on admission were as follows:—He was a man of intemperate habits, and had syphilis twelve years ago; but he appeared strong and

had never suffered from any acute illness except an attack of pleurisy last Whitsuntide, which confined him to bed for three weeks. His father and mother are both dead. The former suffered severely from rheumatism; the latter and a sister died from consumption; of the other eleven children only one brother is living. From Nov. 14th to 25th inclusive, the case was one of ordinary acute rheumatism, progressing favorably under the ordinary treatment by twenty-grain doses of salicylate of soda and bicarbonate of potash every three hours. The pain and swelling disappeared from the affected joints (knees and wrists) on the 18th (when the medicine was ordered to be taken thrice daily), when the temperature was normal. On the 26th, acute inflammation of the left tonsil developed (temperature 103.2°; pulse 120) and the symptoms became so urgent during the succeeding twenty-four hours, owing to the rapid increase in the size of the gland, that repeated scarification was practiced, and the patient placed in a steam-tent. About this time, too, the body was observed to be covered with a deep rose-colored rash, consisting of round or oval elevated patches of skin, varying from an inch to two inches in diameter (erythema tuberculatum), most marked over the chest and arms and least so on the legs. Subjacent and slightly adherent to many of the erythematous patches hard nodules were developed in the subcutaneous tissue, which were quite free from attachment to the deeper structures. Such a patch, as described, was situated upon the outer half of the upper and lower eyelids of the left side, involving the neighboring tissue for about three-quarters of an inch. Another was observed on the outer side of the left arm. The backs of both hands were similarly affected. The dyspnoea and dysphagia were only temporarily relieved after each scarification of the tonsil by the removal of large quantities of thick tenacious mucus from the distended follicles; and on the following day (the 27th) the patient's condition became so critical that Mr. James Hardie, the medical officer, performed tracheotomy to prevent immediate asphyxia. After the operation the patient was again placed in a steam-tent, and obtained speedy relief. The erythematous patches and subcutaneous nodules had now lost much of their prominence, and the patches were fast fading. From the time the tonsil became inflamed it was necessary to administer nutrient enemata of milk, egg, and whisky, in which a dose of the medicine was placed every three hours. On the morning of the 28th the only remaining indications of the erythema were a number of bruise-like cutaneous discolorations; but now erysipelas made its appearance on the bridge of the nose, and, during the two following days, had spread rapidly upwards on to the scalp and down over the face. Tincture of perchloride of iron and sulphate of quinine were now prescribed, and by this time the tonsillitis had sufficiently subsided to allow of both medicine and nutriment being taken by the mouth. On the evening of the 30th tightness and constriction across the front of the chest were complained of. An examination revealed rhonchi all over both lungs with dullness and tubercular breathing at the bases posteriorly. Temperature 104.8°; pulse 120. With the subsidence of the erysipelas the lung symptoms became more marked, the cough being very troublesome, the expectoration free and rusty, and the breathing rapid and difficult. The condition of the patient at this time was very critical, owing in part to the lung complication and in part to the inability to take sufficient nourishment, for the tonsil was still slightly enlarged, and the incisions previously made into its substance had assumed a very unhealthy and sloughy

appearance, and were such as to render the act of deglutition extremely painful, if not indeed absolutely impossible. The heart too showed signs of weakness, as indicated by the pulse and the appearance of œdema on the backs of both hands; none in the feet. A careful stethoscopic examination on several previous occasions failed to detect any murmur, and even now only the slightest blowing can be heard over the apex accompanying the first sound. The heart was enlarged, the apex beat being on a level with the nipple line. The occurrence of dropsy in the hands and not in the feet may possibly be explained by the fact of the tissues in the former having been injured by the erythema, etc., and consequently more unhealthy and predisposed to œdema. An examination of the urine on Nov. 29th led to the discovery of merely a trace of albumen, which could easily be accounted for by the high fever; no casts. By Dec. 7th the pulse was very weak, and an attempt to sit up in bed brought on an attack of syncope. The lung complication was treated locally by hot applications to the chest and by the internal administration of a mixture containing tincture of digitalis, tincture of squills, and carbonate of ammonia every three hours. The patient gradually improved, the first manifestation of improvement being indicated by the pulse becoming stronger and more regular, and the dropsy disappearing from the upper extremities. Henceforward convalescence was uninterrupted, and on Jan. 26th, the patient expressed himself as feeling well and strong, and persisted against advice in taking his discharge and returning to his occupation as a laborer.

Remarks by Mr. VOISEY.—The peculiarity of this case consists in the multiplicity of its complications. In addition to the cutaneous eruptions, miliaria, and sudamina, usually seen in many cases of acute rheumatism, and other acute febrile diseases, this case was still further complicated by two other eruptions, erythema tuberculatum and erysipelas. Most text-books agree that one or other of the various forms of erythema may occur in the course of acute rheumatism, but there is a difference of opinion as to the occurrence of erysipelas in such cases. The case is further peculiar as showing, what has been observed before, that acute tonsillitis may be of rheumatic origin, and it is on these grounds possibly that salicylate of soda and bicarbonate of potash have been recommended, the former internally, the latter locally, as efficacious in cases of uncomplicated quinsy.

MIDDLESEX HOSPITAL.

ACUTE PHOSPHORUS POISONING; NECROPSY.

(Under the care of Dr. W. CAYLEY.)

For the notes of the following case we are indebted to Mr. S. R. Dyer, physician's assistant:

A. F—, a healthy, well-nourished girl, aged eighteen, was admitted into the hospital on Monday, April 15th, at 3 p.m. She stated that she had on the Thursday (April 11th) preceding taken two penny bottles of phosphorus paste with suicidal intent.

The mother of the girl stated that the father had died in a lunatic asylum, and that two of her cousins had committed suicide. The girl had sometimes previously had chorea, since when she had been depressed and strange in her manner.

State on admission: Temperature 101°; pulse 68; weak and compressible, but regular. Patient is well-nourished and of good muscular development, complaining of great pain over the epigastric region, vomiting (the matter first vomited the

patient states was luminous in the dark), and of great prostration. Skin harsh and dry, and slightly jaundiced; conjunctivæ are distinctly jaundiced; there are no extravasations below the skin. Percussion note and heart sounds are everywhere normal. The cardiac dullness normal; sounds each at base and apex are clear, but feebly heard. Hepatic dullness slightly increased, extending downwards just below the costal margin; edge cannot be felt on palpation. Spleen normal. Bowels open normally; no diarrhoea or blood with the motions. Tongue thickly coated with a white fur; dry.

April 17th: Temperature 98.6°; pulse 80, regular, but feeble. Urine contains no albumen, but is bile-stained. Pain over epigastrium continues. Evening temperature 100.2°.—18th: Temperature 99.4°; pulse 56. Conjunctivæ and skin are more jaundiced. Evening temperature 101.6°.—19th: Temperature 99.2°. Bowels open twice; no blood with stools. Pulse 116, very feeble, and easily compressible. Cardiac sounds very feebly heard. Evening temperature 102.2°.—20th: Temperature 101.4°. Heart's action and breathing very rapid. Radial pulse is scarcely perceptible. Diarrhoea with bloody stools has now set in. Is very drowsy. Twitching of several of the muscles set in, and the patient lay in a comatose state for two hours, when she died.

The following are the notes of the post-mortem made by Dr. J. K. Fowler:—Body well-nourished and well-developed. Muscles pale and granular-looking. Rigidity present. Peritoneal cavity normal. Intestines distended. Numerous small hæmorrhages were seen in the intermuscular planes. In removing the parietes of the thorax a few ecchymoses were visible on the anterior surface of the lungs, but on turning forward the lungs, and exposing the posterior surfaces of the visceral pleura, it was seen to be almost covered with fine ecchymoses (subpleural), and in the pericardium and endocardium similar changes were found. The right lung weighed 16½ oz.; the left, 13½ oz. The liver was smooth, swollen, of a bright-yellow color, had undergone extensive fatty degeneration, and weighed 68½ oz. The muscular tissue of the heart was pale and granular. There were no fatty striæ (tabby-cat appearance.) The valves were normal and competent. The heart weighed 10 oz. The spleen weighed 6½ oz., was congested and hard. The kidneys were swollen, the surfaces smooth and pale, the cortex marked with fatty striæ, the pyramids of a pinkish tint. The right kidney weighed 5½ oz., the left, 6 oz. The stomach was dilated; it contained a pint and a half of a clotted grumous looking, brown fluid. The mucous membrane was pale and swollen; there were a few small ecchymoses. The intestines contained a quantity of mucus; they were not otherwise altered. The brain was pale and wet, but not otherwise changed.

FOUR CASES OF CONGENITAL DEFECTS OF THE FEMALE SEXUAL ORGANS.

(Under the care of Mr. HULKE.)

In two of the following cases the existence of atresia of the vagina was unknown to the patients until they reached adult life; and in the first it was not discovered until after marriage. When so complete as to prevent the external escape of the menstrual fluid, whether in the less infrequent form of an imperforate hymen, or in the more rare form of imperforation, partial or complete, of the vagina, atresia commonly attracts notice soon after the age of puberty by the supposed absence of menstruation, and the distress occasioned by the distension of the Fallopian tubes and uterus,

and also of the pervious part, if any exist, of the vagina connected with the latter, by the retained and accumulating menstrual fluid. In the first patient, in whom the occurrence of menstruation and the natural appearance of the external parts of generation had caused the internal defect to remain unsuspected, the defect was essentially the persistence of the opening of the lower confluent ends of the Mullerian ducts into the uro-genital sinus, proper at a certain stage of embryonic life. The operation, urgently demanded by her marriage, was justified by the ascertained presence of a well-developed uterus, and the result was satisfactory, for she returned to her husband, impregnation followed, and she was recently delivered after an easy labour of a viable child. In the second case the atresia of the vagina was complete throughout, and it was associated with an extremely imperfectly developed uterus which appeared to be of the cornuate form, as if the Mullerian tubes had remained distinct nearly if not quite to their lower ends, and then had failed to be brought into continuity with the vulval involution of the external surface of the body during that ingrowth of tissue between the rectum and the uro-genital sinus which finally separates these two passages. Under these circumstances no operation for the atresia was practicable. The patient was a spinster, and it was explained to her that marriage would be improper. The presence in the excised ovary of ruptured follicles, not distinguishable from those occurring in the ovaries of normally menstruating women, is of interest in association with the evidence of the absence of menstruation—absence, not retention, since the combined exploration through the urinary bladder and rectum must have detected such swelling as retention would have occasioned. The absence of swelling or painfulness of the herniated ovaries, incidental to ovulation, such as might have led to their discovery in the groins after puberty, is not unusual, and the excision of such herniated ovaries will only exceptionally be necessary. In the present case, in face of the inability to wear a truss on the right side, the patient did not hesitate between a life of distress and disability and the relief held out by an operation. As has always been observed in congenital ruptures of the ovary, the sac contained also the Fallopian tube. In the peripheral continuity of the serous covering of the ovary lying in the labium with the peritoneal sac enclosing it, may be recognized an imitation of the relations of the testis and process of peritoneum acquired by this organ in its passage from the belly to the scrotum. In the third case the increased swelling, with the painfulness of the solid body in the inguinal cyst concurrently with menstruation, left no reasonable doubt of its being an ovary, but the condition here differed from that in the last case by the obliteration of the original continuity of the sac and the peritoneal cavity, which made the resemblance of the sac to the tunica vaginalis in the male sex more complete. In the fourth case it was the upper part of the vagina which was imperforate, the uterus certainly, and, presumably, the ovaries were undeveloped, and no surgical measures were indicated.

CASE 1. Congenital Atresia of the Vagina; Menstruation through the Urethra; Relief by Operation. (From notes by the dresser, Mr. B. C. Scott.)—On Nov. 15th, 1881, a brunette, aged twenty, was brought by her mother to the out-patient obstetric department of the hospital for advice respecting an unnatural condition, which made sexual intercourse impracticable. She had been married nine weeks, and neither she nor her mother had previously suspected anything wrong. She had, it was asserted, menstruated regularly as other women. When

the labia were separated no vaginal orifice was visible, the surface below the urethral aperture being plane. As a digital examination through the rectum revealed the presence of a well-developed uterus, she was sent into the surgical wards for an operation. The very positive statement that she had regularly menstruated made it probable that this occurred through the urethra, and upon the recurrence of menstruation a few days later, this was verified; the menstrual fluid was seen oozing from the urethral orifice from which, when she strained, it escaped in small gushes. Her urine was, however, quite untinted, which made it evident that the outlet through which the menstrual fluid escaped entered the urethra, and not the urinary bladder. This opening was so minute, perhaps so valvularly disposed, that neither by a careful examination with probes, nor by inspection of the urethra when dilated with a speculum, was it possible to discover it. On Dec. 1st, a staff having been placed in the urethra, and a bougie in the rectum, so that the position of these two tubes could be always ascertained, an incision was made below the urethra, between it and the posterior commissure of the labia majora. When the cut had been deepened to the depth of the second joint of the forefinger the escape of a few drops of mucus showed that the upper end of the vagina had been opened. It was seized, drawn over, the opening enlarged, and its edges were attached with sutures to two flaps of mucous membrane taken from the posterior part of the vulva. A glass tube was placed in the passage thus made. The uterus appeared quite normal, and the upper part of the vagina was capacious. Immediate union was frustrated by an attack of erysipelas, which wandered over her whole body and did not finally disappear until the end of the month. On January 25th she was made an out-patient, and enjoined not to neglect to pass daily a full-sized bougie, which she had been taught to use. She was twice readmitted during the course of the next three months, as, owing to her omission to do this, the line of junction of the upper and lower part of the vagina had contracted, making marital intercourse painful. The contraction was easily overcome by sponge tents. Impregnation followed in the summer, and in February she was delivered of a healthy child, after an easy labour induced at the eighth month, induction of labour at this time being thought preferable to allowing her to go to the full term by Dr. H. Davis, under whose care the patient then was. The only circumstance worthy of notice was the detection of a narrow mesial band in the top of the vagina, just below the uterus, which had till then eluded detection.

CASE 2. Congenital Hernia of both Ovaries, probably Bicornuate Uterus; Atresia of Vagina. (From notes by the dresser, Mr. G. F. McMillan.)—A well-grown maid servant, aged twenty, whilst lifting a bedstead felt, as she thought, something give way in her left groin, where she then first noticed an unnatural lump. A few days later the same occurred in her right groin, attended with such sharp pain as to oblige her to lie down. After this, incapable of working in consequence of the painfulness of the swellings, she went into a village hospital, whence, six weeks later, as they appeared to the surgeon in charge to be of an unusual nature, she was sent to the Middlesex Hospital on Jan. 24th, 1882. Her left labium majus contained a firm knot nearly of the size of a small walnut, but of a more oblong figure. It could be easily pressed from the labium through the external ring into the inguinal canal, but it could not be pushed completely through the internal ring into the belly. In the right labium was a similar knot enclosed in a flaccid elastic swelling. This knot could not

be pushed entirely through the external ring, and above it when she coughed the inguinal canal became distended by another swelling, apparently an entero-bubonocoele. The form and consistence of the knots in the labia, suggested their being the ovaries, and their occurrence on both sides, together with the absence on the left side of any omental or intestinal protrusion, raised a very strong presumption of the condition being congenital. The sudden occurrence of pain, and of the larger swelling on the right side six weeks before, which first made her aware of something being wrong, were attributed to a squeeze of the ovaries during the effort to lift the bed and to the supervention of the entero-bubonocoele. It was expected that a properly adapted truss would enable her to return to her employment, and render any operative measure unnecessary. With the left side there was no difficulty, but no pressure could be borne on the right side; and after several alterations of the pad and spring, the removal of the knot in the right labium was decided on, and carried out on Feb. 18th. Upon opening the sac, which was extremely thin, a few drops of colorless serum flowed out. The sac contained a small piece of omentum, which, being quite normal and not adherent, was returned into the belly. The other contents were an ovary with Fallopian tube to one of the fimbriae of the ostium abdominale, of which was attached a small cyst. The other end of the tube, being traced upwards into the canal was found to become continuous with a cylindroid, fleshy body, which projected from the belly through the internal ring into the inguinal canal. That surface of this fleshy body, which projected from the wall of the sac into its cavity, was smooth and invested by a serous membrane, which circumferentially was continuous with the sac, and was therefore an extension of the peritoneum. The evident relation of the Fallopian tube to this singular body, and the consistence and color of this latter, demonstrated it to be the uterus; whilst its shape and its size (about equal diameter to the finger-tip) made it probable that it was one horn of a bifid uterus. An assistant being directed to ascertain whether the part of the uterus accessible per vaginam was natural in form, and whether it moved when the presumed uterine horn was drawn upon, the discovery was then first made that the vagina was imperforate. The ovary with its Fallopian tube was ligatured close to the uterine horn and cut off. Strict antiseptic measures were observed during the operation and afterwards. A slight suppuration occurred, but at the end of three days the wound had closed and she was regarded as convalescent. The ovary was somewhat small. Upon section in its longer diameter, two ruptured follicles were apparent close to the surface; one larger, filled with the usual yellow substance, indicating a false corpus luteum of old date, the other follicle smaller, plugged with a fresh, deep-red blood-clot. In April she was sent to a convalescent hospital, and when last seen, in June, she was able to wear a truss without inconvenience, and to earn her living. After recovery from the operation, a careful examination of the vulva revealed the complete absence of any trace of the vaginal opening. The distinctness with which a sound passed through the urethra into the urinary bladder could be felt by the finger in the rectum, demonstrated the absence of vagina; whilst a small nodule, which was only just within reach of the finger-tip, was judged to be most probably the imperfectly developed womb. Upon inquiry, it was elicited that the patient had never menstruated. Here external genitalia were perfectly developed, and her breasts were rather large for a woman of her stature.

CASE 3. Inguino-crural Cyst, containing a Solid Nodule, which swelled and became harder concurrently with Menstruation. (From notes by the dresser, Mr. Robertson.)—A housemaid, aged twenty-seven, was admitted into the Queen's ward on Nov. 24th, 1882, with a swelling in the left groin, which she had first noticed a few months previously. It was larger, she remarked, during her periods, and it was then painful and tender, but at other times it did not occasion her much inconvenience. The swelling was parallel with Poupart's ligament, above it, and it reached from the distance of the breadth of three fingers from the anterior superior spina ili inwards to the pubes, where it turned downwards between the thigh and the labium pudendi. It was elastic, and it clearly fluctuated; its size could not be lessened by pressure; and no impulse was given it when she coughed. The inguinal part of the swelling plainly occupied the canal. In two places, one in the thigh and the other nearly over the external abdominal ring, the coverings were so thin as to impart to the underlying swelling a distinctly bluish tint; elsewhere the integument had a natural appearance. As regarded its nature, the swelling was evidently not a rupture, and the absence of oedema and agglutination of the parts about it excluded the notion of its being an abscess. The most probable diagnosis was that of a cyst connected with the round ligament.—27th: A puncture with an aspirator gave escape to an ounce and a half of pale straw-colored serum, having a specific gravity of 1020, and containing a large amount of albumen and of chlorides; the cyst quickly filled again, and on Dec. 8th it was again tapped, and then injected with a mixture of tincture of iodine and water. This provoked slight inflammation, evidenced by pain with tenderness and fresh distension of the cyst, and pain radiating down the thigh and leg. The inflammation quickly subsided, and for some time a decrease of the swelling held out promise of cure. On January 3rd, it having, however, become nearly as large as when first seen, it was again tapped, emptied, and injected with an iodine solution. At this time there was noticed (which had before escaped detection) a flattened nodule of oblong form, three-quarters by half an inch in its diameter, laying in the upper and outer part of the cyst near the internal abdominal ring. On the 19th coincidentally with menstruation this nodule became larger and tender. By the 22nd it acquired its previously indolent condition, and she left the hospital on the following day to resume domestic service.

CASE 4. Imperforate Vagina, with an Undeveloped Uterus.—A very puny, weakly girl, aged nineteen, was brought to the hospital on the 14th of August, 1882. She had never menstruated, and as it had been thought she might be suffering from retention, she was admitted into Queen's ward. Externally her genitalia appeared normal, but the vagina ended blindly for an inch above the hymen. Digital examination through the rectum, a sound being placed on the bladder, demonstrated the absence of the upper part of the vaginal tube. At the full depth of the forefinger a small knot of the size of a hazel-nut was detected in the middle line, to the left of which was a still smaller nodule; the former of these was regarded as probably an undeveloped uterus, the latter as an ovary. Under these circumstances no operative measures were proper.

—At the meeting of the Council of the Royal College of Surgeons recently, Mr. J. Tomes and Mr. T. H. Huxley were elected Honorary Fellows of the College.

ST. THOMAS'S HOSPITAL.

FIVE CONSECUTIVE CASES OF SUCCESSFUL OVARIOTOMY.

(Under the care of Mr. SYDNEY JONES.)

FOR the report of the following cases we are indebted to Mr. W. H. Battle, surgical registrar.

CASE 1. Cystic Tumour.—A. W—, married, aged sixty-five, admitted Nov. 8th, discharged cured Dec. 30th, 1882. The following history was obtained: Her mother died of "dropsy," cause unknown; general history of family good. The patient always enjoyed good health until two years ago, when she had an attack of "spasm" in the left lower abdomen, which was cured by treatment, but she has never felt quite right since that time. Last April she noticed a swelling commencing in the left inguinal region, and this has gradually increased until the present time. She has had severe pains in her abdomen on each side, but the pain has not been accompanied by any vomiting. Catamenia ceased fifteen years ago. Had slight difficulty in passing urine some months ago, but has had no other inconvenience from the swelling beyond that caused by the size of the tumour. The tumour, which consisted apparently of a cyst and more solid portion, extended from the pubes to just above the umbilicus, and bulged more towards the left side, the measurement being one inch more than on the right, whilst the dullness on percussion extended higher to the right than to the left of the umbilicus. It was fairly movable from side to side, and the uterus was normal and free. The viscera appeared healthy, no trace of disease being found. The patient complained of pain in the abdomen over the tumour, increased by exertion, but there was no rise of temperature and she was otherwise in good health.—21st: In the afternoon Mr. Sydney Jones operated, the patient being under ether. An incision five inches long was made below the umbilicus, in the median line. The cyst was easily exposed, but the wall was brittle and some gelatinous fluid escaped during the puncture with trocar, but it did not enter the peritoneal cavity; the cyst having been emptied of its contents, three large omental adhesions were separated, after ligature, and the tumour having been drawn forwards the pedicle, which was rather broad, was tied in two halves by means of stout silk ligatures, which were cut short. There was some ascitic fluid in the abdomen. The abdominal cavity was sponged out carefully, and the wound closed by means of five deep silk and some superficial catgut sutures. The operation was carried out under the spray, and the wound dressed antiseptically. Further examination of the tumour proved it to have consisted of one large principal cyst, containing about three pints and a half of gelatinous fluid, and an apparently more solid portion, weighing 3 lb. 11 oz., consisting of a number of cysts of various sizes aggregated together, with only a small amount of more solid material. The right ovary was healthy. At 8.30 p.m. she was comfortable. Pulse 112, temperature 98° 8'; an hour later pulse 80, temperature 100° 4'.—22nd: The temperature at 2 a.m. 100° 6'. There was a gradual fall to normal, and the highest recorded temperature during the further progress of the case was 99° 8'. On the eighth day the wound was dressed for the first time, it was firmly united, the sutures were removed, and the abdomen supported by broad strips of strapping. Antiseptic precautions were, however, continued until December 12th, when a flannel bandage was applied over the strapping. The use of the catheter was continued until the 26th; the bowels acted after enema on December 29th. The diet was as follows:—Until the 24th she

was only allowed iced milk in small quantities, on that date chicken jelly and Brand's essence of beef; on the 29th, custard and two ounces of wine; December 1st, boiled sole; 2nd, beef-tea added; 7th, minced chicken; 25th, plum pudding. She left cured on December 30th, wearing an abdominal belt.

CASE 2. Multilocular Cyst.—L. E—, aged twenty-six, single, was admitted under the care of Mr. Sydney Jones on November 9th, 1882, and discharged cured on January 10th, 1883. Family history good. Her own health had been good until five years ago, when she was admitted to an asylum, where she remained for two years. Five months ago she had "stoppage of the bowels," lasting for a few days; she then noticed swelling in the right side. The catamenia had been irregular for some time, and she has lately had menorrhagia, with only a few weeks' interval free. There has been a good deal of pain in the abdomen recently. She was tapped in August, and the fluid is said to have been "typically ovarian."

When admitted she was rather emaciated, very nervous, and emotional. The abdomen was greatly distended, the walls being tense and shining; there was dullness all over the front and a distinct thrill from side to side. Girth at umbilicus forty-one inches. The labia were swollen, but there was no œdema of the legs. The patient complained of pain on micturition, but the urine was normal. There were no other pressing symptoms. The uterus was quite free, and there was no projection in Douglas's pouch. The thoracic organs were healthy, though the heart was displaced upwards. After admission she complained of pain in her back and loins, and there was a steady increase in the size of the abdomen, the girth on December 8th being forty-four inches and a half, and the measurement from ensiform cartilage to pubes having increased one inch and a half. The quantity of urine passed in twenty-four hours varied from 12 to 25 oz.

On Dec. 12th Mr. Sydney Jones operated. Ether having been given an incision six inches long was made in the median line below the umbilicus, and the cyst exposed, after a careful dissection through the abdominal wall; this was tapped, but the size of the tumour was not much diminished on account of the large number of comparatively small cysts. The trocar being pushed from the primary puncture into some of these, the size was reduced, and after enlargement of the abdominal wound upwards, two or three strong adhesions, chiefly on the right side, were secured and divided between double ligatures. The tumour was drawn forward, and after its size had been further diminished, it was possible to get at the pedicle, which was connected with the right side, and tied with a double silk ligature. The left ovary was healthy. The peritoneum was well cleansed, and the wound closed with alternate silk and catgut sutures. The quantity of fluid was twenty-nine pints, and the weight of the more solid portion 7 lb. 3½ oz. A suppository of morphia was given after the operation, and later in the day seven minims of solution of morphia were given subcutaneously, patient having become very restless, and complaining of pain.—13th: She had slept about five hours, and had vomited four times during the night; occasional sickness during the day; complained of thirst and restlessness; only allowed ice. Temperature last night, 99°; this morning, 2 a.m., 100° 2'; 8 a.m., 99° 2'.—14th: Allowed milk and soda-water, one teaspoonful every hour; no pain or sickness; restless and low in the morning, but inclined to sleep in the evening.—15th: Allowed two teaspoonfuls of milk and soda-water every hour; is brighter and better; sleeps a good

deal; no further sickness.—17th: Passed urine without catheter; quantity increased in amount.—18th: Taking chicken jelly, and as much milk as she wishes; some pain and tenderness in the right flank.—19th: Wound dressed; sutures removed; taking custard and two eggs.—20th: Bowels acted after enema; allowed sole.—30th: Abdominal belt ordered.

On Dec. 4th the temperature was 100° during the day, but at 4 A.M. on the 15th had fallen to 99·8°, and it did not exceed this point during the remainder of her stay in the hospital. She left cured on Jan. 10th, 1883, twenty-nine days after the operation.

CASE 3. Cystic Tumour.—A. B.—, aged thirty-nine married. Transferred to the care of Mr. Sydney Jones, from Charity Ward, on Oct. 26th, 1882, and left, cured, on Jan. 10th, 1883. Nineteen years ago she had an attack of rheumatic fever. Catamenia regular until two months and a half ago; married seventeen years, no children, no miscarriages. Three years ago she began to suffer from pain in the right side of the abdomen, and soon after noticed a swelling there. This has gradually increased, and she has had occasional pain; when admitted she still complained of this pain in the right side of the abdomen, and said that it extended down to the hip. The abdomen, which was much enlarged, measured at umbilicus forty-two inches, and was almost filled by a large tumour, extending from the pubes to above umbilicus; percussion seemed dull all over this, but resonant in the flanks; it projected more on the right side, there was a thrill over this part of the tumour, but it was unequally conveyed in different directions, and there was a more solid portion felt to the right, and extending from beyond the umbilicus on the left side down into the right flank. The superficial veins were enlarged. There was slight cough and some dyspnoea on exertion, but nothing abnormal detected on physical examination of the chest, excepting that the cardiac dullness could not be defined. Urine: sp. gr. 1030; no albumen, no sugar. There was slight œdema of the left leg.

On Oct. 31st, the patient was placed under ether and Mr. Sydney Jones operated. An incision was made in the median line below the umbilicus for about five inches downwards; the peritoneum was divided after the bleeding points had been secured by catgut ligatures. The surface of the tumour was thus exposed and tapped; nineteen pints and a half of gelatinous fluid having been drawn off, the cyst was drawn forwards, and the pedicle, which was long and slender and connected with the right ovary, was transfixed and tied in two parts by stout silk ligatures. A bleeding point was noticed in the stump of the pedicle, and this was secured by a ligature. There were no adhesions. The left ovary was somewhat irregular on the surface, but otherwise healthy. At 9 P.M. the pulse was 100, the patient comfortable and slightly perspiring; temperature 99·8°.

Nov. 1st: Slept for about four hours during the night; has vomited three times since operation; complained of pain in abdomen, which is now relieved by morphia. Morning temperature 94·8°, evening temperature 100·8°—2nd: Pulse 100; respiration 32. No pain, some thirst; up to the present is only allowed ice. Morning temperature 98·8°; evening temperature 101·2°.—3rd: Allowed milk. Morning temperature 99·6°; evening temperature 100·2°.—5th: Some cough complained of; passing urine without use of catheter since yesterday; and sleeps well without morphia.—7th: Wound dressed antiseptically; no suppuration. Silk sutures removed. Urine acid but containing a little mucus.—8th: Bowels acted after simple

enema. Complaining of frequent micturition. Cough relieved by cascarrilla mixture ordered on the 6th. There is a sanguineous discharge from vagina; this was supposed to be due to return of menstrual period, but on the 10th she aborted.—13th: Allowed fish.—14th: Wound redressed, and antiseptics left off. Supported by strapping.—24th: This morning the wound reopened at the point and gave exit to a small quantity of pus. The temperature, which for two nights had been as high as 102°, became normal afterwards and continued so until Jan. 2nd, when there was a slight rise to 100°, owing to a localized collection near the wound. These collections kept her in bed longer than usual, but she left cure Jan. 10th, 1883.

CASE 4. Multilocular Cyst.—E. J.—, aged forty-four, married, was admitted Jan. 11th and left cured Feb. 2nd, 1883. She had had one child born in 1876, then two miscarriages, and in March, 1882, a second child, which, however, only lived eight hours. There was nothing unusual during the course of the labour, but afterwards the abdomen did not appear to be materially diminished in size; she had noticed that it was unusually enlarged before the confinement. Since March there has been a gradual increase unattended with pain until a fortnight ago, when she had rather severe pain in the left side, which prevented her from sleeping. There has been considerable discomfort from food during the last three weeks.

The following was the condition on admission:—The abdomen is considerably distended, projecting downwards and forwards, the general appearance being that of separation of rectus and attempt at hernia of abdominal contents; there is distinct forcing forwards in median line on coughing. The umbilicus is obliterated; there is dullness on percussion over the whole front of the abdomen and into the left flank, whilst resonance is found above and in the right flank; there is a distinct thrill all over the tumour, which is freely movable in parts beneath. Girth forty-one inches and a half; measurements equal on each side; thoracic viscera healthy; no albumen in urine; uterine axis normal, though somewhat increased in length.

On Jan. 19th ether was given, and Mr. Sydney Jones made an incision about six inches in length between the umbilicus and the pubes, in the median line. The wall of the cyst was intimately adherent to the peritoneum, and was very difficult to separate. The cyst was incised and a large quantity of blackish fluid escaped; two distinct cysts were incised during the operation, the contents of the larger one being entirely fluid; from the smaller one there escaped with the fluid much shreddy broken down fibrinous material. The cyst wall was more easily separated after the emptying of the contents, and it was then drawn forward, the adhesions, which were somewhat numerous and firm, being divided between double ligatures of catgut as they presented themselves to view. The tumour was connected with the right ovary, the left being healthy. The fluid removed measured eighteen pints, the solid weighing 1 lb. 10 oz. A suppository of morphia was given directly after the operation, and she slept for five hours, waking at intervals. Morning temperature, 99·2°.—20th: Since 9.45 last evening has been occasionally sick, bringing up about half a teaspoonful of fluid. At 1 this morning is comfortable, complaining only of slight abdominal pain; relieved by injection of five minims of solution of morphia twice during the day. Morning temperature 99·8°; evening temperature 100·4°; pulse 100.—21st: Some flatulence in the night, during which she slept three hours; no further vomiting; scarcely any pain. Pulse 98; morning

temperature 99-8°; evening temperature 100-2°; pulse 98. Milk in quantities of a teaspoonful at a time.—22nd: Chicken jelly.—26th: Wound dressed antiseptically; a little suppuration along the track of the sutures, but dressing hardly stained by the discharge. Silk sutures removed.—27th: Bowels opened by enema; allowed boiled sole and four ounces of wine.—31st: Redressed antiseptically.

Feb. 3rd: Antiseptics discontinued, and a lotion of chloride of sodium with warm water substituted. The incision wound has healed perfectly, but there is still suppuration in track of sutures.—9th: Opening enlarged with probe-pointed bistoury.—14th: Got up.—22nd: Went to a convalescent home in good health, thirty-four days after operation.

CASE 5. *Multilocular Cyst*.—E. S—, aged fifty-six, single, was admitted on April 29th, and discharged cured on June 1st, 1883. Between four and five years ago she noticed a swelling in the left groin, which went away under treatment, and she was not troubled further until eighteen months ago, when it reappeared, as she thought; this has gradually increased, but more rapidly since Christmas. She has suffered from pain in the head and between the shoulders, but not from pain in the abdomen. Catamenia, scanty but always regular, ceased ten years ago. There were no pressure symptoms. On examination of the abdomen a pyriform swelling was found, extending to four inches above the umbilicus and across to the right; there was dulness over the whole of this, but resonance in the flanks. Marked thrill on palpation. Girth 37 in., and from the umbilicus to the anterior superior spine two inches more on the left side. The thoracic and other organs were apparently healthy. There was no albuminuria. The patient was sallow and very thin.

On May 1st, Mr. Sydney Jones performed ovariectomy. An incision four inches long exposed the cyst, and this was tapped, fourteen pints of fluid being drawn off. The cyst wall was then drawn out through the opening, and separated from the left side by ligature (silk) of the pedicle, which was of fair length, but somewhat soft, and containing some varicose veins. The ligature cut into the structure of the pedicle, allowing considerable hemorrhage, and another embracing the whole was applied below. There were no adhesions. The cyst was found to be multilocular, one of the compartments containing a large clot. The right ovary was healthy. The wound was closed by means of alternate catgut and silk sutures, and the whole operation, which was carried out with strict antiseptic precautions, was concluded within thirty-five minutes.—2nd: She vomited once at 9 p.m. last night, and required an injection of morphia at 6 p.m. to relieve the pain. She has slept fairly well. Temperature 98-4° to 101-4°.—3rd: No sickness; slept well after morphia injection. Temperature 100° to 100-2°.—4th: Pain occasionally not enough to require morphia; ice and one ounce soda water every hour. Some mucus in the urine, which is drawn off by catheter. Temperature 98-8°.—6th: Temperature normal yesterday and to-day in the morning, but going up to 100-8° in the evening. A good deal of flatulence and some pain, for which morphia was given.—7th: Dressed, looking well; hardly any discharge. Temperature in the afternoon 103°. Vomited once. Chicken broth and Brand's essence.—8th: Wound redressed, all silk sutures removed; much abdominal distension. Ordered enema simplex. Temperature 97-8° to 100-2°. Stimulants ordered.—9th: Bowels acted four times after enema, and the patient much more comfortable; has less pain, and there is less distension.—10th, p.m.: Considerable pain over the bladder and inability to pass urine, which is thick, sp. gr. 1022, and contains

mucopus. Temperature normal.—15th: Urine improving in appearance, but the patient still unable to pass it herself. Temperature 100-2° last night, 99° this morning. After this date the temperature was 100-2° at 2 a.m. on the 16th and 17th, but excepting that it continued normal till she left. She was up on the 19th and rapidly regained strength; there was slight suppuration about one of the punctures left by the silk sutures on the 22nd, but otherwise convalescence was not retarded.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.

CEREBRAL EMBOLISM IN A GIRL AGED FIFTEEN YEARS, FOLLOWED BY EXTENSIVE HÆMORRHAGE AND DEATH.

(Under the care of Dr. TOTHERICK.)

For the following notes we are indebted to Dr. E. W. Hope, house-physician:—

Eliza W—, nursemaid, aged fifteen years and a half, was admitted Feb. 21st. The only previous illness was an attack of acute rheumatism eight years before; in later years slight shortness of breath and palpitation on exertion had been noticed. Feb. 20th, whilst sweeping the floor, she suddenly became faint and giddy and fell to the ground. There was no loss of consciousness, but on attempting to rise she found that there was complete loss of power of the left arm and leg. The seizure was accompanied by severe pain in the head.

On admission, the following notes were taken:—She lies quietly in bed; eyes closed; respiration tranquil. She is fairly nourished, pale, somewhat anæmic; complains of headache; articulates distinctly and swallows without difficulty. Temperature 102-6°. There is complete paralysis of the left arm and leg. On showing the teeth, the mouth is drawn to the right side; tongue protruded to the left; muscles of the eyes unaffected. There is a blowing mitral systolic bruit; pulse 108, fair; urine 1016, contains a trace of albumen.

No new symptom occurred until the evening of the 22nd, when the girl complained of nausea and headache, followed by vomiting. Almost immediately afterwards, without any convulsion, she became completely unconscious; respiration slow, irregular, and stertorous, 8 to 12 per minute; pulse 72, fairly regular and full; eyes turned upwards and to the right; pupils somewhat small, irresponsive to light; face pallid, covered with clammy sweat, head turned to the left; urine voided unconsciously. Respiration soon increased to 30 per minute, shallow and regular; pulse 120 per minute. She remained unconscious about two hours; face and lips extremely pallid; eyes closed as if asleep. With the return of consciousness, pain in the head was complained of. There was dorsal decubitus, and occasional alteration of the position of the right limbs; the left hemiplegia was very marked, and the head turned towards the paralyzed side, both eyeballs turning to the right. Up to the 28th there was slight improvement in the condition; headache, however, persisted, and the albuminuria slightly increased. Flushing of the face, followed by slight perspiration, frequently occurred. Control over the sphincters was not re-established. On the evening of the 28th, whilst lying quietly, coma suddenly occurred; respiration was stertorous, and death ensued in a few minutes.

Necropsy revealed the following conditions:—Heart: loosely attached fibrinous vegetations on the anterior cusp of the mitral valve; otherwise healthy; weight, 10 oz. Brain, superficial veins of both hemispheres full and prominent. On opening the ventricles they are found to be occupied

with soft, dark, blood-clot, which extends through the foramen of Munro, also along the iter to the fourth ventricle, of which it forms a complete mould. Blood-clot extends from the fourth ventricle to the subarachnoid space surrounding the medulla, covering the pons, and extending down the spinal cord. In the cerebral substance, immediately external to the right corpus striatum, is a cavity from which blood-clot escaped when the ventricles were opened. The walls of this cavity are discolored and puffy; on cutting into the inner wall, which is formed by the right corpus striatum, numerous small clots are met with; this is clearly the point from which the hæmorrhage arose. In the right middle cerebral artery, at the point of its subdivision into three, a small fibrinous vegetation is impacted, from which clot extends a short distance up that subdivision which pierces the substance of the brain.

SUSSEX COUNTY HOSPITAL.

EPITHELIOMA OF TONGUE; HÆMORRHAGE FROM LINGUAL ARTERY; LIGATURE OF COMMON CAROTID; DEATH FIVE MONTHS LATER; NECROPSY.

(Under the care of Mr. N. P. BLAKER.)

For the notes of the following case we are indebted to Mr. B. Scott, house-surgeon:—

W. H—, aged forty-five, a grocer, was admitted on Dec. 24th, 1881, with an ulcerated tongue, which on the previous day had bled profusely. The tongue was first affected three months before, when a sore appeared on its right border. The patient did not seek treatment till a week before admission. No history of syphilis could be elicited.

State on admission: There is very extensive ulceration of the right side of the tongue from the tip to the epiglottis; the ulceration extends on to the floor of the mouth; the edges of the ulcer are everted and the surrounding parts are hard; there is an enlarged gland beneath the jaw; the breath is foul; he has not any pain to speak of; on the same side the last molar tooth is prominent and black. At 4 P.M. hæmorrhage again occurred. Allowing for the saliva, he must have lost a pint of blood. Tincture of perchloride of iron was applied with lint, and the bleeding gradually stopped. About an hour later bleeding recommenced. It was at once stopped by compressing the carotid artery against the transverse process of one of the lower cervical vertebrae. The patient became very blanched. A third of a grain of morphia was injected subcutaneously. As he fell asleep he had a few convulsive starts in the limbs, and breathed stertorously; he recovered in about a minute. There was profuse perspiration at the time, especially at the head. Chloroform was given, and Mr. Blaker tied the common carotid artery. No difficulty was experienced. A silk ligature was used, and one end was left hanging from the wound, which was stitched with silver. Beef-tea, arrowroot, brandy, and laudanum were given by the bowel every three hours.

Dec. 26th: Patient is comfortable. Twenty hours after the operation the temporal artery was felt pulsating indistinctly. Takes fluid by the mouth. Temperature 98°, pulse 120.

Jan. 2nd, 1882: The tongue has much improved in appearance. The edges of the ulcer are less everted, and the ulcer itself looks as though it were healing.—12th: Complains of faceache up to the right ear.—20th: Has had a mild attack of erysipelas. Condition is now very satisfactory. The ulcer on the tongue looks much more innocent. The edges are bevelled and covered with epithelium.—23rd: The ligature came away with

slight pulling (twenty-ninth day after operation).—29th: Feels and looks ill. Tongue dry and coated. Diarrhoea. Pain in the left arm from the shoulder to the elbow. No affection of the left leg.—31st: Has pain in the right knee. This is hot, very tender, and is tense with fluid. No shivering. Cheeks flushed. Morning temperature 97.4°, evening temperature 101°.

March 1st: The arm and knee are much better again. Morphia injections have been given for pain in the tongue and right side of the face and head.

April 1st: His condition is much worse. The ulceration on the floor of the mouth has extended, and induration passes from beneath the jaw to the wound of the operation, which has reopened.

May 12th: He is very weak and emaciated; brought up about half a pint of blood, which probably came from the tongue. This is the first time hæmorrhage has occurred since the operation.—27th: To-day he died from exhaustion.

Necropsy.—Very thin. There is a large sloughing wound in the right side of the neck. The two ends of the occluded carotid artery are seen lying in this wound. The sterno-mastoid muscle of this side is converted into a hard cancerous mass. The glands are infiltrated. (Brain could not be examined.) Two-thirds of the tongue are ulcerated away, and the rest is infiltrated. The cancer extends down into the right side of the neck, but does not attack the larynx or pharynx. Epiglottis cedematous. No cancer elsewhere.

BOROUGH HOSPITAL, BIRKENHEAD.

CASE OF PERSISTENT HICCOUGH; NECROPSY; REMARKS.

(Under the care of Dr. STEVENSON.)

For the following notes we are indebted to Mr. M. J. Bernstein, M.B. Ed., house-surgeon:—

Timothy F. B—, aged forty-four, a stonemason, was admitted on May 19th, 1881, suffering from hiccough and pain in the lower part of the back and loins. The family history was good generally; but both parents died at the age of fifty-seven, the father being said to have died of "debility and wasting."

About fifteen years before admission the patient had some acute urinary complaint; two years before had erysipelas of face after being exposed to the cold and wet. During the intervals and until three weeks before admission, he had enjoyed good health, except that he had been losing weight.

About April 28th he was seized with a pain in the lumbar region of the spine. The pain gradually spread round to the loins and epigastrium, so that he had to give up work on May 11th. On the 14th he began to be troubled with hiccough; the urine became scanty and thick.

After admission the patient lay in bed on his right side and hiccoughed with scarcely an intermission. His complexion was pale; skin moist; temperature normal. The thorax, on examination, presented no abnormality. The pulse was 80, firm and regular; tongue white and moist; abdomen distended and tympanitic; liver dullness normal. There was considerable tenderness over all the abdomen, but more particularly over the iliac regions. The bowels had been confined since the 14th. Bismuth and hydrocyanic acid and soda-water and ice were given internally. Turpentine stupes were applied over the abdomen, and an enema with an ounce of castor oil was administered.

May 20th: Hiccough much diminished, and abdominal distension still considerable.—21st: A drop of croton oil with castor oil in the evening.

Slight fits of hiccough only at intervals. Abdominal tenderness is nearly gone.—27th: Has had occasional attacks of hiccough. Still some tenderness in abdomen, and pain in the back.

June 7th: He has been pretty free from the hiccough, but the pain in the back is worse, and there is still some abdominal tenderness. The patient was, at his own request, discharged on the 9th. Before leaving he was anesthetized, and his abdomen was thoroughly explored, but without anything abnormal being observed.

The patient was readmitted on September 12th. He had been in the interval an in-patient at another hospital, and now brought with him a medical certificate stating that he had aneurism of the abdominal aorta. He was much emaciated, his countenance had a very anxious expression, and he had considerable abdominal tenderness and pain in the back. On pressing on the epigastrium midway between the xiphoid cartilage and umbilicus over the region of the aorta, a pulsation was distinctly felt. During the following week he became much weaker; the arms and hands were in a state of tremor, and the breath was observed to be fetid. On the 21st he was attacked during the night with hiccough, and his voice was partly gone. Hiccough was more or less continuous, even during sleep, till the 26th, when there was some amount of tympanites. Trembling of the hands was very violent, but could be controlled. On the 25th he was slightly delirious. The hiccough was continuous till the 28th. The temperature was normal, pulse regular. On the 29th, after the administration of a purgative and fifteen drops of rectified spirits of turpentine, the hiccough was relieved, though on the following day it was as bad as ever, and the patient was delirious through the night. He died next morning, on the 31st.

Necropsy.—The body was extremely emaciated. *Thorax:* The pericardium was completely adherent to the heart, and could only be torn off with difficulty. The heart was extremely small; the muscular substance being soft and friable, but the orifices normal. The upper lobes of the lungs were firmly attached to the chest walls by old pleuritic adhesions. At the apex of the right lung there was the appearance of a small pus cavity which had been opened in tearing the lung out. The substance of the lung was fairly crepitant, but was studded all over with hard caseous nodules about the size of peas, some much larger. At the root of each lung, surrounding the bronchus, were large caseous masses, three on the right and two on the left side, about the size of almond nuts. In the abdomen nothing abnormal was observed, excepting that there was little or no fat in the walls or in the omentum. The aorta was quite normal in calibre and substance.

Remarks.—The first remarkable point in this case is the almost complete absence of physical signs, and of symptoms that would tend to reveal the true nature of the case. The absence of the former is sufficiently explained by the condition of the lungs as they were seen at the dissection. While there was quite enough healthy lung tissue to carry on the respiratory function, the small caseous nodules scattered all over would scarcely be recognized by any physical examination. Indeed, we can scarcely consider the condition of the lungs to have been the immediate cause of death. The emaciation came on only at a late stage of the disease, so that we may justly consider the hiccough, which was so prominent and persistent a symptom in the case as it came under observation, was intimately connected with the fatal termination; must, indeed, by its exhaustive effects on the patient have been the immediate cause of

death; and we also consider that the unusual presence of the large caseous masses at the root of each lung, by implicating either the phrenic nerve in front or the vagus behind, may have in some way produced this most unusual symptom of hiccough. It is also noteworthy that the only remedy (and many were tried) that had any effect at all on the hiccough was a strong purgative.

GAOL HOSPITAL, KAIRA.

DEATH FROM AIR IN THE VEINS AFTER PARTURITION.

(Under care of Surgeon D. CHAS. DAVIDSON, Indian Medical Service.)

In March last a Hindoo woman was admitted into the Kaira Gaol Hospital and safely delivered of a female child. The labour was perfectly natural. The head presented, the placenta came away at the usual time, and there was no post-partum hæmorrhage. About three-quarters of an hour afterwards the woman died, without any ostensible cause. There had been no hæmorrhage or convulsions. The patient had been taking some nourishment when she suddenly fell back and expired.

At the post-mortem examination, two hours after death, the uterus was found empty, with large and somewhat distended veins; the right side of the heart contained a quantity of air mixed and churned up with blood, and which escaped in bubbles; the lungs were congested; all the other organs were normal.

This is another case which might be added to the list of those already recorded of sudden death following parturition, presumably due to the entrance of air into the veins; and having occurred in a native of this country, in whom the dangers of childbirth are generally supposed to be comparatively trivial, it may perhaps not prove uninteresting to some of your readers.

LANCASTER INFIRMARY.

CASE OF HYDATED TUMOURS IN THE DORSO-LUMBAR REGION.

(Under the care of Mr. W. HALL, Jun.)

For the following notes we are indebted to Dr. Gilbert, house-surgeon:—

James H—, aged twenty-nine, plasterer, was admitted March 9th, 1883, suffering from a tumour in the back, extending vertically from between the tenth and eleventh dorsal vertebrae to the third lumbar, and horizontally from about two inches and a half on the right of the spines to one inch on the left. It was distinctly lobulated, and had all the characteristics of a fatty tumour.

Six years ago he first noticed a swelling about the size of a small marble, painless and freely movable; it grew slowly, and at the end of three years was the size of a walnut. The next year it doubled in size, and from this time the growth was more rapid, and he had pain on being exposed to wet or cold, which he describes as being like toothache. During the six months before admission the growth was very rapid, and he felt that it was undermining his health, and caused him great pain when stooping, which he has frequently to do whilst following his employment.

On the day after his admission Mr. Hall made a vertical incision about five inches long, and a little to the right of the spines of the vertebrae. The tumour was found to be firmly adherent to the subjacent fascia, and would not shell out, as a lipoma usually does. Whilst being separated from its adhesions its under surface was accidentally wounded with the knife, and then followed a

gush of fluid loaded with cysts of all sizes, from that of a millet-seed to a walnut. Microscopical and chemical examination proved their hydatid character. The tumour having been removed, it was found that a narrow tubular offshoot passed down amongst the deep muscles of the back, and communicated with a cavity about three inches by four in extent, which, on pressure, proved to be full of the same kind of cysts.

After this cavity had been emptied as far as possible by pressure, it was thoroughly syringed with a solution of carbolic acid, and then filled with lint steeped in solution of chloride of zinc. Next day the lint was removed, and a large drainage-tube inserted; the wound was dressed antiseptically throughout; the discharge daily decreased; the cavity gradually closed; and without having had an uncomfortable symptom, the man was discharged cured on April 3rd.

STANLEY HOSPITAL, LIVERPOOL.

COMPOUND FRACTURE OF THE TEMPORAL BONE WITH
HERNIA CEREBRI; RECOVERY.

(Under care of Mr. SHELDON.)

For the following notes we are indebted to Mr. F. W. Pilkington, house-surgeon.

P. D—, aged twelve, was brought to the Stanley Hospital on April 6th last, having received a kick from a horse in the left temporal region.

On admission two small punctured wounds were found, leading down to a fracture of the temporal bone, from which a portion of brain substance, the size of a small nut, protruded. The boy was completely collapsed, and the pulse scarcely perceptible. Antiseptic dressings were used, the patient was kept in bed in a darkened room, ice bags were applied to the head and two grains of calomel were given twice a day with milk diet. For the first four days his condition remained unchanged. On the fifth day the temperature rose to 108°, and he became delirious. This lasted until the tenth day after admission. From that time the temperature gradually fell to normal, the head symptoms rapidly disappeared, and the boy was discharged on May 1st perfectly well. There was very free discharge of pus from the wound after the elevation of the temperature, the protruded brain substance gradually sloughing. This continued until a few days before the boy left the hospital.

Remarks.—Two interesting features in the case are that complete loss of speech occurred after the some of temperature was reached, gradually returning during convalescence; and, secondly, at no time were the sphincters or extremities affected.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Sarcoma of Lower Jaw.—*Sarcoma of Bladder.*—*Bacilli of Leprosy.*—*Papilloma of Bladder.*—*Hydatid Cyst in Lung.*—*Ulceration of Intestine.*—*Disseminated Cancer.*—*Gastric Ulcer.*—*Polypus of Stomach.*—*Ulceration of Larynx.*—*Acute Atrophy of Liver.*—*Vacuolation of Brain.*

THE concluding ordinary meeting of the Pathological Society of London was held on May 15th, Dr. Buzzard, one of the vice-presidents, in the chair. By several members consenting to show their specimens as card specimens the session was

closed without any arrears of work being left over.

Dr. Goodhart read the report of the Morbid Growths Committee on Mr. George Lawson's specimen of Recurrent Cartilaginous Tumour of the Lower Jaw, to the effect that the tumour was a spindle-celled sarcoma.—Dr. Goodhart also read a report on Mr. Roger Williams's specimen of Tumour in a Diverticulum of the Bladder, agreeing with Mr. Williams in stating that the tumour was a sarcoma.

Dr. Thin, for Dr. Hillis, of Demerara, showed specimens and a drawing of the Bacilli of Leprosy. Dr. Hillis had sent from Demerara tubercles excised from patients suffering from tubercular leprosy, and sections had been prepared and stained, at Dr. Hillis's request, especially for the Pathological Society. The drawing shown had been made from the preparations, in accordance with Dr. Hillis's wishes, and gave an accurate representation of the bacilli.

Mr. Morgan showed a specimen of Multiple Growths in the Bladder of a Man aged sixty-five. He had had symptoms of irritation of the bladder and hæmaturia for fifteen years. While in the hospital his urine always contained blood. An exploratory incision into the bladder was made in the perineum, and a tumour was felt, together with a velvety condition of the mucous membrane at the trigone; the tumour was removed by the lithotrite, and his symptoms were relieved for six or seven weeks. Then the symptoms returned, and the man died. There was some enlargement of the prostate, and about the trigone were several small tumours, all more or less pedunculated and formed of groups of villi; they were soft to the touch. The bladder was not much hypertrophied, and the ureters only a little dilated. Mr. Morgan thought that the tumours had developed since the operation. Mr. Boyd had examined microscopic specimens, and, although the tumour was too much macerated to prepare perfect specimens, he was able to determine that the growths were papillomata.

Dr. Curnow showed a specimen of Hydatid Cyst in the Lung, obtained from a seaman, aged thirty, who was admitted to the Seamen's Hospital for cough, hæmoptysis, and loss of flesh. In January he suddenly expectorated a great quantity of watery fluid, followed by blood. In March he spat up some membrane, recognized to be hydatid cyst-wall, and it was then discovered that he had once been a shepherd in Australia. He died from exhaustion. The upper left pleura was obliterated, and in the upper lobe of the lung was a very large cavity, occupied by a loose hydatid cyst. The base of the pleura was full of pus; the tissue of the lung was compressed and airless. Echinococci hooklets were found in the cyst. In England such cases were very rare. In Australia they have been numerous. The case was at first taken for apex phthisis and basal empyema.—Dr. Buzzard said that Dr. Bird gave the average amount of fluid drawn from such cysts as eight to sixteen ounces, and he doubted whether such a small cyst could have been successfully tapped.—Dr. Wilks asked if Dr. Curnow associated the hydatid with the shepherd's dog.—Dr. Curnow replied in the affirmative.

Dr. Curnow exhibited a specimen of Ulcerated Intestine, from a man, aged twenty-six, recently returned from Alexandria. The ship took water at Alexandria, and there were other cases of fever on board. He was admitted with enteric fever, but the stools were noticed to be very offensive. On the eighteenth day of the disease the temperature became normal; he convalesced for four or five days and sat up in bed. On the twenty-fourth day

the temperature rose, and pains in the thigh and calf came on. He died on the thirty-first day. No hæmorrhage from bowels; not more than three stools in any one day. The upper part of the jejunum was thin and very transparent in places, swollen elsewhere; about its centre there was one oval ulcer, and many ulcers in the lower part and especially near the cæcal valve, where the whole surface was involved in the ulcers and surrounding swelling. Similar ulcers extended through the colon and into the rectum; some were deeply excavated, others had sloughs adherent to them; the lymphatic glands were enlarged; the spleen was very large. Thrombosis of external iliac vein. The author remarked on the great number of the ulcers, and the extent to which the large intestine was affected; the fact that the ulcers in the large intestine appeared to be older than those higher up; the absence of severe diarrhoea and the man's convalescence for four or five days, although the ulceration was going on the whole time.—Dr. Howard Bendall asked if the man had bathed in the lake, which was worse than ordinary sewage to bathe in.—Dr. Curnow could not say about the bathing; the drinking water on board ship was said to be very bad.

Dr. Percy Kidd showed a case of Disseminated Cancer. In this case new growths were found in nearly all the abdominal organs, in the bronchial and mediastinal glands, in the lung, cerebellum, and in the subcutaneous tissue of different parts of the body. There was an old hæmorrhagic cyst in the left frontal lobe of the brain. The left arytenoid cartilage was necrosed, but no other disease was discovered in the larynx. It seemed probable that the malignant disease originated in the abdominal glands. The growths in the liver were multiple and evidently secondary. The root of the right lung was infiltrated by a very hard growth starting from the mediastinum. The bronchus going to the right upper lobe was much obstructed, and in the corresponding lobe there was some fibroid induration, and a few small, smooth-walled, pus-containing cavities, apparently the result of bronchial dilatation. On microscopical examination the growth proved to be carcinomatous, the harder portions presenting the characters of scirrhus. Sections of the right lung near the root showed a carcinomatous infiltration following the lines of the bloodvessels and bronchi, with much fibroid growth and comparatively slight implication of the lung-tissue itself. In a few sections from the head of the pancreas, which was cancerous, a curious concentric structure was observed. This stricture, which was about as large as a millet seed on section, consisted of a series of regularly disposed concentric fibrous rings, in which were numerous thin spindle-shaped nuclei, also concentrically arranged. At the centre was a minute opening, the walls of which seemed to be lined by an endothelial membrane. These appearances suggested a vascular origin.

Dr. Norman Moore showed two Cases of Gastric Ulcer associated with general Degeneration of Arteries. 1. An ulcer of oval form, about one inch in diameter, two inches from the pylorus on the lesser curvature, from a man aged fifty-six years. All the arteries of the body were highly atheromatous. The posterior third of the left cerebral hemisphere was softened, and the cerebral arteries largely calcified. The gastric artery was almost completely calcified. In the base of the ulcer was a small adherent clot leading into a branch of the pancreaticoduodenal artery, a copious hæmorrhage from which was the cause of death. 2. A commencing ulcer in the middle of the greater curve of the stomach of a woman aged thirty-four years, who died in St. Bartholomew's

of interstitial nephritis, associated with atheromatous arteries, and abundant gouty deposits in joints and other parts. The middle part of the ulcer was covered by epithelium, and consisted partly of blood and partly of necrosed mucous membrane. The ulcer was bounded by a distinct edge. Ulcer of the stomach in patients with healthy arteries had been attributed to embolus. It seemed probable from these cases that in persons with degenerate arteries gastric ulcer might be due to thrombus forming in a calcified vessel.—Dr. Moore also exhibited a Polypus of the Stomach, a soft spherical growth from the mucous membrane projecting at the end of the first third of the great curvature. The patient was a man, aged sixty-eight, who died of bronchitis. It had given rise to no symptoms during life. There were three specimens of the kind in the museum of St. Bartholomew's; but the infrequency of the growth was shown by the fact, that the present specimen was only the second which has been observed out of the last 3,000 post-mortem examinations.

Dr. Norman Moore read a paper entitled Inflammation and Ulceration of the Larynx from a case of Measles and from a case of Scarlet Fever. In the case of measles the child was a boy, aged five years, who died of abscess of the brain following necrosis of the temporal bone six weeks after he was first taken ill. The larynx showed ulceration of cords and of the base of the epiglottis. There was no false membrane. In the case of scarlet fever the ulceration was somewhat more extensive. A considerable tract of epithelium was destroyed; but when fresh no false membrane could be detected. There was a deep ulceration of the fauces without false membrane. The patient was a boy, aged five years, and was the third case of well-marked scarlet fever occurring in a house in the course of three months. These cases were of interest in relation to the remark of Barthez and Rilliet, that laryngitis is more frequent in measles than in scarlet fever.

Dr. Cavafy showed a specimen of Acute Atrophy of the Liver from a man aged twenty. When admitted to hospital he was unconscious, jaundiced, and his urine contained abundance of leucine and tyrosine. Three days before, he had come up from the country, but complained of being unwell; two days later he vomited, and was quite suddenly taken very seriously ill, he then became jaundiced and unconscious. He died the day after admission. There were numerous hæmorrhages, especially in the pleura, peritoneum, and pericardium. Liver weighed thirty-six ounces; the atrophy affected mainly the left lobe, the tissue was not soft, almost tough, surface smooth; on section it presented a brown-red color, being here and there purple. Kidneys showed early fatty degeneration. Dr. Klein examined the liver and other organs. The liver and kidneys showed no bacteria; heart granular and fatty degeneration, no bacteria; the lung showed patches of hæmorrhage with very slight pneumonia, numerous bacteria were seen, long bacilli, short bacilli, and micrococci isolated or arranged in pairs to form dumb-bells. They were most numerous in the inflamed alveoli, and in the walls of vessels. Dr. Cavafy thought these bacilli were of no consequence whatever. The autopsy was made thirty-four hours after death, and the bacilli were probably associated with decomposition, appearing earliest in the organ full of atmospheric air. Waldeyer and Klebs had found bacilli in acute yellow atrophy of the liver.

Dr. Hale White read a paper, written conjointly by Dr. Savage and himself, on Vacuolation of the Cerebral Substance. It was shown that there were nine causes for holes in the brain—viz., 1. Small

processes of the sclerosed meninges of general paralysis dipping into and excavating minute portions of cerebral tissue. 2. In the same disease the sclerosed neuroglia, by its contraction, might give rise to small cavities. 3. Multiple hydatids in the brain. These three conditions were very rare, the authors having no knowledge of the second, whilst the third was almost confined to animals suffering from staggers. Several references to Continental authors were given, and the relation of the "muslin" appearance to the second of the above was pointed out. 4. Another cause was the dilatation of cerebral vessels giving rise to the "état criblé." It was particularly emphasized that this was, in the majority of cases, of no pathological significance. 5. Shrinking of the cerebral convolutions in some cases gives rise to holes in the subjacent cerebral substance. A very good example of this condition was exhibited. 6. Miliary aneurisms would, as Charcot had pointed out, give rise to holes in the brain substance. Some very marked specimens illustrating this fact were shown. 7. The condition known in Germany as the porencephalie, in which a large gap existed in the brain substance. This might communicate either with the exterior or interior of the brain, or both. 8. The Gruyère cheese condition. This, it was pointed out, was quite different from the "état criblé," for it was due to a dilatation of the perivascular lymphatic spaces. Of the causes of this dilatation they were completely ignorant. Probably they must be local, as the dilatation was vascular. The authors showed a perfect example of this condition, in which the whole of the brain, except the lower part of the medulla, was riddled with cavities exactly like those found in cheese, and microscopic specimens exhibited showed clearly that these holes were produced by perivascular dilatation; the shape and direction of the cavities corresponded with those of the vessels. Very few examples of this condition had been carefully described, and only one in England by Mr. Lockhart Clarke, and he referred it to the same cause. 9. The authors showed specimens from two remarkable cases, in which the kidneys, lungs, liver, heart, and brain all contained holes. In the kidney these cysts were due to the dilatation of either the tubules or Malpighian capsules; in the liver they were due to the vacuolation of the hepatic cells; in the lungs and brain it was impossible to come to any definite conclusion as to their origin, but in both these viscera the cavities contained a peculiar material, staining deeply with logwood. Both these subjects were lunatics. Cases in which there were only a few holes, such as patches of softening, hæmorrhage, etc., were not considered to come within the scope of the paper.—Dr. Savage said that of the last two specimens he could say with certainty that the changes were not post mortem. The holes were evident to the naked eye at the autopsy, and the liver looked worm-eaten. The two patients were general paralytics, one a rapid case, the other a chronic one. The word porencephalie had been used for brains with a communication from the outside to the lateral ventricles, and was a pity to have used it for another condition.—Dr. Buzzard said that Dr. Lockhart Clarke's case was one of general paralysis also; the cavities there were filled with blood-vessels and detritus.—Dr. Mahomed remarked that it was a common practice to preserve brains in spirits, but very rare to find a condition of marked vacuolation, which was therefore probably not dependent solely on the action of spirit.—Dr. Hadden recently made an autopsy on a man who died from cerebral hæmorrhage, and the centrum ovale was studded with minute cysts not due to hæmorrhage.

Mr. Swinford Edwards showed a specimen of Comminuted Fracture of the Right Tibia, with nipping of the anterior tibial vessels and nerve; gangrene of the foot came on, and amputation of the leg was performed. Death occurred suddenly. The autopsy showed fatty degeneration of vessels, disease of aortic valves, and calcification of aorta. A large extravasation of blood was found at the back of the leg, pressing upon the posterior tibial artery.

Mr. Victor Horsley showed a specimen of Hypertrophy of one Condyle of the Lower Jaw, removed by Mr. Heath from a patient shown at a previous meeting. The operation had corrected the deformity. A specimen of Enlargement of the Condyle from Half of the Lower Jaw was also shown by Dr. Goodhart for Mr. Eve.

The following card specimens were shown:—Encephalocoele, Uterine Disease in Animals, Remarkable Case of Parasites, by Mr. Sutton; Sarcoma of Bones of Leg, Miliary Cystic Degeneration of Mucous Membrane of Bladder, Sarcoma of Choroid, by Mr. Roger Williams; Complete Obliteration of the Coronary Artery, Cases of Aneurism of the Heart, by Dr. S. West; Necrosed Bone from External Auditory Meatus, by Mr. Roeckel; Hernia Cerebri, by Mr. Bruce Clark.

Mr. F. Churchill showed as a living specimen a girl with Multiple Exostoses.

CLINICAL SOCIETY OF LONDON.

Death from Disease of Ear.—Morphœa.

THE ordinary meeting of the above Society was held on May 11th, Dr. Andrew Clark, President, in the chair. It was decided to hold an additional meeting in June to read and discuss papers already in the hands of the secretaries.

Mr. Dalby read notes of eight cases in which Suppuration within the Tympanum had ended fatally. They were selected to show how, by the consideration of a large number of cases, they might be divided into two very distinct classes. In the first class were those in which a person apparently in good health, with both tympanic membranes entire, is attacked by acute inflammation of the tympanic cavity, ending in rupture of the membrane and a discharge from the ear. Within a period to be counted by days he or she has rigors, and in due course the usual symptoms and endings of meningitis, cerebral abscess, or pyæmia. In the second class, before any serious complications arise, perforations have existed for many years, attended either continuously or at different times by a purulent discharge; and these might again be subdivided into those in which the bone forming the tympanic cavity is diseased and those in which it is not. The questions which were discussed in this paper were as follows:—1. Can it be predicted of any case in an early stage of its history that the probabilities are in favor of a fatal termination? 2. What are the local conditions of the ear, or the symptoms which would point to such a conclusion? 3. Should any special precautions be taken? 4. Is there any treatment of a local kind that should be employed as a protecting influence? 5. Is there any treatment which is often employed in perforations that should be especially avoided? From a consideration of these cases, as well as of many others which had come under the notice of the writer, he maintained that certain conclusions might fairly be drawn from them; at any rate, that although the subject of any perforation of the membrane was in some degree of peril, those in which the bone was diseased were in greater danger than those in which

it was not. It was not difficult to determine whether the bone was affected; a careful examination with the probe under reflected light, exuberant granulations and bony fetor, would decide the question. At the same time it should be remembered that a considerable area of diseased bone in the tympanic cavity is quite compatible with long life, and this is especially the case if the patient has learned to manage the ear by scrupulous cleanliness, and by some sort of protective pad which would keep the external air from the lining membrane of the tympanum. Influences which may lead to a fatal ending are the entrance of sea water into the ear, and the use of strong mineral astringents. Thus in estimating the probabilities of a long life for persons with perforations, their habitual discretion forms a distinct element as to their chances, and this might well be kept in view by insurance companies. Other points for consideration are the urgent necessity of removing a polypus if it prevent the egress of discharge from the tympanum; the important bearing of head pains, whether occurring either at the commencement of the inflammation of the middle ear, or at a later period; the importance of, in recent cases, great profusion of discharge, attended with feelings of giddiness.—Mr. Haward thought it well to be reminded that any patient with a discharge from the ear is in danger of a severe and even fatal illness. It was very important to know whether the surgeon can do anything to prevent these grave complications, for it seems too late to act when grave symptoms have come on. If there be a profuse discharge and dead bone, any obstruction to its outlet should be removed, and astringents appeared to be dangerous. Would it be well to perforate the mastoid bone and make another opening into the tympanum, and so syringe out the suppurating tympanum, a treatment like that employed for similar abscesses in other situations?—Mr. Jessett asked if Mr. Dalby had made the post-mortem examinations in all the cases he had recorded. He had recently attended a girl, aged fourteen, with discharge from the ear for several years; temperature 108°; brawny swelling over mastoid process. The child died next day. Post mortem the bone was found necrosed through into the cavernous sinus, and this had set up pyæmia.—Dr. De Havilland Hall asked if it would not be better to exclude all people with discharge from the ear from life assurance; he had made up his mind not to pass such lives at his office.—Dr. R. J. Lee, some three to four years ago, saw a child about fourteen who was treated for typhoid fever. He found great tenderness of the left mastoid bone, and he had had a discharge from the ear for some months; the mastoid process was opened, but the boy died. A month ago he saw a similar case, a boy with perforation of both tympanic membranes. The discharge had ceased on the left side for a few days. The left mastoid bone was punctured next day; two days later pus flowed from the wound, and from that date the patient steadily improved. The question was, What is to be done in such cases? Were they justified in puncturing the mastoid bone at once? Under what circumstances did abscess form in the mastoid bone? In the post-mortem room they did not often find it.—Dr. Mahomed took exception to the alarmist view of the very great danger of all persons with a discharge from the ear. Very many people so affected went on perfectly well for many years. A few months ago he had a case in Guy's Hospital with convulsions. The boy was very ill, with very high temperature and apparently meningitis. There was slight oedema over one mastoid process, and this mastoid process was trephined. Gas and pus escaped freely. The boy

did not have any further cerebral symptoms, but his temperature did not fall, and he afterwards died of pyæmia. He believed there was no meningitis in that case, but the pus had been evacuated from below the dura mater; the lateral sinus and jugular vein were plugged. He had had two similar, but less severe cases, in adults after measles. The mastoid cells were opened, pus escaped, both patients recovered. He referred to a case of a man who came to the hospital with aural vertigo; he had no perforation or sign of ear disease. Hydrobromic acid was prescribed. Three days later acute meningitis came on and he died; but there was no sign of any disease in the ear, bone, or sinuses.—Dr. Rogers asked if the old treatment of leeching with blisters below the mastoid bone had been used by Mr. Dalby and found successful. He had seen a very large number of cases of ear disease in children, but very few deaths among them. He had known many such cases rejected for life assurance and the Civil Service, and yet be alive and well for twenty years afterwards. He had seen one or two fatal cases of such disease.

Dr. Andrew Clark remarked that it would be well if Mr. Dalby would give a notion of the number of the cases of ear discharge that did well. It would be well, too, to be told what advice Mr. Dalby would recommend to prevent the onset of these fatal complications in this very common affection.—Mr. Dalby did not wish to give the impression of the extreme danger of ear discharge with perforate membranes. The fatal cases he had related were very unusual, but none the less important. He had brought forward eight fatal cases from private practice in ten years, he had seen other four cases during the same time, but in these there were no post-mortem examinations, nor were they typical cases. He thought the proportion of fatal cases was about 1 to 3,000. As regards life assurance he thought it would be quite ridiculous to reject all cases of ear discharge, but he would reject all cases with bone disease. Post-mortems were made in all the eight cases except one, when he, and a physician in attendance, were quite sure that the patient was dying from cerebral abscess. When the discharge was very profuse, head pains acute, and there was tenderness upon deep pressure over the mastoid process, he would advise an opening to be made into the mastoid cells. He thought there was no advantage to be obtained from leeches or counter-irritation in these cases when head symptoms had already appeared.

Mr. C. Higgins and Mr. G. Nettleship contributed a paper on a case of Morphœa in the Region of the Fifth Nerve, with Paralysis of the Intra-ocular Branches of the Third. The subject of this case was a married woman, aged thirty-five, who applied to Mr. Nettleship in November, 1880, with mydriasis and partial cycloplegia of the left eye, with evidence of some dilatation of the retinal vessels and thickening of the coats of the retinal veins, and dilatation both of those vessels and the arteries. She also had single patches of ivory-white morphœa on the corresponding temple, side of the nose, and the upper lip; and a similar but less characteristic change in the skin of the forehead and front of the scalp on the same side, with thinning of the hair. The eye symptoms were of three months' duration. She had not discovered the skin changes. She was out of health from recent parturition and old uterine troubles. There was no proof of syphilis. She used eserine, and took various medicines, including iodine and arsenic, for a year, and then went to Guy's Hospital, where, under Mr. Higgen's care, she had continued the same local treatment and taken iodide of potassium and mercury. The symptoms in the

left eye are unaltered, except temporarily, by the eserine drops; the healthy skin affected by the morphea has become partially atrophic, and the hair on the affected area has nearly all fallen off. Latterly there have been threatenings of an onset of the same disease on the right side of the face and in the right eye, but it is not at present declared. During the course of the case there had been some eczema behind the ear and on the palm on the same side as the morphea. The authors pointed out that, whilst the morphea was strictly confined to territories supplied by the first and second divisions of the fifth nerve, the eye symptoms pointed clearly to affection of the branches of the third to the interior of the eyeball; and they observed that in this respect the case might be compared with those cases of herpes of the fifth in which the third or other motor nerves were also affected.—Mr. Higgins said there was a patch of morphea over the angle of the left scapula; in all other respects she was in the same condition now as when she first came under his care.—Dr. Hadden asked if there was any loss of sensation. He imagined there must be some diffuse spinal and cerebral change, as the disease was not limited to the face and eye, but affected the opposite scapula.—Mr. Nettleship replied that there was no general loss of sensibility, save over the large patch of morphea on the temple. Nothing suggested to his mind any central nerve disease.

The following cases were shown:—Congenital Deformity of Femur, by Mr. Morgan; Sclerema Neonatorum, by Dr. T. Barlow; Lateral Curvature of Spine, by Mr. B. Roth; Myxoedema, by Dr. Stephen Mackenzie.

Lingual Dermoid Cyst.—Stretching the Facial Nerve.—Spondylitis Deformans.—Epithelioma.—Nodes in Congenital Syphilis.—Infantile Hemiplegia.

An extra meeting of the Clinical Society of London was held on June 1st, Dr. Andrew Clark, President, in the chair. There was only a small attendance of members, but a large number of communications were read. At the close of the meeting the Society adjourned until October next.

The committee on Dr. Tyson's case of Leprosy reported that sections of a piece of skin removed from the lad showed the presence of the peculiar bacilli noticed by Dr. Thin and others in tuberculated leprosy.

Mr. Barker related a case of Large Sebaceous or Dermoid Cyst in the Tongue, removed by operation, with cure. The case was one of a woman, aged twenty-eight, who had first noticed pain and difficulty in swallowing seven years before. Soon after a swelling was observed exactly under the tongue in the middle line, and directly behind the symphysis menti. This had been increasing ever since. On admission into University College Hospital it pushed the mucous membrane forwards and upwards, so as to make an interval between the jaw and the root of the tongue of quite an inch broad. It also projected beneath the chin for about an inch and a quarter. The skin over it here was perfectly normal, and in no way attached to the tumour. The whole tongue was thrust much upwards, and its dorsum rested against the hard palate. The tumour was painless, and fluctuated over its whole surface; there was no trace of inflammation anywhere about it. On puncture with a grooved needle, typical sebaceous matter was obtained. On Aug. 12th, 1882, Mr. Barker removed the tumour by a straight incision in the middle line under the chin. The tough cyst was reached above the mylo-hyoid muscle, and lay here partially separating the genio-hyoidei. It

was easily separated from its bed, which lay almost entirely between the genio-hyo-glossi muscles, and reached quite up to the dorsum of the tongue, only covered by the tough mucous membrane of the latter. Blunt instruments and scissors were used, and hardly a trace of blood was lost, no vessels requiring to be secured, except one tiny twig, which was pinched. The wound, having been well cleansed with carbolic solution; the skin was brought together with four silver sutures, and the large cavity drained with a tube. The wound healed in a few days without any suppuration or reaction, and the patient left the hospital on the sixth day after operation. The cyst (shown), being removed entire, was found very tough and firm-walled. It measured 3 in. by 1½ in., and was somewhat uniform. Its contents were like porridge, with a faint, sour smell, and under the microscope were seen to be typical sebaceous material. Its wall was fibrous, lined by a thin, glistening membrane, leaving no doubt as to its nature. Mr. Barker stated that after careful search he had been able to collect only sixteen recorded cases of lingual tumours of the kind, exclusive of his own two. From an examination of these, it appears that these cysts may occupy three distinct situations in relation to the tongue:—(1) Between the genio-hyo-glossi muscles in the middle line; (2) they may be unilateral—that is, lie between the mylo-hyoid muscle and genio-hyo-glossus of one side; and (3) they may be bilateral, lying above the mylo-hyoid and below the genio-hyo-glossi of both sides. Their contents vary also very much, as also the age of the patients among whom they are met, although they appear to be, in a sense, congenital. Mr. Barker preferred complete enucleation, without opening the sac, as the easiest and safest operation. This may either be done from the mouth or by a median incision, as in the last of the author's two cases. The scar left by the last method is very trifling, as seen in the patient exhibited, and the ease and safety of the operation are greatly increased where larger cysts have to be removed.

Mr. R. J. Godlee read a paper on Cases of Stretching the Facial Nerve for Tic Convulsif. The first case was the conclusion of one reported in vol. xiv. of the Transactions of the Clinical Society, p. 44, by Dr. W. Allen Sturge and Mr. Godlee, that of a lady, aged seventy-two, in whom the operation had been performed for right-sided tic. The result was almost complete relief for nine months, when the spasm recommenced as the result of a sudden and severe nervous shock, and gradually regained all its former intensity. The patient remains in tolerably good health, but still suffers from some neuralgic pain in the face, principally in the right supra-orbital nerve, and at the top of the head, on the left side, at the seat of an old injury. She is unwilling to undergo any further operation. The next case was that of a man, aged thirty-six, who had suffered from bilateral tic for some years without assignable cause. There was no syphilis, and no source of reflex irritation, except some old carious stumps of teeth. It was made worse by exposure to cold and bright light and excitement. He had slight supra-orbital neuralgia on the left side. He was kept under observation for some months, and improved while perfect rest was maintained, but relapsed when allowed to go about. The left supra-orbital nerve was first divided subcutaneously without good effect, and subsequently the left, and afterwards the right, facials were stretched by the same method as in the former case. In both instances the twitching recommenced after three months, as the paralysis disappeared and returned as severely as before the operations. Arguments were adduced

in favor of the mischief in these cases being situated in the region of the medulla oblongata, and references were made to as many reported cases as the author could discover. It was shown that, though all of these had been reported at first as examples of success, in all (except in one reported by Mr. Southam, of Manchester, which remained quite well after two years) more or less return of the twitching had occurred. Some, however, according to reports carried up to the present time, remain to some extent improved. The total number of cases in the table amounted to thirteen. It was then urged, that if Mr. Southam's case did not exist, we should have to consider this chapter of surgical therapeutics closed, but that while it remained well there was still a certain amount of hope that the operation might be sometimes successful. It was lastly pointed out that the stretching of a small nerve on a hook acts differently from the stretching of a large nerve with the finger. In the latter class of cases the effect was probably either a loosening of the nerve from its sheath, or some influence on the nervous centre; in the former it caused a solution of continuity of the nerve, but with a certainty of union. The *modus operandi* was, therefore, probably not a profound effect upon the centre, as had been supposed, but merely the breaking of a bad habit, which must be taken for what it is worth.—Mr. H. Page thought the operation had been done oftener than might be inferred from Mr. Godlee's table. His colleague, Mr. Pye, stretched the left facial nerve and obtained relief for his patient for four months, but lately the spasms had returned after a severe fright. He himself had stretched the facial nerve for an obstinate case of incomplete facial paralysis, which had been attended with some very slight improvement. Dr. Braun had recently made observations on the effect of stretching the sciatic nerve, and he had found movements produced in very distant parts of the spinal cord. The President agreed with Mr. Page that the table was really incomplete. Mr. Hutchinson had stretched the facial nerve in a patient of his two years ago with complete relief. He thought that Mr. Godlee's paper was one of considerable value.

Mr. H. H. Clutton read notes of a case of Spondylitis Deformans. The patient, who had been exhibited at a previous meeting, was thirty years of age, and the subject of a severe form of ankylosis of the spinal column. In the family history there was nothing to indicate hereditary taint. In his previous history there was strong evidence of rheumatism affecting the joints. When nine years old he was confined to bed for rheumatism, which, with several intermissions, lasted for six months. It began in the metatarso-phalangeal joint of the right big toe. It then attacked the right knee, and finally the right hip. The latter joint had, he said, remained stiff ever since. Six years ago he had a painful foot, which the doctor called rheumatic gout. He had never had any venereal disease of any kind, and, beyond the attacks above described, had always had good health. Three years ago he first felt pain and stiffness in his neck, but they had caused him little inconvenience till the last six months. He can give no account of his back or chest, and is not aware that they are fixed and immovable. For the last three months his left shoulder has been stiff and painful, and he still occasionally suffers from rheumatic pains in the right hip. His present condition is one of almost complete ankylosis of the spinal column. He stands with the left leg advanced in front of the right, with the knees bent, and in a stooping posture. His spine presents one large dorsal curve, with the convexity backwards. The head is craned forwards, and the

chest sunken and depressed. The movements of the head are very much impaired, although not as yet completely destroyed. He cannot turn his head at all to the right, and only slightly to the left, the nose moving about an inch and a half from the median line. The lateral movements ordinarily obtainable in the cervical region are entirely absent. In raising and depressing the head, the chin only moves three inches. There is no movement whatever in the lower cervical vertebrae. This is very apparent on trying to make the patient bring his chin towards the sternum. On bending the whole body forwards, it is seen that the spinal column is quite rigid; there is no separation between the spinous process, or increase of curve. With the knees extended the tips of the index fingers just touch the patella, and this movement appears to be effected by the hip-joints. The respiratory movements are entirely abdominal. On the deepest inspiration there may be some slight expansion, but there is no elevation of the ribs. His height is now 5 ft. 2 in., and he is quite sure that some years ago he was 5 ft. 5½ in. As to other osteo-arthritis changes, the patient has several creaking-joints and distinct "lip-growths" in both shoulders and big-toe joints. He has also distinct limitation of movement in the left shoulder. The right great trochanter is larger than the left, and tender on pressure. All the other joints except those named seemed perfectly healthy. Such an extensive and severe form of ankylosis of the spine, with or without osteo-arthritis changes elsewhere in the body, was a rare condition in a man thirty years of age, and it was on this account Mr. Clutton brought him before the Society. A similar case was shown at this Society by Dr. Allen Sturge, and is recorded in the Clin. Soc. Trans., vol. xii.

Dr. Lediard also contributed notes of a case of Spondylitis Deformans and Osteitis Deformans. The patient was a miner, aged fifty-eight, from Cumberland, who had suffered from repeated attacks of pain in the spine, and rheumatic affection of the joints, and of late years stiffness of the spine and head, so that the body was bent forwards in a stooping posture. The spine was absolutely ankylosed except for slight movement in the neck, and the head was firmly fixed to the spine. Several joints presented chronic rheumatoid arthritis changes; there was no movement of the chest walls, respiration being entirely diaphragmatic. The femora were curved forwards and outwards, and the shafts, somewhat massive, suggesting the disease known as osteitis deformans in possibly an early stage. The skull and clavicle were, however, unaltered.—Dr. Dyce Duckworth said that if the changes in spondylitis deformans were the same as those in osteo-arthritis, it was remarkable that the spine was so rarely affected. He believed Mr. Hutchinson had said that gonorrhoeal rheumatism was often the starting-point of spondylitis. The most interesting cases were those occurring in young people.—Mr. Clutton stated that his patient denied ever having had gonorrhoea.

Mr. George Lawson related the history of two cases of Epithelioma which had occurred on old Cicatrices, and which he had removed. In the first case, the patient, a pale, anæmic woman, aged thirty-eight, had lost, in childhood, the sight of both eyes, except the bare perception of light, from an ulcerative inflammation, probably diphtheritic, and which had caused complete adhesion of the upper and lower eyelids of each eye to the globe. The patient was admitted into the Middlesex Hospital in May, 1881, and the growth first commenced in the previous September. It sprang from the cicatricial tissue which united the left lower eyelid to the globe, and steadily increased

until it obtained the dimensions shown in a drawing, the whole front of the eye being occupied by it. Mr. Lawson removed the growth and the eye. Two years have now elapsed since the operation was performed, and there has been no recurrence. In the second case, the patient, a strongly-built man, aged thirty, was admitted into the Middlesex Hospital in March, 1881, with an epithelioma of the left thigh, which occupied the greater part of a large cicatrix. Twenty years previously his left thigh was crushed by a heavy cart passing over it, which caused great laceration of the skin and muscles. He was seven months in the Aylesbury Hospital, and when he was discharged there was still an unhealed superficial wound of about the size of a small saucer. He then went to work as a farm laborer, but the wound never healed. Two years and a half before his admission into the Middlesex the wound took on a new action. It began to spread rapidly, the granulations became large and fungoid, and it occasionally bled. On admission there was found an epitheliomatous ulcer measuring seven inches and a half by eight inches. Mr. Lawson amputated the thigh just below the trochanters, and although two years have elapsed there has been no recurrence of the disease. Mr. Lawson remarked that the cicatrices which seemed specially prone to epithelioma were the tight cicatrices, such as are caused by a great destruction of skin, and those cicatrices upon which there is a constant tension. Both the cases, he said, tended to show that if epithelioma can be completely excised before it has affected the lymphatic glands, it is the form of cancer which is the most amenable to treatment; whilst experience has taught us that after the lymphatic glands are invaded, epithelioma is the most formidable and irremediable of all the cancers.—Mr. Godlee asked if the epithelioma sprang from the middle or the edge of the scar. He referred to a case in which cancer started in the centre of a lupus scar.—Mr. Lawson said that the unhealed part of the wound became a fungating epithelioma.—Mr. Haward said these cases pointed to the local origin of cancer. He referred to a case of an unhealed burn on a leg which had remained in much the same state for twelve years. Then it began to be painful and fungate, all attempts at healing failed, and eventually the leg was amputated and the growth was found to be epitheliomatous. There was no history of cancer in the family. There had been no recurrence of the disease after seven to eight years. There were other such cases of long unhealed sores becoming cancerous which had been completely cured by excision.—Mr. A. Barker said the case was interesting as showing the influence of local irritation in causing epithelioma; this was specially found in cases of cancer of the tongue.—Mr. Pearce Gould referred to a case of a woman in whom epithelioma developed at the edge of a scar on the thigh caused by a burn thirty years previously, and to the case of a man who had received a charge of shot in the leg several years before in whom epithelioma developed in and around unhealed sinuses. Such cases showed the close resemblance of the less malignant forms of epithelioma to rodent ulcer which Mr. Moore had shown to start very frequently in old scars.—The President asked if Mr. Lawson had found syphilitic plaques in the tongue precede epithelioma, and how irritation led to cancer.—Mr. Lawson replied that syphilitic tongues were more subject to cancer than others. These cases of epithelioma were very manageable in their early stage, but utterly beyond control in their later stage. There were many instances of local irritation producing cancer, but he was unable to explain how it did this.

Dr. Radcliffe Crocker described the case of a girl, aged twelve, with Nodes from Congenital Syphilis. The patient had been shown at a previous meeting. She had enteric fever five months before she came under notice, and during convalescence two nodes appeared on the forehead, one on each side of the median line; there was another tumour in the right orbit, softer than the nodes and movable. There was no corroborative evidence of syphilis about the girl except the two upper central incisors, both of which were notched, and one was slightly pegged. No history of infantile syphilis could be obtained, and the mother and the other children were apparently quite healthy; but eventually it was ascertained that the patient was a child by a previous husband, who died soon after marriage, had lived a dissipated life, and was never well, but resented inquiries into the cause of his ill-health. The patient was put under iodide of potassium, and when last seen the softer tumour had gone, and both the nodes were softer and much smaller, and the improvement in the general health of the patient was very striking. Dr. Crocker remarked that the case corroborated Sir James Paget's observation that typhoid fever often aided in the discovery of constitutional taint, and also Mr. Hutchinson's observations on the value of the notched and pegged incisor teeth as evidence of congenital syphilis.

Dr. Frederick Taylor read a paper on the case of Infantile Hemiplegia with unusual Reflex Phenomena, shown at the last meeting of the Society. The patient was a child, aged five, who was seized with convulsions at twelve months old. This condition lasted two hours, and was followed by weakness of all the extremities. In a few days the right arm began to move, and the right leg, but the left limbs remained paralyzed. Gradually rigidity developed, and with it the curious reflex irritability to be described. The child was fat and well, commonly semi-recumbent with both legs semiflexed and rigid, the left arm flexed at all joints and rigid. This arm is scarcely used, but the right freely and well. Both legs can be moved, but not completely flexed or extended. The right is less rigid than the left. The child cannot sit up in bed, nor stand upright, nor walk. The left arm and leg are nearly two inches shorter than the right arm and leg respectively. On making a sudden noise near the patient the left arm is quickly thrown out at right angles to the body, the elbow, wrist, and fingers are extended, the face assumes a puzzled expression, and the legs undergo moderate extension. The condition of spasm remains for about thirty seconds, then slowly relaxes. The same reflex contractions are brought about by shocks affecting the surface of the body, as a blow on the crib or a tap on the head. Vision appears to be good, but there is disseminated choroiditis in very small patches in both eyes. He is lively, fairly intelligent, and can talk. He passes feces and urine involuntarily. But for the choroiditis there is no conclusive evidence of congenital syphilis. He has been four months treated with iodide of potassium and mercury, but shows no material improvement. Dr. Taylor thought the case was allied to those of infantile hemiplegia with spastic or choreic phenomena occurring afterwards. Though not strictly unilateral the disease on the left side was obviously of cerebral origin, and that on the right side must be explained by a second lesion, or more likely by a single lesion crossing the middle line. The mode of origin suggested obstruction of a vessel with syphilis as a possible antecedent. Its early occurrence and the deficient growth of the left limbs rendered it probable that asymmetry of the brain also co-existed.

MEDICAL SOCIETY OF LONDON.

Dysentery and Liver Abscess.

At a meeting of this Society on April 30th, the President, Sir Joseph Fayrer, read a paper on *Dysentery and Liver Abscess*.—In the discussion which followed the reading of the paper Dr. N. Chevers said that recovery is probably rare in cases of pyæmic abscess of the liver, but as the peritoneum is not extensively involved the symptoms may be masked. He had found that those cases of dysentery which did not benefit by ipecacuanha always had liver disease, and recalled a case in point where the liver was full of linear cicatrices, such as would result from the healing of multiple pyæmic abscesses. His general conclusions from the treatment of a large number of cases similar to that recorded by Sir J. Fayrer were, when heavy and severe pain comes on in the right side in dysentery or malaria, to exhibit moderate doses of ipecacuanha, a purgative if necessary, large mustard poultices, and then blisters. With such measures he never saw hepatic abscess develop. If the abscess result from the absorption of septic matter, with embolism or thrombosis, how is it relieved by ipecacuanha or counter-irritation? He thought it began with congestion, and later thrombosis might occur. He referred to the case of a Bengal civilian, who was attacked by violent pain at the base of the right lung; pleurisy and pneumonia were diagnosed, and he died. On post-mortem examination a large solitary abscess was found, so old that its sac was cretaceous; ulceration took place around it and had caused the pulmonary inflammation. Another case was one of a fellow student of his at Guy's Hospital, of strumous aspect. He was attacked with agonizing pain, but travelled a distance of two hundred miles; and some weeks later an abscess was evacuated through the lung. He expectorated almost pure bile. When he died only a pulmonary abscess was found.—Surgeon-General Hunter thought it well to dissociate pyæmic abscess from tropical abscess. The former is a part of a general condition; the latter a local disease. The abscess may exist with symptoms of very minor importance. Dysentery may occur without abscess, and hepatic abscess without dysentery. Abscess of the liver in India occurs as follows:—The man has had malaria, or lived intemperately, or both. He gets out of condition, loses flesh, has "hepatic" dyspepsia; then a localized swelling over the liver is noticed, and, if contracted, it will burst in one or other direction. The abscess may be single, more often multiple. He mentioned a case of severe abscesses in a man who had never had dysentery, and had been in Egypt six months, but drinking hard. Exploratory puncture of the liver is harmless, and may give great relief. He did not like the aspirator for large superficial abscesses, but preferred a free opening with antiseptic drainage.—Dr. S. MacKenzie supported Budd's view of the pyæmic causation of many hepatic abscesses, but in phthisis and typhoid fever abscess of the liver is very rare, so that something more than ulceration of the intestine is required. Abscess of the liver may occur from (1) venous embolism from disease of viscera opening into portal vein; (2) in connection with disease of the hepatic area as in head injury, as pointed out by Pott; or (3) arterial embolism; (4) suppurating hydatid; (5) traumatic—very rare; (6) large abscesses without any intestinal disease. He had seen several cases of liver abscess discharge through the lung; reddish pus is often expectorated for weeks and months; very often the patient dies from the lung disease.—Dr. Drewitt

said empyema was quite analogous to abscess of the liver in regard to treatment.—Dr. Dyce Duckworth said that it was of great importance to regard closely the constitution and temperament of the people in whom this disease occurs. The personal element must not be left out of the question. Dr. Ewart had said that subjects of dysentery would become tubercular in this country.—Dr. Dickson had seen dysentery in many parts of the world, and amongst these cases had met with several of liver abscess. In China and in naval practice abscess is not common in cases of dysentery. On the coast of Africa and also on the Mediterranean abscess is rare, although malarial dysentery is common. Again, dysentery was common here 200 years ago, but he thought that abscess had not been much noted. Dr. Ward thought that liver abscess and dysentery were the result of the same cause.—Dr. Sanderson had had experience of native troops only, and had not had many cases of liver abscess, but he had no opportunities for post-mortem examinations on sepoy. Perhaps their immunity from abscess had some relation to their eating less animal food or drinking less alcohol.—Dr. Dowse referred to Dr. Hammond's cases of liver abscess in hypochondriasis in support of the existence of such abscess without symptoms.—Sir Joseph Fayrer deferred his reply to some future occasion. He then stated that the next meeting would be held in the new rooms under great advantages, and thanked the Fellows for their kindness in attending the meetings under the great difficulties entailed by the building operations. He announced that H. R. H. the Prince of Wales had signified his intention of attending the Society's conversazione.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Eye Symptoms in Spinal Disease.

A MEETING of this Society was held on June 14th. Mr. W. Bowman, F.R.S., President, in the chair. A discussion upon eye symptoms in diseases of the spinal cord was opened by Dr. Gowers.

Dr. Hughlings-Jackson, after remarking on the great excellence of the paper, spoke of the great complexity of *tabes dorsalis*. The symptoms were most various, joint affections, gastric crises, several very different morbid affections of the eyes, bladder symptoms, etc. Of the so-called typical symptoms, one or more might be absent; ataxy was often absent; with ataxy, the knee-jerks might be present. In one case of seventeen years' duration, the Argyll-Robertson symptom was not found. Some of the so-called typical symptoms were discovered in other diseases. The commonest pupillary condition was seen in some cases of general paresis. The knee-jerks were absent in many different morbid conditions, one of the most important of them being diptherial paralysis, a disease which, superficially regarded, had sometimes a great likeness to locomotor ataxy. There were degrees of some, at least, of the symptoms; no ataxy, degrees of ataxy, and, so to speak, a degree beyond ataxy, in inability to walk at all. If there were not degrees of pupillary conditions, there were various such conditions. The width of the symptomatology was exceedingly different in different cases. There might be the Argyll-Robertson phenomenon with no other definite nervous symptoms, and when so, the nature of the case, beyond perhaps the vague diagnosis of nerve degeneration, could not be concluded upon. A case of *tabes* without ataxy might present a far wider symptomatology than one with ataxy. Dr.

Hughlings-Jackson, admitting the frequency of eye symptoms with disease of the spinal cord, knew of none from lesion of it, excepting when that lesion was in the cilio-spinal region, as, for example, in a section of half the cord from a stab with a knife (contractions of the pupil on the same side, and narrowing of the ocular aperture). To statistics of optic atrophy, in its relation to other tabetic symptoms, he could offer nothing definite, one reason being that cases of morbid eye affections were sent to him because he was known to be specially interested in them. He urged that the Argyll-Robertson condition was often found in cases of optic atrophy (tabetic), not only when sight was slightly impaired, but when there was bare perception of light; in one case he had found it when the loss of sight was absolute. The pupils enlarge when the patient "makes believe" to look at the clouds, and contract when he makes believe to look at his fingers held near him. On the other hand, with considerable impairment of sight, the pupils may remain contractile to light. To illustrate the varying width of association of optic atrophy with other tabetic symptoms, he mentioned five cases. 1. Atrophy of one optic nerve and then of the other (green appearing grey, and red reddish-brown), pupils acting to light, gait good, jerks present; in short, no other symptoms except lightning pains. 2. Optic atrophy with the Argyll-Robertson conditions, and without pains; and for the rest (saying nothing, however, of color-perception, which was not tested) like the former case. 3. Like 2, but with pains also. 4. Optic atrophy (blind eight years), Argyll-Robertson condition, gait good, no knee-jerks. 5. A much more rapid case; pains, one year blindness complete except for bare perception of light, in six months; could only just stand (loss of sight, no doubt, contributing to this disability); no knee-jerks. Dr. Hughlings-Jackson then spoke of cases of double optic neuritis, with absent knee-jerks. A woman; bare perception of light, reeling gait, no knee-jerks, who, after mercurial inunction and iodide of potassium, got well, except that, when last seen, she had no return of the knee-jerks. A girl, seen with Mr. Bowman; she had double optic neuritis, reeling gait, no knee-jerks then or after; later, right hemiplegia and aphasia; no necropsy. A man, who died with tumour of the left cerebral hemisphere, had aphasia and right hemiplegia; both knee-jerks present at first, both lost later; no morbid changes found in spinal cord by Dr. James Anderson. Dr. Hughlings-Jackson had seen double optic neuritis with absent knee-jerks, and no, at any rate, no other, localizing symptoms. He had nothing to say as to the nature of any associations of optic neuritis with any morbid conditions answering to those of the knee-jerks. The jerks were present in some cases of tumour of the cerebellum, with double optic neuritis in one case of a lateral lobe, in another of the middle lobe (necropsy). He then spoke of diphtherial paralysis. He had been incorrectly reported to have said that this disease was owing to a morbid affection of the sympathetic system. What he ought to have said—all that he really holds—is that the ocular, the palatal, and the rarer circulatory symptoms (great slowness of pulse) of this disease, are morbid affections of parts supplied through ganglia of the sympathetic; he believes the spinal cord, as well as higher parts of the nervous system, to be morbidly affected in this disease. He had not seen a case of so-called diphtherial amaurosis in a stage when the paralysis of the ciliary muscle was complete; in some cases, where accommodation was only weak, he thought the pupils acted well to light, whilst action of them during accommodation was at least imperfect. In one case, the

knee-jerks did not reappear until one year after all the symptoms of diphtherial paralysis had gone. Dr. Hughlings-Jackson then went on to speak, by stating cases, of the very different abnormal intra-ocular motor conditions met with in tabes, or existing along with one or more of the so-called typical symptoms of this morbid affection. He spoke of the commonest, the well-known Argyll-Robertson conditions, only incidentally. 1. Sudden and complete loss of both pupillary activities and of accommodation on but one side; gait good; no knee-jerks; there had been lightning pains four or five years; the other eye, carefully examined for the Argyll-Robertson condition, was normal. 2. The same condition as in the last case, except that the so-called good eye presented the Argyll-Robertson symptom. This patient, a healthy-looking intelligent sea-captain, had no other symptoms, mental or physical; hence the feature of his case could only be guessed at. 3. Argyll-Robertson condition on but one side; ataxy, lightning pains, no knee-jerks. 4. A woman; loss of action of one pupil to light and during accommodation, accommodation itself being absolutely perfect (examined by Mr. Couper); the pupil of the other eye was normal; that eye had all her life been slightly defective; no other symptoms of any sort were discoverable, except the most significant one of absent knee-jerks. 5. The same ocular condition on both sides (examined by Mr. Couper); ataxy, lightning pains, no knee-jerks. 6. The same ocular conditions, except that accommodation was slightly weaker than usual at the patient's age (examined by Mr. Nettleship); gastric crises, ataxy, lightning pains, no knee-jerks. 7. Both pupils acting in no way, accommodation of each eye good; ophthalmoplegia externa; the only further tabetic symptom was absence of one knee-jerk and nearly loss of the other. Dr. Hughlings-Jackson again remarked on the complexity of tabes dorsalis, adding the expression of his belief that Dr. Gowers's able paper would help us greatly in precise and methodical investigation of this morbid affection.

A paper on Ocular Symptoms occurring in General Paralysis of the Insane, by Mr. W. Bevan Lewis, was read by the Secretary. By the systematic examination of a large number of cases, the author has been led to the following conclusions: (1) That a loss of reflex dilatation of the pupil to sensory stimulation occurred in the greater number of cases of general paralysis of the insane. (2) That, next to this condition, the most frequent accompaniment of the disease was loss of pupillary reaction to light (reflex iridoplegia). (3) That in 23 per cent. of the cases the movements on accommodation were completely lost, and that (4) in a few cases cycloplegia was associated with this. (5) That ophthalmoplegia interna was found only in advanced stages of the disease; in one case it appeared to commence as reflex iridoplegia. (6) That, with the exception of one case, reflex iridoplegia was always present when the movements on accommodation were impaired or lost. (7) That spinal symptoms (such as absence of patella reflex) were by no means especially associated with the more grave ocular troubles. Finally, Mr. Bevan Lewis concluded, judging from the nature and progress of the disease, its duration, the history of cases in the earlier stages, and the condition of the paralytic in the more advanced stage, that the sequence of phenomena occurring in the iris in this disease was this, that there was, first of all, loss of reflex dilatation to cutaneous stimulation; that, next, the action to light was lost (reflex iridoplegia); and that, in the final stage, ophthalmoplegia interna was developed, and became in the end complete.

Dr. Savage, who spoke in response to a call

from the President, said that he was not prepared to bring forward any statistics bearing on the question. He believed that the examination of the optic disc would lead to a considerable increase in our knowledge with regard to general paralysis of the insane. When, now a good many years ago, he had first begun to examine patients suffering from this disease with the ophthalmoscope, the results had been negative or unsatisfactory. In conjunction with Mr. Henry Power he had made careful observations on a large number of these patients with the sphygmograph and the ophthalmoscope, but the results had been so purely negative that it had not appeared worth while to make any permanent record of them. In recent years, however, he had gradually come to appreciate certain changes which occurred in the optic discs, not of all, but of a certain number of patients suffering from general paralysis. In one class of these patients tabetic symptoms were prominent, and sometimes preceded the other symptoms of the disease by many years; for instance, in one case tabes had been in existence for ten years before the development of general paralysis led to the admission of the patient into Bethlem Hospital. In such cases as these changes in the optic disc were commonly found; he had, however, only recently learnt that these changes were not confined to the patients who presented tabetic symptoms, but that they occurred also in another class of patients—those who presented symptoms of lateral sclerosis. In this connection the question arose whether this lateral sclerosis was secondary to degeneration of the motor tracts in the brain. He had met with a few cases of general paralysis of the insane occurring in young single men of steady habits, where lateral sclerosis developed secondarily to intellectual symptoms, and in these cases there were changes in the optic discs. It was now generally recognized that "general paralysis" was a wide term, embracing a number of separable conditions; in making this subdivision, a careful attention to alterations in the optic discs and in the reflex phenomena would be of great assistance.

At this stage the debate was adjourned until the following evening.

Adjourned Debate on Eye Symptoms in Spinal Disease.

The debate on eye symptoms in spinal disease was continued, Mr. R. Brudenell Carter in the chair.

Dr. Walter Edmunds detailed a case. The patient was a man, aged fifty-seven, who had had syphilis nine years before. He remained well till three years ago, when he fell from his horse and hurt his neck; three months later he again fell from his horse, and thought that this was due to an attack of unconsciousness. Soon after this, he one day had a sudden attack of blindness, without any giddiness, headache, loss of consciousness, or vomiting; the attack lasted fifteen minutes. Subsequently, he had three attacks of vomiting. When he came under observation his gait was awkward, but not ataxic. Both pupils were fixed to light; the left pupil acted on accommodation, the right did so to a less extent. The chief point of interest in the case was the attack of complete temporary blindness.

Mr. J. B. Lawford read notes of seven cases of General Paralysis of the Insane in which Optic Atrophy occurred. In five out of the seven there were symptoms of spinal sclerosis; in one, tabetic; in the other, lateral sclerosis. Of twenty-two cases of general paralysis recently examined at

Bethlem Hospital, Mr. Lawford had found optic atrophy in three, in all of which spinal symptoms were present. Microscopic sections and drawings of the optic nerves, chiasma, and tracts of one of the cases were exhibited.

Mr. R. Marcus Gunn said he proposed to offer very brief replies to some of the questions Dr. Gowers had put in his memoranda. Out of eighteen cases of optic atrophy that had been admitted into Moorfields during his term of office, two had locomotor ataxy, and three others were suspected of it. As regarded the date at which the atrophy supervened, out of nine cases of ataxy, seven had optic atrophy, and in all it appeared during the first stage. In five of these cases the changes were more marked in the left eye, in two in the right eye; in three cases the changes were known to have commenced in the left eye. There might sometimes be a temporary arrest, and even slight improvement in the atrophy; three instances of this were given. In conclusion, he alluded to two cases presenting some features of interest, namely:—1. A man, aged thirty-nine, with locomotor ataxy and optic atrophy, but not much affection of sight, his vision being 20-20ths in one eye and 20-30ths in the other, which had more lately, however, deteriorated to 20-40ths. 2. A woman, aged forty-nine, who had in early life rheumatic fever, then small-pox, and afterwards intermittent fever; then paralysis came on, commencing in one leg, then going to the opposite arm; gradually becoming general and complete, it lasted two years. For many years she had had exophthalmic goitre; the prominence of the eyes was gradually diminishing. She appeared to have had an epileptic fit. About a year ago it was noted that the pupils were small and did not act to light, but acted to accommodation; there was paresis of right external rectus, the knee-jerks were diminished, and slight ptosis on left side was noted. More recently it was found that the paralysis of the ocular muscles had disappeared, the knee-jerk was absent, and the pupils still acted to light, but not to accommodation.

Dr. Mahomed thought that it was proper to remember that in dealing with the diseases of the nervous system, we were dealing with the diseases of one organ and of one tissue; it was everywhere continuous, and its diseases were similarly, in many cases, continuous—that is, uniformly distributed throughout it. In observing the changes in the optic disc, or in testing the intraocular reflex phenomena, we might be only discovering, in the most susceptible part of the system, disorder which might exist in a lesser degree in all the coarser reflex actions. He thought there was a tendency to attach too much importance to individual symptoms, and to attribute to them a greater pathognomonic significance than they deserved. Dr. Mahomed concluded by quoting several cases in support of his contention that too much importance ought not to be attached to alteration in the knee-jerk, to ankle-clonus, or to nystagmus, as evidence of structural disease.

Dr. Seymour J. Sharkey contributed an account of three cases. The first was that of a woman who, at the age of twenty-nine, began to suffer from giddiness, thickness of speech, trembling (on the right side chiefly), and severe headache. Three months later the case came under the care of Mr. Hulke, at the Royal London Ophthalmic Hospital, for optic neuritis and defective sight in the left eye. She came under the care of Dr. Sharkey when thirty-four years of age. There was then incomplete atrophy of both optic discs, and distinct symptoms of disseminated sclerosis. The second case was that of a man who came under care when

twenty-two years of age. The right disc was then hazy and slightly oedematous. A year later he was admitted into St. Thomas's Hospital, under the care of Mr. Nettleship, and the right disc was found to have passed into a state of grey atrophy. The left disc could be only imperfectly seen, owing to old corneal opacities. Three years later, when twenty-six years old, he came under Dr. Sharkey's care with characteristic symptoms of disseminated sclerosis. The third case was that of a man aged forty-two, who presented symptoms of the same disease. These symptoms were said to have been present for about fifteen years, but his sight had only been failing for about twelve months. His vision was 20-70ths, and the discs were slightly pale and misty all over, the borders being nowhere quite clear. Vision subsequently slightly improved.

Mr. Nettleship made some observations on some of the points relating to optic atrophy in Dr. Gowers's address. He thought there were clinical reasons for believing that optic nerve-changes in locomotor ataxy began at the disc, not in the trunk of the nerve or optic tract; he had seen no unequivocal cases of spinal disease in which sight failed before ophthalmoscopic changes became apparent, whilst it was commonly observed, on the other hand, that the appearances of atrophy were more pronounced than the condition of the sight would lead us to expect. Of seventy-two patients under his care with progressive atrophy of the optic nerves, thirty-six were undoubtedly tabetic, eight had symptoms of mixed spinal and cerebral disease (allied to general paralysis), seven had some other forms of chronic spinal disease, not ataxy, eight had, besides optic atrophy, reflex iridoplegia ("spinal pupils"), but no other symptoms of disease of cord or brain; in the remaining thirteen there was no proof of disease of the nervous system, but in some of these the notes were incomplete. He had been struck with the rarity of the complete absence of spinal symptoms in progressive atrophy. Alluding to the mode of failure of vision in progressive atrophy, he pointed out that the field of vision is often invaded in a precisely symmetrical manner in the two eyes, although at any given time one eye is usually worse than the other. He had seen only two or three cases in which one eye became quite blind before the other began to fail.

Mr. Brudenell Carter said that the papers read had added much to the wealth of the material placed before the Society on the previous evening, but they served also to show the great complexity of the problems involved. It had not been his intention to take part in the discussion, but he would venture to say that all practitioners would be grateful to those who could give a clue to the value of the symptoms in the class of cases under consideration. It often happened that a patient with some impairment of walking power, and some optic atrophy, desired a prognosis; but it was most difficult to know whether the case was one of progressive spinal disease or not. He had attached some importance to the knee-reflex as a guide in this matter, but had not always found it trustworthy. Again, some cases came with optic atrophy and no other symptoms, as in the case of a sergeant who had been nineteen years in the army and had enjoyed perfect health, but for some months had been rapidly losing his sight, which improved markedly under hypodermic injection of strychnine. Would that man become ataxic? The occurrence of such cases made one grateful for some hint which could be utilized in daily work.

Mr. McHardy referred to a case which was unique in his experience. It was a case of dis-

seminated sclerosis in a young woman. The right eye showed no ophthalmoscopic changes, and vision was slightly below the normal. In the left eye there was typical retinitis pigmentosa with atrophy of the disc.

Dr. Gowers said that the very interesting papers were valuable contributions to our knowledge of the subject, but the discussion had been so slightly controversial that it left him but little to reply. Mr. Gunn's case of Graves's disease was one of great interest and complexity; it was also interesting as an instance of complete loss of the reflex action of the pupils to light preceding loss of the knee-jerk. Dr. Mahomed's general principles were unquestionably of great importance, and should be borne in view; but he (Dr. Gowers) had often been impressed with the opposite fact, in the remarkable way in which the nervous system suffers in part. Nothing, for instance, is more remarkable than that the posterior columns of the cord should be absolutely destroyed, whilst other parts exhibit no visible change. A definite diagnosis was hardly possible in Dr. Mahomed's case of optic atrophy with polyuria; the only symptom of tabes present in that case was pain. The occurrence of severe headache at the time of onset of the loss of sight suggested the possibility of the case being one of tumour just above the chiasma, a situation in which he remembered a tumour occurring that ran a very chronic course, and one in which polyuria was, he thought, also present. At the same time that would not explain the pains. It certainly was very unusual to have pains in the limbs from tabes of long duration, and not to have the knee-jerk reduced. Dr. Mahomed had alluded to the occasional absence of knee-jerk under normal conditions. Berger found it so absent in about 2 per cent.; and he (Dr. Gowers) mentioned several cases in which he could not detect it in his paper read before the Royal Medical and Chirurgical Society in 1879. But from that time to this he had never found it absent in health. There is a great fallacy in regard to the failure to elicit the knee-jerk; it very often cannot be obtained because the patient does not perfectly relax the flexors of the knee-joint, and if these muscles are not relaxed the jerk does not occur. This was particularly liable to arise in hysterical subjects, and hence the statement that the jerk is absent in hysterical paraplegia. The fallacy can be detected by placing the fingers on the flexor tendons and often obviated by causing the patient to sit upon the edge of a table. There was also a fallacy to guard against in testing the pupillary reaction to light, owing to the patient involuntarily accommodating to the light. He had been told of a case where the pupils did not react to artificial light, but did to daylight; probably this was due to the patient accommodating to the former. Dr. Sharkey's case of disseminated sclerosis was very interesting. Sight is sometimes lost, not simple atrophy, but because of sclerosis in the optic tract. The case referred to by Mr. Nettleship was very complex, because the nature of the lesion was uncertain. The spinal affection ensued upon malaria, and the symptoms were a combination of paralysis and ataxy; the loss of sight being probably due to the same cause as those symptoms. What is required is evidence of optic atrophy following an acute spinal lesion. Mr. Nettleship's statistics were of great value, being the most carefully compiled facts upon the question that have yet been made, and it is to be hoped that other ophthalmic surgeons will be stimulated to a similar research. Such facts bearing on the relation of optic atrophy to spinal diseases and to spinal symptoms should go far to settle the question. In the other case read by Mr. Nettleship, he thought

that the homonymous hemiopia was certainly accidental, and not connected with the morbid process of ataxy.

OBSTETRICAL SOCIETY OF LONDON.

A MEETING of this Society was held on June 6th, Dr. Gervis, President, in the chair.

Sarcoma of Ovary.—Dr. Galabin (for Dr. Elder) showed a Tumour of the Right Ovary having the microscopical characters of spindle-celled sarcoma, which had been removed from a woman aged fifty-five.

Anteflexion with Hypertrophy of Uterus.—Dr. Graily Hewitt (with Mr. A. Q. Silcock) exhibited a specimen of general and considerable Congestive Hypertrophy of the Uterus, with Acute Anteflexion and an Ovarian Cyst. The patient was aged forty, and sterile. The enlarged uterus nearly filled the pelvis; it was adherent on all sides, and acutely anteflexed. It weighed twenty ounces. There was a kind of dilatation of its cavity just above the angle of flexion. There was no evidence of separate fibroid formation, but it was a symmetrical hypertrophy of the whole uterus. No doubt the enlargement had existed for years, bringing about interference with the circulation in the uterus and pelvis generally. Dr. Graily Hewitt had seen cases analogous to this during life, but the large size of the uterus in this case rendered it almost unique.

Dr. Hewitt also showed an acutely Anteflexed Uterus from University College Museum. This uterus was in miniature very like the large specimen.—Dr. Robert Barnes had recognized cases of this kind clinically, and treated them successfully by the use for several months of iodine injections (one in eight). The iodine passed by osmosis through the body of the uterus, checking growth, promoting absorption of the hyperplastic tissue, and thus gradually reduced the uterus to the normal size, and effected a complete cure. He had in one case seen iodism produced, proving that the iodine went through the uterine wall.—The President asked where Dr. Hewitt drew the line between congestive hypertrophy and myo-fibromatous growth. The naked-eye appearances of the specimen closely resembled those of a fibroid.—Dr. Herman pointed out that in the second specimen slight dilatation of the uterine cavity was produced by the way in which the specimen was mounted.—Mr. Lawson Tait thought that if the case had come under his care he would have regarded it as an ordinary uterine myoma. The presence of ovarian cysts was important; for he thought that if they had been removed, the uterine tumour would have been cured.—Dr. Henry Bennet could testify to the value of iodine in chronic inflammation, with hypertrophy, of the cervix, extending or not to the body, of the uterus. Iodine applied to the skin left no permanent marks. He applied iodine solutions freely to the cervical canal, but did not inject them into the uterine cavity. The cavity of the body was separated from that of the cervix by a sphincter, which was closed in health. The injection of fluids by a syringe, the nozzle of which passed beyond the sphincter, was not free from risk. He had had one case of fatal peritonitis, and had repeatedly seen serious symptoms follow it, probably from the fluid passing through the Fallopian tube into the abdominal cavity.—Dr. Murray did not think injecting the uterine cavity was free from risk. He had seen instant pain and subsequent inflammation follow it; and the late Dr. Tyler Smith had mentioned to him a similar case.

Adhesion of Polypus to Vaginal Wall.—Dr. Potter showed a Polypus, the size of a small hen's egg,

growing from the body of the uterus by a short thick pedicle, and inseparably fixed by adhesion to the vaginal wall.

Pyo-salpinx.—Mr. Lawson Tait showed specimens of Pyo-salpinx removed from two patients. In one the cause was not known, and the symptoms had only lasted a few weeks. In the other the symptoms, which were constant pain, aggravated by menstruation and marital intercourse, followed confinement, and had lasted ten years. Both patients were recovering.

Mr. Knowsley Thornton showed large double Pyo-salpinx, one tube containing half a pint of pus, removed from a single woman, aged thirty. The ovaries were left. The patient was doing well.

Myxomatous Degeneration of Uterine Fibroid.—Dr. Godson exhibited a Tumour removed from a patient aged sixty-one, the upper part of which, attached to the anterior uterine wall, presented the characters of an ordinary sloughing fibro-myoma, while the lower part was myxomatous. He thought this kind of degeneration of fibroid was very rare.

A Case of Acute Gangrene of the Vulva in an Adult, with Remarks.—This paper, by Dr. Herman, was then read. The case related was one of acute gangrene of the skin of both labia, the perineum, and margin of the anus, and the mucous membrane of the lower part of the vagina and urethra, occurring in a patient aged thirty-seven, without clearly discoverable cause, the gangrene being apparently the result of acute inflammation. The author had collected all the published cases that he could find of similar gangrene of the vulva in adults occurring independently of venereal phagedæna. He found they might be divided into four classes. 1. Those occurring in patients suffering from acute diseases—viz., the specific fevers and cholera. 2. Epidemic puerperal gangrene, which had occurred in hospitals only, beginning as isolated round or oval sloughs on the inner surface of the labia, the process usually stopping with the separation of the sloughs, though sometimes going on to extensive destruction of the parts. 3. Acute gangrene, occurring independently of contagion and beginning with acute inflammation of the external genitals more superficial than noma, and not spreading like erysipelas. 4. Spreading gangrenous cellulito-cutaneous erysipelas. The author did not think there were grounds for a positive conclusion as to whether the differences between these classes were essential differences in the morbid process or merely minor differences due to the circumstances of origin, but he thought probably the latter was the case.—The President thanked Dr. Herman for his paper, and remarked on the rarity of the malady described.—Dr. Cleveland suggested that the gangrene in Dr. Herman's case might have been caused by a chill, occurring in a woman ill clad and of broken-down constitution.—Dr. Fenton Jones suggested that the gangrene might have arisen from local septic inoculation, occurring through chafing and the use of a dirty napkin.—Dr. Matthews Duncan referred to sloughing cellulitis of the scrotum in males, and analogous cases in the female. He had seen a fatal case of puerperal sloughing of the vulva resembling hospital gangrene with cystitis. Sloughing of the hymen and tags of lacerated tissue was often seen. He had seen a case of linear sagittal sloughing of the perineum after a difficult labour. He had seen both labia gangrenous from the pressure of a large protruded fibroid.—Dr. Hickinbotham had seen two cases; one occurring in a woman lying in a room in which were cases of scarlet fever, the other in a woman whose husband was the subject of erysipelas of the scalp.—Dr. Herman said that in his case the skin seemed to be the seat of dis-

case, rather than the cellular tissue. The puerperal gangrene occurring epidemically seemed to run a more acute course than ordinary hospital gangrene. The sloughing in it affected uninjured tissue, and was quite distinct from the common sloughing of tags of lacerated tissue.

MEDICAL OFFICERS OF HEALTH SOCIETY.

A MEETING of this Society was held at 1 Adam-street, Adelphi, on May 18th, 1883, Dr. T. W. Tripe, President, in the chair.

On account of an outbreak of Small-pox in the Hackney Union Infirmary was given by the President, of which the following is an abstract:—On March 28th the author received notice that a case of small-pox had been removed from the work-house infirmary, and having been consulted as to the course to be taken to prevent the spread of the disease, advised the revaccination of those in the same ward, isolation, and disinfection of the clothes of the sick. Other cases having occurred on April 9th, he recommended more strict isolation and more complete disinfection. The patient had already been isolated from the other inmates, and the medical officer had also begun to revaccinate not only those in the ward where the disease first appeared, but in another ward where cases subsequently occurred. The history of the outbreak is as follows. A man, No. 1, was admitted into the infirmary on March 20th, suffering from secondary syphilis. On March 23rd or 24th a rash appeared, which was at first believed to be syphilitic. On the 27th there was no longer doubt as to the nature of the disease, and he was removed to the Homerton Small-pox Hospital. Before his disease was recognized his clothes were sent away to be washed with others, but afterwards the beds and bedding were taken away to the disinfecting chamber; but probably everything was not removed. On March 26th, No. 2 was admitted into this ward for some slight illness, and was discharged on the 30th. On April 9th, he was removed to the small-pox Hospital. No further extension of the disease from this case took place. On April 8th, No. 3 had the rash of small-pox upon him, having ailed for a day or two previously. On the 9th, Nos. 4 and 5, both in the same ward as No. 1, were removed to the Small-pox Hospital. On the same day No. 6, sleeping in another ward (female), who was engaged in the laundry, was attacked with small-pox and removed to hospital. None of these persons had been revaccinated, but the whole of the inmates of this ward, which was in no way connected with the male ward in which the disease broke out, were revaccinated as quickly as possible. On April 14th and 15th two other cases, Nos. 7 and 8, occupying a third ward, were attacked. No. 7 was employed in the laundry; No. 8 was not, but occupied a bed immediately opposite No. 7. The inmates of this ward were all revaccinated, and everything they had used properly disinfected; and when fifteen days had elapsed from the occurrence of the last case, the ward was emptied. The history of this outbreak is unusually instructive. No. 1 must have received his infection before his admission; No. 2 waited upon him, became frightened on hearing what the disease was, and was removed to the hospital ten after he left the infirmary, and fifteen days after he was exposed to infection, if it be assumed that small-pox is not infectious during the incubation period. At any rate, there can be no doubt as to the source of his infection, nor of Nos. 3, 4, and 5, who were removed to the hospital from the same ward on April 8th and 9th. But the question arises, would these cases have oc-

curred if they had been revaccinated on March 26th as soon as the rash appeared on No. 1. According to Mr. Marson's opinion they would not, as he believes, if revaccination be effectually performed within two, or at the most three, days after exposure to infection small-pox will not result. At any rate, it is certain that no one else suffered as soon as revaccination was performed on all the inmates. The cause of the outbreak in the women's ward is not so simple, as there was no direct communication between the two sides of the infirmary, the only persons passing from one to the other being the medical officers. The facts, however, that No. 6 was employed in the laundry to which infected clothes had been sent without disinfection, and that she sickened about the usual time after the clothes were sent to the laundry, seem satisfactory evidence as to the origin of the disease. No. 7, who had no connection with No. 6, except that both were employed in the laundry, was removed to hospital on April 14th, and No. 8 on April 15th, both of these being inmates of the same ward. How No. 8 caught the disease it is difficult to say, unless the clothes of No. 7 became infected in the laundry; if so, it is not clear why the outbreak in this ward was limited to these two unless the speedy revaccination of the inmates of the ward prevented any further spread of the disease. Considering there were 800 inmates in the infirmary, the rapidity with which the outbreak was stamped out is most satisfactory, especially showing the efficacy of revaccination, for it should be remembered that although three cases occurred in two crowded wards, the disease did not extend further, notwithstanding that judged by the number of successful revaccinations many must have been previously susceptible to small-pox.

Mr. Jacob gave an account of Two Outbreaks of Small-pox in Workhouses which had come under his notice, and in the discussion which followed, Dr. Willoughby, Dr. Dudfield, Dr. Bristowe, Dr. Corner, and Mr. Wynter Blythe took part.

Dr. Willoughby also read a brief paper on the Statistical Reports of the Municipality of Frankfurt-on-the-Main.

ACADEMY OF MEDICINE IN IRELAND.

A MEETING of the Obstetrical Section was held on February 23rd.

Dr. J. S. Poole showed for Dr. Kidd the Uterus, Heart, and Lungs of a Puerpera, who died suddenly on the sixth day. The post-mortem showed a small abscess, at the junction of the right Fallopian tube with uterus, opening into the peritoneal cavity. Here the vermiform appendix and an epiploic appendage was seen adherent. A large clot was seen *in situ*, completely blocking a primary branch of the right pulmonary artery for about an inch and a half. Dr. J. S. Poole also exhibited an Anencephalous Fœtus, the second born of slightly premature twins, the first of which was born healthy and living.

Dr. J. B. Kirkpatrick showed a Uterus and Appendages, with large fibroid tumour in anterior wall.

Dr. William C. Neville, Sectional Secretary, exhibited for Dr. H. Macnaughton Jones—(1) Fœtus and Placenta of six months, in which delivery, complicated by deformed pelvis and transverse presentation, was effected by version, with removal of detrunated head by perforation and craniotomy forceps. (2) A large Fibroid Polypus, which sprang from the cervix uteri, and filled the vagina. There was also a dermoid tumour of bladder from the same patient. (3) A Unilocular

Ovarian Cyst, and a Multilocular Ovarian Cyst, both removed by operation.

Mr. Story showed a patient who had a symmetrically placed Supernumerary Finger growing from each hand. A brother had a similar deformity.

Dr. Atthill read a paper on Metria (so-called puerperal fever). He commenced by saying that our knowledge of the various affections included by the Registrar-General under the term metria, still far from perfect, had of late been steadily increasing. It was now all but universally conceded (1) that there is no such single disease as puerperal fever properly so-called—that is, a specific disease in the same sense as scarlatina or small-pox; (2) that inoculations and absorption of septic matter conveyed from without formed a not infrequent cause of one form of metria—viz., puerperal septicæmia; (3) that puerperæ frequently become self-inoculated by poisonous material generated within their own bodies, either by the decomposition of retained clots or shreds of membranes or placenta, the resulting fever being by some called puerperal sapræmia in contradistinction to septicæmia. He held that the septicæmic form of metria could only be communicated from one puerpera to another by the actual transfer of the pathogenic matter, either by the hands of an attendant, the nozzle of a syringe, sponges, napkins, etc., but not by the medium of the air. To two points he drew special attention, the frequent occurrence of metria in puerperæ who are preyed upon by remorse or mental distress, and the occasional outbreak of a very fatal, infectious, and essentially epidemic form of metria which he believed could not be due to septic absorption. The influence of remorse and mental distress in predisposing to the disease was well seen in the high mortality attending puerperality in women who had been seduced; and if such cases were excluded, he thought that the mortality of the Rotunda Hospital would only amount to one-half its present rate. Here fretting and quickened pulse were the earliest symptoms of danger, a severe form of metria manifesting itself after twenty-four hours. These cases of metria were usually due to self-inoculation, the putrid matter finding a ready inlet because of the deficient post-partum contraction of uterus seen in such patients. Occasional outbreaks of an epidemic and very infectious form of metria were also known to occur, the disease spreading widely among the inmates of a hospital. He could not accept Dr. Evory Kennedy's explanation of these outbreaks, as due to the aggregation of puerperæ, nor could he admit their septic origin, since septic material was not communicable through the air. He held rather that these outbreaks occurring simultaneously with epidemics or other zymotic fevers were really examples of these zymotics, specially modified by the physiological state of puerperal women. The infection of erysipelas could thus induce an attack of infectious metria in a puerperal woman, while conversely such a form of metria could impart erysipelas to her offspring. In the same way scarlatina grafted on a puerpera might result in metria, and not in scarlatina. This infectious form of metria tending to assume an epidemic character was therefore to be considered as consisting of specially modified cases of the prevalent zymotic disease. As strengthening this view, Dr. Atthill noticed the fact that in his experience bronchitis or pneumonia occurring in a puerperal patient was likely to be complicated by abdominal symptoms of the same kind as those which were seen in puerperal septic fever. These views he exemplified by a history of such an epidemic of infectious fever occurring in the Rotunda Hospital in

August last, and which, in the author's opinion, depended for its origin and infectious character upon an imported case of typhus fever in a puerperal patient. The outbreak was completely stamped out by closing and thoroughly disinfecting the hospital for a fortnight. The severe symptoms and rapidly fatal course of this epidemic form of metria differ essentially from the more insidious and less painful progress of puerperal septicæmia, on the characteristics of which he dwelt at length, emphasizing the good prognostic import of a furred, as opposed to a glazed and cracked, tongue during its progress. Diarrhœa, he thought, was in such cases by no means to be considered an unmixed evil. In discussing the treatment of the different forms of metria, he observed that while all but useless in the epidemic form, it was often of great service in the septicæmic cases. He formulated the following conclusions as founded on his experience:—(1) That a disease of a highly infectious nature, differing essentially in its symptoms and course from that the result of septic poisoning, and capable of being propagated in the same manner as other zymotic diseases, occur from time to time among puerperal women; (2) that this disease originates from the introduction into the system of a puerperal woman of the infection of some well-known zymotic disease, such as erysipelas, scarlatina, typhus, and probably typhoid fever, the action of the infection being modified by the peculiar state of the system and of the blood which exists in puerperal women, and that it therefore develops in them an apparently totally different disease; and (3) that the disease thus originating can be easily stamped out by the same means as are known to be efficacious in the case of ordinary zymotic diseases.—Dr. McVeigh stated that he had seen a case in which nervous shock from the sudden news of the Phoenix-park murders had seemed to him to be the exciting cause of puerperal fever.

Dr. Henry Kennedy had formerly seen many cases in the Rotunda Hospital in which the sickness had preceded labour, and he had made post-mortem examinations in many fatal cases. He usually found the inner surface of the uterus in a state of slough, with but slight appearance of peritonitis. The tissues mostly attacked were cellular tissues, which, commencing in the pelvis and spreading up behind the kidneys, were always in a state of complete slough.—Dr. Fraser recommended that hands, instruments, etc., used about a puerpera should be cleansed first in a solution of Condy's fluid, and then in one of oxalic and sulphurous acids.—Dr. Kidd recognized the epidemic and the septicæmic or pyæmic form of the disease. He had long been aware of the former as distinct from the latter. It usually began outside hospitals and spread into them. The last epidemic in the Coombe Hospital had followed only after the disease had been everywhere prevalent around them. At the same time typhus was very prevalent, the Hardwicke Hospital being unable to accommodate it, and other hospitals being proportionately full. The cases of epidemic metria were very rapid, very fatal, and commonly showed symptoms of the disease before or during labour. He had recently been consulted about a lady who had contracted this form of puerperal fever before labour, and who had only survived delivery by little more than twenty-four hours. She exhibited well-marked puerperal symptoms, abdominal pain, tenderness, vomiting, diarrhœa, and fever. Dr. Atthill had succeeded most remarkably in stamping out the outbreak, which he had described, so easily that he (Dr. Kidd) felt some difficulty in thinking that those cases depend on epidemic rather than on local causes. He had always found it very difficult to eradicate a genuine epidemic of metria.

During the last Coombe epidemic that hospital was closed, and thoroughly disinfected, yet on reopening the epidemic again broke out. Again the newly admitted labour patients were transferred to the entirely separate gynaecological hospital which was fitted up for them. There fever also appeared, and deaths occurred; nor did readmission into alternate beds into the freshly disinfected and white-washed labour wards put a stop to the epidemic, which died slowly away of itself. These facts seemed to him to show that it was no hospitalism which sustained the outbreak. This form often occurred concurrently with epidemics of scarlatina and erysipelas; but he could not state the exact relation between them. When a certain epidemic constitution prevailed, all sorts of zymotic diseases flourished. He did not accept Dr. Atthill's view that these different diseases could result from one another; that if they sowed typhus they would reap scarlatina or metria. As in cholera, the first cases of the epidemic were most virulent. The majority of septicæmic cases were, he believed, autogenetic.—Dr. Macan said that of late the belief had been gaining ground that this disease arose simply from septic poisoning. The connection between puerperal fever and such other fevers as scarlatina was not proved, and led only to confusion. On the other hand, it had been clearly shown that there existed a close connection between it and erysipelas, amounting almost to proof, that it was, as Virchow had said, a kind of internal erysipelas. When puerperal fever occurred in a hospital, it was carried in a variety of ways from patient to patient, and thus the epidemic broke out. The difficulty of then getting rid of the septic poison became very great. He disbelieved in the miasmatic theory of its spread, and held that auto-infection was very rare compared to hetero-infection. The puerperal wounds were closed before the lochia or retained membranes were likely to become fetid. Treatment of acute septicæmia was almost hopeless, though he employed antiseptic washing of the uterus. Prophylaxis was chiefly to be regarded. Doubtless the capacity for absorbing septic poisoning was greatly influenced by the nervous condition of the women.—Dr. Neville (secretary) had difficulty in accepting Dr. Atthill's view that prevalent zymotics might give rise to a peculiarly epidemic form of metria. If typhus or scarlatina gave rise to puerperal fever, he saw no reason why lying-in hospitals should ever be healthy, since the students attending them daily attended also the fever wards of general hospitals. The general practitioner also attended all sorts of cases, including midwifery; and, although it might be so, it had not been proved that his midwifery mortality was on that account above the average. Could puerperal fever, itself derived from scarlatina, infect a third person with scarlatina? Such a case would never be recorded. The majority of cases attacked during an outbreak were primiparæ, a fact which could be foretold on the septic theory, but which could not be explained on the modified zymotic one.

Dr. Atthill, in reply, said that Dr. Kidd had observed cases in which women had been attacked by the fever before labour. He thought that in such cases the fever was caused by the infection of scarlatina, typhus, or erysipelas, specially modified by the woman's physiological condition. He did not say that all these diseases had a common virus, but he did believe that they might all cause an epidemic form of metria. This form of the disease he did not think was more frequent in primiparæ than in others. He believed it spread equally through a hospital, as in the example he had given. It was quite distinct from the septicæmic form,

which chiefly attacked primiparæ, and of which 75 per cent. of cases were autogenetic.

Notes on Bloodvessels of New Growths.—Congenital

Defect of the Rectum.—Obstruction of the Inferior Vena Cava.

The Pathological Section met on March 2nd, the President of the Section in the chair.

Mr. P. S. Abraham read notes on the Bloodvessels of New Growths, with especial reference to their origin in granulation tissue. The bloodvessels which are seen in sections of tumours may be considered under two heads—(1) those belonging to the proper tissue of the part into which the neoplasm has infiltrated; and (2) those which have arisen anew and belong to the new growth itself. The former have become enveloped by the new invading tissue, which they afterwards in greater or less part supply. The latter are the vessels of circumscribed growth, and are either prolongations or sproutings from the vessels of the neighboring tissue, or, formed apart, have been subsequently connected with them. The small arteries and veins which come under the first category are often distinctly modified by what appear to be inflammatory changes, and the proliferation of the cells of the coats may go on to such an extent in the case of the intestine that the lumen may become occluded. An extreme case of the vascular wall, thickened and studded with an irregular cell growth, is seen in certain sections of leprosy tumour. The young bloodvessels of neoplasms in general do not always show any distinction of tunica; and sometimes in a quickly growing mass of cells the wall of the vascular channels can scarcely be differentiated from the surrounding cell-tissues. From the consideration of the actions of granulation tissue, which had formed in sponges placed for various periods in wounds and on theoretical grounds, it seems unlikely that Professor Hamilton's new and ingenious mechanical theory of the formation of granulation vessels will be altogether accepted. In the specimens shown the vessels branch freely and inoculate among the fibres of the sponge; they give off-shoots of different sizes, and there is abundant evidence of a new formation of capillaries going on, much in the manner described by Arnold. Even if the capillary blood-pressure were sufficient to produce the mechanical effect of forcing out and elongating the capillary loops, it is difficult to understand how that pressure could cause the cell-multiplication which goes on in the wall of the elongating capillary. The cells of the wall, indeed, are not simply stretched; they increase in number by division and the wall of the capillary grows. Several other arguments were brought forward, and in conclusion it was remarked that, as Professor Hamilton shows, a thrombus in a ligatured artery becomes vascular by the throwing in of granulation loops from the vasa vasorum near the point of ligature—in his own words, "it is nothing more than a granulating surface within a vessel." If this be the case, the pushing in of the loops must be against an intra-arterial pressure certainly greater than that of the blood in the vasa.

Dr. E. H. Bennett read a paper on Congenital Defects of the Rectum, based on the details of a case which he had treated during the winter by laparotomy, failing to reach the bowel by the perineum. The variety of deformity exhibited was that in which the anus and other pelvic organs, except the rectum, were normal, and there existed a cord of variable length connecting the anal cul-

de-sac with the extremity of the intestine. With the specimen recently acquired Dr. Bennett showed three examples of the same deformity contained in the museum of the Royal College of Surgeons, and contrasted these with an example of complete defect of the anus and urino-genital outlet, contained in the museum of the School of Physic, Trinity College. Having directed attention to the views of Giralès and of Curling, who have attributed this deformity to obliteration of the rectum by a pathological process, Dr. Bennett showed from the evidence presented by the specimens that this view was erroneous, and that the lesion is due to the arrest of development of the bowel, the hypoblastic pouch failing to reach the anal inflection from the surface of the embryo. He indicated the probable analogy between the muscular cord connecting these parts and such bodies as the gubernaculum testis. He further demonstrated that attention to the position and relation of the cord might enable the surgeon when operating for relief of the deformity to avail himself of it as a guide to the intestine.—Dr. McSwiney, Mr. Stokes, and Prof. Macalister discussed the foregoing communication.

Dr. F. W. Warren read a paper on the subject of Occlusion of the Inferior Vena Cava, illustrating his remarks with a rare case in which the inferior cava was completely occluded by a calcareous tumour, about the size of a bean, growing by a narrow pedicle from the great Eustachian valve. The tumour completely obstructed the vein at the caval opening of the diaphragm, and was adherent to the lining membrane of the vein. The specimen was taken from the body of a male aged twenty-two years. During life both lower limbs, the front of the abdomen, and the anterior aspect of the thorax, were covered with a close network of varicose veins, the head, neck, and upper extremities being perfectly normal in appearance. The patient stated he had these enlarged veins as long he could remember. He was otherwise perfectly healthy, there being no œdema, no hæmorrhoids, no albuminuria; but he died unexpectedly of enteric fever from perforative peritonitis, and had suffered from œdema of the liver from the onset of the fever. A careful post-mortem examination having been made, the principal channels of the collateral circulation were as follows:—The superficial compensatory circulation was principally carried on by the superficial deep epigastric veins, with the circumflex iliac veins from below anastomosing with the internal mammary and long thoracic veins from above, the course of the blood current being reversed, and passing from below upwards. Within the cava, just as it opened into the right auricle, the tumour already described was discovered. The *venæ cavae hepaticæ* were not obstructed, as a surgical probe could be passed through them into the right auricle. Dr. Warren was of opinion that the tumours commenced as a fibrinous vegetation upon the great Eustachian valve, and then underwent calcareous degeneration, causing very gradual, and finally complete, obstruction of the cava. Upon striking the tumour with a pencil or spatula, its stony and calcareous character was readily demonstrated. The tumour did not in any way partake of the character of the thrombus, as it was round, small, isolated, and attached by a narrow pedicle to the valve. Dr. Warren was also of opinion that the tumour was intra-venous altogether in its origin and development.

Dr. Macalister, commenting on the paper, stated that the total number of cases recorded of obliteration, or absence of the inferior cava, was probably about twenty-three.—Drs. H. Kennedy and Bennett also commented on the paper.

Editorial.

RENAL SURGERY.

THE records of Renal Surgery grow apace, and although Mr. Marshall's remark at the Royal Medical and Chirurgical Society on May 22nd, was very true, that the time has not yet arrived for the formation of definite rules of procedure in this province, the period when such will be possible is not far distant. Those who were present at that meeting enjoyed the advantage of seeing numerous specimens (they might well be called trophies) of surgical courage and skill in this direction. It would have been possible to have amplified the collection, but it well represented the various morbid conditions of the kidney for which surgical relief has of late years been applied, and, on the whole, with such success as to give great hopes for the future. Amongst the specimens were calculi removed by nephrotomy, sacculated kidneys more or less disorganized from impacted calculus, tubercular disease, cystic degeneration, including the enormous renal cyst removed by Sir Spencer Wells in 1878, and malignant growths. The communications made to the Society also embraced a considerable variety of lesions; the most remarkable perhaps being the case of removal of a lacerated kidney by Dr. Rawdon, and many will share the regret that his boldness was not rewarded by success. Mr. Marshall's case came under the same category, although it was not proved to certainty that the suppurating hæmatoma successfully tapped and drained arose from injury to the kidney itself or to its investment, the large amount of urea in the discharge being in favor of the former view. Mr. Thornton's case was one the pathology of which, as Mr. Barwell observed, must remain matter for speculation; it was a remarkable and a unique case. The main questions were those which arise around the cases of Sir Spencer Wells, Mr. Hill, and Mr. Tait, and which are also dealt with by Mr. Thornton in his paper published in our columns. Briefly they may be summed up as follows: 1. What are the indications for nephrotomy in preference to nephrectomy? 2. What is the best mode of performing nephrectomy? 3. Under what limitations should excision of malignant renal tumours be placed? The first of these questions mainly arises with respect to pyonephrosis due to calculous disease—such a case as Mr. Hill's. There can be no parallel between the two operations, *quoad* their severity. Nephrectomy, in the case of a disorganized organ with a thick fibrous investment and tough adhesions to surrounding tissues is a formidable affair, and disasters have not been few. At the same time the successes have been such—e.g., one of Mr. Thornton's cases, and Mr. Tait's case—as to encourage surgeons to adopt this more radical measure. For if the organ be not removed, it is not likely that

it will contract so rapidly as to become quiescent for a long time, although the source of the mischief—the calculus—has been taken away. Such cases of course fall into a different category from those in which a calculus is extracted before it has led to much disorganization of renal tissue—cases of nephro-lithotomy, strictly so-called. In these cases probably the mere removal of the stone is enough. Upon the second point, the great question whether the nephrectomy should be “abdominal” or “lumbar,” there is divided opinion, and cogent reasons for preference of the one over the other measure have been advanced on both sides. All Mr. Thornton’s brilliant cases were “abdominal,” and the advantage to the surgeon of the increased space for his manipulations, as well as facility for exploration of the other kidney, may be considered to balance the greater risk (if it be really greater) of opening the abdominal cavity. But we have here Mr. Tait’s case to show that the abdominal section may occasionally have to be abandoned in favor of the lumbar incision from insuperable difficulties in the removal of the adherent organ. Lastly, as to the propriety of interference in malignant disease, against which Dr. Dickinson urged some strong reasons, it might be well to leave the surgeon to follow the principle applicable to cancer elsewhere—viz., to palliate if he be unable to eradicate. Symptoms may be so urgent, life may be rendered so intolerable by pain, or more directly jeopardized by continued hæmorrhage (as in Sir Spencer Well’s case), that nothing short of marked evidence of generalization of the disease should deter the surgeon from removing the main tumour. Obviously the better plan is so to recognize nephrectomy as a well-justified operation that recourse may be had to it at a stage of the disease when the growth is still limited by the capsule of the organ, and before the patient is exhausted by suffering and loss of blood. Often—and this, alas! is no new fact in the treatment of cancer—the relief will come too late to prevent the secondary dissemination of the disease; but now and again the surgeon may have the satisfaction of prolonging, if not of saving, a life which would most certainly have been sacrificed had his aid not been summoned.

CHEMICAL, PHYSIOLOGICAL AND MEDICO-LEGAL INVESTIGATIONS ON THE PTOMAINES.

THE first part of an interesting memoir on the nature and properties of the ptomaines appears in the last number of the *Archives Italiennes de Biologie*. The term ptomaines is applied to certain substances endowed with highly poisonous properties, resulting from the putrefaction of the brain, blood, albuminoids, and other analogous organic substances. MM. Guareschi and A. Mosso, the authors of the essay in question, have endeavored to separate the several products

of decomposition, and, having obtained them in a state of comparative purity, to determine their physiological action on the body. Before commencing their experiments they thought it expedient to prove the purity of the reagents used—ether, ethylic alcohol, chloroform, and benzine—and their freedom from poisonous alkaloids. They operated on large quantities of these fluids—as much, for example, as fifty litres of alcohol—and satisfied themselves that in ordinary commercial alcohol there is a small quantity of a base which is either pyridine or some closely allied compound. Other investigators have demonstrated the presence of a mixture of substances belonging to the picoline series, and collidine has also been shown to be present. Amylic alcohol, in like manner, often contains pyridine, which may exist in it even in so high a portion as 1 per cent., and which, being itself toxic, may lead to serious error.

The chloroform employed was found to be pure, but the benzine, like the alcohol, had to be freed from the pyridine it naturally contained. In these experiments on putrefying brain the authors experimented with about seventy-four pounds of human brain-substance, which was placed in a large glass receptacle, and put aside for one or two months at a temperature of about 50° F. The contents of the globe, reduced to a magma, had then an extremely unpleasant odor, and were treated with two volumes of purified alcohol acidulated with tartaric acid, in a sand-bath, for several hours, at a temperature of about 140° F. An immense quantity (147 litres) of alcohol was then added, and the whole evaporated to dryness. Fats were removed from the residue by ether, and the remainder was again and again submitted to the action of ether, which was each time evaporated and re-collected. The fluid, now freed from fat, was extracted with alcohol, and this again was exposed to heat, and the volatile products received in hydrochloric acid. There remained in the retort a brown acid liquid, which was once more extracted with ether, and the reactions of this ethereal solution are given at considerable length. The principal substances obtained were ammonia, trimethylamine, and certain alkaloids or ptomaines, the last-named compounds being, however, too small in quantity to enable any analysis of their composition to be made.

The products of decomposing fibrin were next examined chemically, chloroform and tartaric acid being employed as extracting agents, and sufficient of the ptomaine was obtained to permit of an analysis, when it was found to have a composition represented in all probability by the formula $C_{10}H_{11}N$, a base which is isomeric with the *tetrahydromethyl-quinoline* of Jackson—a compound that has properties similar to those of the ptomaine obtained from putrefying fibrin. The results of their experiments on the physiological action of the ptomaine obtained from decomposed human brain may be

summed up in the single statement that in its effects on frogs it resembles that of curara, though incomparably more feeble. Its action was not only feebler than that of curara, but was much more transient. In the case of the ptomaine obtained from putrefying fibrin they ascertained that the chloroform extract of this ptomaine was much more powerful than the chlorhydrate, and in this instance also the general effects produced were comparable to that of curara.

OVERWORK IN RELATION TO EDUCATION.

A GREAT deal has been said and written of late on the subject of "overwork," more particularly in connection with education. It is time that this question received the full elucidation it requires. It is natural that such a term as "overwork" should come into use, and that it should be popularly applied to all forms or classes of injury sustained by the organ of mind in the course of exercise, whether in result of excess or misdirection of activity; but it must be obvious to everyone possessed of even the most rudimentary acquaintance with physiology that the indiscriminate use made of this term is erroneous and misleading, and that the very hypothesis of *overwork* is in itself open to serious question, and what seem to be grave objections.

Let us recall to recollection for a moment what takes place in the case of muscular tissue under ordinary conditions of exercise, when intentionally developed by exercise, and when overstrained by excessive exertion, or, in other words, "overworked." Moderate exercise, as we know, simply consumes the force generated, or, in more technical language, converts potential into kinetic energy. There is just as much material recuperation as will suffice to replace the elements utilized. Pushed a little beyond this, as in "training" judiciously conducted, muscular tissue is first incited to a gradual increase in the amount of work it performs, with the effect of stimulating the recuperative faculty to a little more than merely compensatory energy, so that there is enough feeding to suffice for *growth* as well as *restitution*, and the muscle increases in bulk. This is not, as we know, due to any augmentation in the number of the elements composing the tissue, but to their increased development. They are not more numerous, but they are larger. In point of fact, the fibres attain greater bulk in consequence of the increased stimulation and the larger amount of food assimilated by the tissue, the supply of nutrient fluid, i.e., blood, being augmented quite as much by the local demand for food as by any other condition which may be supposed to determine a special flow of blood to the part. If muscular exercise be increased too rapidly, faster than the rate of growth of the tissue, or if it be increased after the tissue has attained the full limits of a normal growth—which growth, it will be remembered, is

simply compensatory to the work done, as in hypertrophy of the left ventricle of the heart—there will be exhaustion: that is to say, an uncompensated consumption of tissue and, if the work be further increased, exhaustion may proceed so far as to enfeeble the faculty of recuperation, itself, to such an extent that it will no longer even replace normal waste. The stress of the work falls on the nerve-centres, which of course are the sources of energy, but it seems probable that the terminal plates in the muscular tissue, which are probably reservoirs of nerve-force kept charged—as Leyden jars may be charged with electricity—for the purpose of local or reflex activities, may themselves be specially exhausted and rendered incapable of normal action, so that "cramps," stiffness—which is *rigor*, doubtless due to commencing coagulation of the myosin—and local pain or tenderness, often accompanied by fibrillar pains and twitchings, due to local excitations, will ensue. At the same time the nervous system of the muscular apparatus being exhausted, the vasomotor function is impaired, the arterioles of the part affected lose their tone, and the flow of blood through the region is retarded in speed, accumulation takes place, and what may be called atonic or passive hyperæmia occurs, followed, it may be, by the phenomena of incipient inflammation; or if there be not enough of energy for that active state, then passive congestion, transudation, swelling, and oedema will supervene. This is a hasty and very general summary of what takes place, or may occur, in muscular tissue, when it is "overworked." Probably an analogous state of affairs supervenes in the case of nerve-tissue, and notably of the brain, when unduly exercised. There is, however, this essential difference between brain and muscle—namely, that inasmuch as the former is the more delicately organized, and in a sense the most important—albeit it seems likely that nerve-tissue may be developed while muscular cannot be—it is specially protected, so that before "over-work" does serious mischief in the case of nerve-tissue, there are nearly always very distinct indications that the limits of healthy activity have been reached. Under only moderate exercise nerve-tissue does not, as a rule, develop rapidly, nor does it accumulate strength—that is, force held in reserve and available for action. If the brain is to grow—that is to say, grow complex structurally—it must be fed freely, consuming more than sufficient to replace its waste. If it is to feed, it must *work*. There is no way of stimulating the *structural* growth of brain except by intellectual exercise. This is a point of fundamental importance, and it is of cardinal moment in regard to that form of development by training which we call "education." So true, so inexorable, is this law, that not even *general* stimulation by work will suffice. If any special faculty of what we call "mind"—that is, brain function—is to be cultivated, it must be called out by special

training—namely, by work of the special nature it is desired to elicit. For example, there is no reason to suppose the faculty of learning languages can be developed by exercise in mathematics, or the converse. This is a matter not sufficiently well-recognized. A "strong mind" is a well-grown brain, and "bias of mind" is a brain with some one or more of its parts specially developed. Of course heredity has much to do with the question of capability of development, because the young animal is produced "in the likeness" of its parent; but so far as we, as educators, are concerned, our training must be special if we desire to get special results. In the process of brain-growth, or, more accurately speaking, of brain-development, the elements of which the organ is composed are exposed to precisely the same risks and contingencies as the elements of muscular tissue under varying degrees of pressure by work, and, *mutatis mutandis*, the physiological, running into pathological, effects of progressive increase of work are similar to those we have attempted to recall. The faculty of recuperation is in danger of being itself exhausted, and depression of nerve force and atonic congestion supervene. A matter of moment to remember is that although the brain is structurally a packing together of centres, with afferent, efferent, and intercommunicating nerve fibres, it is itself supplied with nerves, and subject to precisely the same conditions of coarse disturbance as other organs. Sometimes we forget this fact, as at others we forget, not so much that it is an organ, as that it is composed of nervous tissue.

The conclusions we deduce from these facts are as follows: "Overwork," properly so called, is not so likely to occur, or if it occur to do mischief, as irregular or disorderly activity. If there be not sufficient time for recuperation in the course of work, exhaustion must take place. If the work done be of such a nature as to put an undue strain on any one faculty, harm may be done, although the brain as a whole may not be severely taxed. If the supply of brain-food be insufficient to enable the recuperative faculty to compensate by food for consumption in use, there must be exhaustion. If work be exacted when any indication of exhaustion is present, it is impossible that injury shall not be inflicted. It follows that educators have especial need of care to avoid engaging the brains of their pupils in work for more than very short periods, and to provide intervals during which there may be rest of the centres specially taxed. Much may be done by changing the kind of work frequently. We are of opinion that no growing child should be kept longer than half or at most three-quarters of an hour at one task, or even the same description of work. Again, the great centres of relation should not be overtaxed. Vision, hearing, the speech centre, and the centre specially concerned with written language, whether in writing or reading, should not be wearied. Brain weariness is the first indication of exhaustion. The

faculty of "attention" is perhaps one of the most easily vulnerable of all the parts or properties of brain-function. It is the faculty which most readily becomes permanently enfeebled, and when weakened entails most trouble in adult life. In children it is difficult to catch and fix the attention. No effort should be spared to secure this fixity of thought; but in order to avoid weakening the power of "thinking"—as distinguished from "thought-drifting"—the teacher should not strive, or desire, to hold the attention by any effort on his part longer than it is voluntarily given by the child. The slightest indication of exhaustion should at once be met by a change of task. If these hints, general as they are, can be reduced to practice, we think there is little fear of "overwork" or harm from brain activity. Desultory and insufficient work is more to be feared by far than "overwork," because the brain, like every other part of the organism, grows as it feeds, and it can only feed as it works.

RENAL CIRCULATION.

THE important connection between the conditions of the renal circulation and the special function of the kidneys lends much interest to the observations made a few years ago by Professor Cohnheim and Dr. Roy, and now published in detail in the current number of Virchow's *Archiv*. The method of research was similar to that which enabled the latter observer to make his remarkable discovery of the independent rhythmical contraction of the spleen, and other facts in regard to the circulation through that organ. It consists essentially in enclosing the organ to be observed within a metal box containing a membranous sac filled with oil, and connecting the apparatus (which Dr. Roy has termed the oncometer) with a recording instrument (the oncograph), whereby the slightest variation in size of the organ can be recorded simultaneously with the kymographic curve of arterial pressure (see *Journal of Physiology*, vol. iii). The instrument allows of such observations being made with least disturbance to the organ, and without interfering with the secretion of urine, and, by registering minute changes, renders the observations more delicate and precise. Under normal conditions the oncographic curve runs parallel with the kymographic; in other words, the systemic blood-pressure and the variations of the volume of the kidney correspond. Changes in the arterial blood-pressure do, however, sometimes influence the quantity of blood in the kidney. If the arterial pressure falls, there is a corresponding fall in the oncographic curve; if it is increased, the volume of the kidney increases. But the reverse is more frequently the case. A sudden sound or movement will cause in the animal a simultaneous rise in blood-pressure, whilst the curve, indicating the volume of the kidney falls; and where the blood-pressure curve is marked by Traube's waves; the curve of the oncograph is

precisely in the opposite direction; the greater the rise in blood-pressure, the more the diminution of the kidney, and *vice versa*. It was also found that there are apparently primary and spontaneous changes in the renal volume independent of changes in the arterial pressure—a slow enlargement followed by a diminution—occurring in both kidneys, but not synchronously nor to the same extent. An explanation of this singular fact is wanting.

In order to fully test this fact of the diminution in the volume of the kidney coinciding with the rise of blood-pressure, the effects of asphyxia, of stimulation of the sensory nerves and of poisoning by strychnine, upon the renal circulation were noted. The temporary suspension of artificial respiration in the curarized animal is followed at once by a rise in the blood-pressure, which is maintained so long as the state of apnoea is allowed to last. Coincidentally with this rise in blood-pressure the volume of the kidney diminishes, the organ returning to its previous size on the return to the normal state of arterial pressure. The rapidity with which this contraction of the renal vessels occurs depends upon the degree to which the blood has previously been oxygenated, the effect occurring the more rapidly the more nearly the blood is dearterialized. The degree to which the renal vessels contract depends also upon the excitability of the vaso-motor system. Thus in one case, where respiration was suspended for 75 seconds, the kidney was reduced in volume 10 per cent.; in another, during a suspension of breathing for 45 seconds, the reduction was 13 per cent.; and in a third observation each kidney was reduced in size 7 per cent. for 30 seconds. Division of the splanchnic nerves had no influence upon this asphyxial contraction, the only effect being that in some cases such division of the nerve caused a slower and feebler diminution in the size of the organ. But when all the nerves supplying the kidney were severed, the kidney enlarged in size corresponding with the rise in systemic arterial pressure. This difference showed that the contraction of the renal vessels during asphyxia was not so much due to the action of dearterialized blood upon the vessel wall as to vaso-motor influences; and it is concluded that the diminution in volume of the kidney during asphyxia depends on two counteracting factors—viz., the elastic tension due to the heightened blood-pressure and the stimulation of the vaso-motor centre, and as the latter preponderates the kidney is reduced in volume from contraction of its vessels. The differences in this respect between various organs must then be referred to the varying degree of excitability of their vaso-motor nerves. Stimulation of sensory nerves produces similar results. When the central end of the divided sciatic was stimulated, the rise in blood-pressure was accompanied by a very marked contraction of the vessels of the kidney, the size

of which was thereby much reduced—a reduction which was maintained for a short time after the stimulation ceased and the blood-pressure had fallen. Here also division of the splanchnics had no influence, whereas after division of the renal nerves the kidney enlarged under the stimulation of the sciatic. Precisely similar was the result of strychnine poisoning so long as the nerve-supply of the kidney was intact.

The generally accepted statement that division of the splanchnic nerves is followed by dilatation of the renal arteries, and consequent increased blood flow through the organ, has not been substantiated by these experiments. Stimulation of the central end of the divided splanchnic at the level of the diaphragm produced a rapid and marked contraction of the renal vessels on both sides, an effect similar to stimulation of the sciatic or other sensory nerves. But an even more marked effect was brought about by stimulation of the peripheral end of the nerve, evidently from the direct irritation of the vaso-motor nerves, the arterial pressure rising at the same time. But the kidney on the opposite side more often than not enlarged in size under such stimulation, and then underwent a secondary contraction whilst the blood-pressure still remained high. At first this was thought to be due to the direct influence of the heightened blood-pressure, when it was found that the degree of secondary contraction was not proportionate to the amount of blood-pressure. It could therefore only be explained by the variable nerve connections between the splanchnic of one side and the kidney of the other.

The difficulty in the complete division of the renal nerves in the hilus, owing to their intimate connection with the walls of the artery and vein, throws doubt upon all deductions from such experiments; but when this can be thoroughly effected, then the renal circulation obeys the same influences as the general circulation, and the volume of the organ increases proportionately with the rise in arterial pressure. The results of stimulation of the renal nerves tend to disprove the existence of vaso-dilator nerves, a fact of some importance, seeing how readily the renal circulation is influenced by agents injected into the blood. But the stimulation of either the peripheral or the central ends of the divided renal nerves, whether only one was selected or several, invariably produced a diminution in the size of the organ—i.e., a contraction of the renal arteries.

Some interesting data were also obtained upon the question of the relation between the two kidneys, as bearing on the fact that when one organ is destroyed the other takes on its function, and becomes hypertrophied. The assumption that this is merely due to a collateral hyperæmia appears to be unfounded, for not only do the kidneys act separately as regards the degree to which they are influenced by changes in the general circulation, etc., but it was found that not the slightest

influence was produced on one kidney when the renal artery of the other was secured by a clamp. No appreciable change in volume was undergone by the unaffected kidney, although the occlusion of the artery was maintained for periods varying from a few minutes to nearly an hour. Such a result is held to support the view already advanced by Cohnheim, that the hypertrophy of one kidney after the removal of its fellow depends, not upon changes in the circulatory mechanism, but upon the altered condition of the blood acting directly on the organ. Nor is any renal hyperæmia produced by shutting off the blood-flow from other branches of the aorta. In one experiment both lower extremities were deprived of their blood-supply by the elastic ligature, without any effect being produced upon the size of the kidney either at the time of application of the ligature or on its removal.

Lastly, the experiments of Professors Cohnheim and Roy tend to show that the generally admitted relation between the skin and the kidney is not so simple as is believed—that it is not a mere question of collateral flux; for in dogs—in which the capability of contraction of the renal vessels had been tested beforehand by the readiness with which they were influenced by stimulation of the sciatic and by intra-venous injection of urea—bathing the surface of the body with cold water for some minutes produced either no change in the size of the kidney at all, or only so slight and temporary a contraction as not to be seriously regarded. The statement, then, that the increased flow of urine during exposure to cold is due to dilatation of the renal arteries, coincidently with the rise in the general blood-pressure, is one which will require rectification; and this point is perhaps one of the most fruitful of the results of a method of research which has already thrown much light upon the mechanism of the circulation in the various organs, and which promises to add still more in the way of refutation or confirmation of various accepted physiological doctrines.

Reviews and Notices of Books.

A System of Surgery, Theoretical and Practical, in Treatises by various Authors. Edited by T. HOLMES, M.A. Cantab., Surgeon to St. George's Hospital; and J. W. HULKE, F.R.S., Surgeon to the Middlesex Hospital, and to the Royal London Ophthalmic Hospital. In Three Vols. Third Edition. London: Longmans, Green & Co. 1883.

THE issue of a new edition of "Holmes's System of Surgery" is an important and welcome event. It has long been recognized as the authoritative exposition of the British school of surgery, and the twelve years which have elapsed since the last edition was published have been so rich in results, both in surgical practice and pathological doc-

trine, that much in that edition has already become antiquated. Important changes are to be observed in this edition. First and foremost among these we must rank the association of Mr. Hulke with Mr. Holmes, in the work of editing. We need hardly say that this is a valuable acquisition to the editorial department, and that no happier choice could have been made; for Mr. Hulke combines in a remarkable degree a large personal experience with wide reading and extended scientific acquirements. Another alteration is the publication of the work in a cheaper form: the five volumes have been condensed into three, not so much by lessening the length of the various essays, or by the exclusion of essays, as by the use of thinner paper, pages of a larger size, and a smaller type. Bibliophiles will regard this change as a retrogression, but as it will place the book within the reach of a larger circle of readers it has our hearty approval. A period of twelve years has unfortunately necessitated many changes in the authorship of the essays. In some cases the writers for the previous edition are no longer among us, while in others they have associated themselves with younger men, who have re-edited their essays; while in a few instances they have stepped aside altogether, and handed over the entire task to others. Speaking generally, we may say that this edition is of considerable value to the student and practitioner. In every part it bears evidence of most painstaking study and revision, and while in some few cases the restraints of joint authorship and joint responsibility may be traceable, on the whole it is a worthy exposition of the beliefs and practice of British surgeons.

The first volume comprises nearly all the essays contained in the first and second volumes of the previous edition. It opens with M. Simon's article on Inflammation, edited by Mr. Holmes; and Dr. Burdon Sanderson's article on the Pathology of Inflammation immediately follows, which has been rewritten and most carefully brought up to date, so that it forms a very valuable introduction to the whole work. Mr. Butlin has rewritten Mr. Holmes Coote's article on Abscess, and the chapter on Tumours and Cancers previously prepared by Sir J. Paget and Mr. C. H. Moore, and he has also edited Sir J. Paget's article on Ulcers. Mr. Butlin has, of course, considerably modified the article on Tumours in accordance with our increased knowledge of the intimate pathology of these growths, and he has introduced several woodcuts of his own microscopical preparations of many of the chief varieties of tumours. Mr. Cripps has edited but not altered Sir J. Paget's article on Sinus and Fistula, and has furnished one on Gangrene in place of that by the late Mr. Holmes Coote. Mr. Holmes has revised the late Mr. De Morgan's article on Erysipelas, and Mr. Clutton has written that on Pyæmia, including Septicæmia, which was previously from the pen of the late Mr. Callender. Mr. Croft has revised his article on Hætic and Traumatic Fever, and the Treatment of cases after Operation, and has also revised Sir J. Paget's articles on Contusions and Wounds. Mr. Hulke has revised Mr. Poland's article on Tetanus. Mr. Warrington Haward has rewritten the article on Delirium Tremens. Mr. Savory's article on Scrofula has been replaced by one by Mr. Treves, and that on Hysteria has been edited by Mr. Holmes; but Mr. Savory is still solely responsible for the chapter on Collapse, which has received only a few verbal alterations for this edition.

In the second part of this volume Mr. Holmes has contributed, as before, the articles on Burns and the General Pathology of Dislocations; Mr. Jacobson has written that on General Pathology of Fractures, and has introduced a description of Fat

Embolism; Surgeon-General Longmore has revised his article on Gunshot Injuries; Mr. Hulke has edited the articles on Injuries of the Head and of the Upper Extremity; Mr. Jacobson has furnished the chapters on Injuries of the Back and Face; that on Injuries of the Neck is still from the pen of Mr. Durham. The article on Injuries of the Chest was edited by the late Mr. R. Lyell, who also edited Mr. T. Smith's article on Minor Surgery, and wrote that on Plastic Surgery. Injuries of the Abdomen and Pelvis are still, as before, described by Mr. Pollock and Mr. Birkett respectively, and Mr. H. Morris has rewritten Mr. Holt-house's article on Injuries of the Lower Extremity. This volume contains four plates and over two hundred woodcuts, the former all illustrating Mr. Treve's article on Scrofula.

The arrangement of the latter parts of the work differs from that of the former edition; thus the second volume contains essays that before were scattered in the third, fourth, and fifth volumes; and Mr. Lee's article on Syphilis, which formerly stood in the first section devoted to General Pathology, is now included, along with his article on Gonorrhœa, in the chapter on Diseases of the Generative Organs—a less scientific but more convenient arrangement. Mr. Hulke has edited Mr. Dixon's article on Ophthalmic Surgery, and has thus been compelled to keep to the lines laid down by Mr. Dixon in the earlier editions. Aural Surgery is described by Mr. Dalby, who has rewritten the article. Mr. A. E. Barker has edited the articles on Affections of the Muscular System and Caries of the Spine, and has rewritten those on Diseases of Joints and of the Tongue. Dr. Brown-Séquard has undertaken the whole subject of the Surgery of the Nervous System; and Dr. Little has revised his articles on Orthopædic Surgery and Scoliosis. Mr. Holmes is still responsible for the essay on Diseases of the Bones, from which we miss any reference to the interesting changes produced in bone by congenital syphilis. Mr. Pollock has again contributed the article on Diseases of the Mouth, Pharynx, Œsophagus, and Intestines. The Surgical Treatment of Stricture of the Œsophagus and the operation of Gastrostomy are, however, more fully discussed by Mr. Durham in the section devoted to Injuries of the Neck. Mr. Warrington Haward has edited and revised the articles on Diphtheria, Croup, and Diseases of the Nose, and Mr. Hensman has dealt in the same manner with Mr. Durham's article on Diseases of the Larynx. Hernia is again treated by Mr. Birkett, and Diseases of the Rectum by Mr. Henry Smith. Dr. Bristowe has revised the article on the General Diseases of the Skin, and Mr. Godlee that on its Local Affections. This completes the contents of the second volume. Scattered through it are two plates and 177 woodcuts.

In the third volume Mr. Holmes has taken the whole subject of the Diseases of Blood and Absorbent Vessels into his own hands either as author or editor, and as he has made this subject peculiarly his own this is a most fitting arrangement. Sir Henry Thompson has written on the whole subject of Diseases of the Urinary Organs, with the exception of a short chapter on Urinary Deposits and Calculi, by Mr. W. F. Donkin. Mr. Hutchinson and Mr. Birkett respectively have revised their articles on the Surgical Diseases of Women and the Diseases of the Breast. Mr. Jacobson has written a very careful article on the Diseases of the Male Generative Organs. Mr. Haward has edited that on Diseases of the Thyroid Gland. Professor Lister has added to his former articles on Anæsthetics, and has revised that on Amputations, and Mr. Holmes has again furnished the article on Excision of Bones and Joints. The arti-

cles in the appendix are by the same authors as before, but Mr. Godlee has edited that on Surgical Diagnosis and Regional Surgery, and Dr. Little has edited that on the Surgical Diseases of Childhood, and has added a chapter on Osteotomy. The article on Hospitals has been excluded, and Surgical Instruments are described in various essays instead of in one specially devoted to them. The third volume contains three plates and over two hundred woodcuts, and it is completed by a very full index which has been carefully prepared.

It will thus be seen that the number of those engaged upon this edition has been reduced from forty-two to thirty-six, and that all the surgeons have been or are connected with nine of the metropolitan hospitals with the single exception of Professor Longmore, of Netley. It is impossible to examine in any way in detail and critically these three large volumes. The essays necessarily vary much in merit, but we are sure that this edition will be highly appreciated by all who will be at pains to study it.

Lectures on Diseases of the Nervous System. By SAMUEL WILKS, M.D., F.R.S. Second Edition. London: J. & A. Churchill. 1883.

THIS work is an excellent fund of clinical knowledge. In many respects it contrasts with other recent works on diseases of the nervous system. Treating as it does chiefly the clinical aspect of disease, it presents a well-marked distinction from those works which deal with the subject from a point of view of pathological anatomy. A fuller description of some forms of disease, and a more copious illustration by means of clinical reports, have increased the size as well as the value of the book. The lectures are written in a conversational tone, which, however pleasant reading for short periods, to some minds rather palls after a long sitting; and there is a laxity of manner, which, if less impressive, is at all events characteristic. A large mind often cannot stoop, or only with impatience, to departmental detail; the skeletal outline and general configuration of a mental conception may be so vividly grasped that the small undulations which disturb the even surface of the great wave are passed over unnoticed. No doubt this state of mind is of great value in almost every sphere of action; it is in the possession of it that the strength and weakness of the author reside. The classification of spinal diseases which has obtained currency during the past few years has been adopted. As the author suggests, these alterations point rather to pathological considerations than to any great advance in clinical knowledge; nevertheless, the clinical side participates in the reflected light of the pathological.

In the preface to this second edition Dr. Wilks says, "There may often be no disagreement about the case which two practitioners are treating, although they may dissent widely about its pathology." We confess that we are unable to coincide with the view here expressed. If there be no disagreement why is there wide dissension about its pathology? Now pathology strikes at the root of all considerations, and if the practitioners "agree to differ" there is an end of the business; but then it must be regarded merely as an instance of good fellowship, which is really an affair of the emotions and not of the intellect. Even if Dr. Wilks means pathological anatomy rather than pathology proper, we fail to see the full force of his remark.

The section of the work on Diseases of the Spinal Cord is greatly improved; the improvement has only been rendered possible by the recent ad-

vances in our knowledge of morbid anatomy and the study of the various reflex actions.

A chapter on Electricity still exists at the end of the book; the chief features of importance from a point of view of diagnosis are given, the characters of the "reaction of degeneration" are just sufficiently explained. So much has been learnt of late years in nerve physiology and pathology that perhaps a complete work, dealing in a precise and accurate manner with all the various questions, could only be expected from the hands of one who has grown up and developed in the midst of this vast treasure of science.

Manual of Gynecology. By D. BERRY HART, M.B., and A. H. BARBOUR, A.M., M.D. Edinburgh: MacLachlan & Stewart.

WE have long held the opinion that the writing of manuals is not the province of the junior members of the profession; the several works of this character relating to gynecology which have appeared during recent years have only confirmed us in our view, and the work before us does not supply grounds for altering that opinion. Although aptitude for teaching is possessed in different degrees by different individuals, yet there is no doubt that special training makes a good teacher just as special training makes a good observer or investigator, and training in teaching is obtained usually only after years of work in observing. The student at the end of his career ought to be, and often is, trained to that point when he may observe and study for himself, but he is far from being an experienced observer, and still farther is he from being an experienced teacher. Long practice in the observation and study of disease, and in the oral communication to students of knowledge so acquired, must elapse before he can become an accomplished teacher. The critical knowledge necessary for the production of a good manual can only be obtained by long experience in a wide field of observation, so that a manual should be the corner stone of a man's work, his last and best. We should welcome with pleasure the appearance of a manual of the diseases of women by one possessed of the qualifications mentioned; it would prove the greatest boon to the student now so commonly taught to refer all manner of symptoms reflexly to the pelvic organs and to interfere locally with those organs in almost every conceivable condition, be it health or disease. The part for which the training of the junior members of the profession has fitted them is not the writing of manuals, but original investigation, and the work before us supplies abundant illustration of this statement. One of the authors, Dr. Hart, is already well known for the excellent work of this kind he has done in the investigation of the anatomy of the pelvic organs and especially of the pelvic floor, work which forms a material contribution to scientific gynecology.

The present book is divided into two parts. The first treats of the anatomy and physiology, and the methods of examination, of the pelvic organs. The anatomical portion is very good, being fuller and better than in any other work of the kind. Much of this is Hart's own work, and he is clearly at home in the subject. In the part devoted to the description of the various methods of investigation too much is made of the volsella and the sound. Their value is really limited, much more limited than the chapters devoted to them would lead us to suppose. The values and uses of different specula are not sufficiently pointed out. It might be not unreasonably inferred from the

chapter on this subject that their chief use was to discover or conceal lacerations of the cervix.

The second part is devoted to the diseases of the pelvic organs. These are divided into affections of the peritoneum and connective tissue, of the Fallopian tubes and ovaries, of the uterus, of the vagina, of the vulva and the pelvic floor. Three more chapters are devoted to disturbances of the menstrual and reproductive functions and the diseases of the bladder and the rectum, while syphilis and chlorosis are considered in an appendix. A great part of this portion of the work is necessarily compilation, and we can scarcely approve the critical judgment displayed by the selections. The account given of both the pathology and symptoms of the various disorders is generally meagre, while much of the treatment recommended is more injurious than the affections for which it is advised. Such, for instance, are stem pessaries for ante flexion and atrophied and small uteri, Sims' and Simpson's cutting operations for ante flexion and so-called pinhole os. On the other hand, the work contains much that is not found in the ordinary text-books, and this is especially true of the chapters treating of the inflammatory affections of the uterus and the vagina. The work is profusely illustrated; it contains nine lithographic plates, and over 400 woodcuts. Were the book regarded simply as an atlas of gynecology we should consider it one of the best published; but we have yet to look for a thoroughly good manual of the diseases of women.

Observations on Lithotomy, Lithotripsy, and the early Detection of Stone in the Bladder; with a Description of a New Method of Tapping the Bladder. By REGINALD HARRISON, F.R.C.S., Surgeon to the Liverpool Royal Infirmary. London: J. & A. Churchill. 1883.

THERE appears to be but little more in Mr. Harrison's remarks on Lithotomy than may be found in most of the surgical text-books of the present day. His own experience of the operation has been very good; for of "over forty" cases in which he has performed it he has met with only two deaths—one, a boy eleven years of age, who died of suppurative pyelitis several weeks after leaving the infirmary; the other, "a gentleman of advanced years," who died of "ammoniaemia." The chapter on Lithotripsy is in the main a description of Bigelow's operation which Mr. Harrison has performed twenty-eight times with two deaths—one from cystitis, and one from extravasation of urine occurring from rupture of the urethra behind an old stricture after the patient had left the hospital. Mr. Harrison recommends this operation for children where the calculus is not over three-eighths of an inch in its longest diameter. The author's contribution to the Early Detection of Stone in the Bladder is the suggestion to use in cases of enlarged prostate sounds of different curves, a long copper probe which can be bent to any shape, or flexible bougies tipped with steel. The concluding chapter in this brochure describes a mode of tapping the bladder through the perineum in cases of hypertrophy of the prostate. A straight trocar and cannula are thrust into the middle line of the perineum three-quarters of an inch in front of the anus, and pushed on into the bladder through the prostate. In the case in which Mr. Harrison has practiced this operation it succeeded very well; for not only was the retention relieved, but atrophy of the gland is stated to have ensued.

Physiological Cruelty; or, Fact v. Fancy! An Inquiry into the Vivisection Question. By PHILANTHROPOS. pp. 156. Tinsley Bros. 1883.—This work gives, in a small compass, the principal facts and most obvious reasonings on the question of experiment upon living animals, and is intended for professional men who have not time to consult works of reference, and for non-professional readers who are anxious to fully understand the position, both moral and utilitarian, of the physiologists. It is extremely clear and logical in its argument, and the data on which its reasonings and statements are based are fully set out in an appendix which forms nearly one-third of the volume. We can recommend its perusal by both lay and professional readers, as dealing thoroughly with the moral principles by which vivisection is justified, and as giving accurate and trustworthy accounts of the relations of experimental physiology to medicine in the past, and the extent of the practice in England at the present time. The recent discussion at Oxford on the vote for a physiological laboratory has again brought up the subject in the public press, and so its appearance is all the more opportune. In the earlier chapters we are led step by step to the conclusions of the author on pain, cruelty, and our rights over animals; and the clearness and want of prejudice which are shown in their discussion are very striking in comparison with the hasty judgments and rash assertions which are generally employed when these subjects are referred to. The limitations by which experimenters are morally bound are most clearly and explicitly stated. The next chapters are devoted to the nature and extent of vivisectional experiments in England, to their relations to physiology and to medicine, and the illustrations are largely drawn from Professor Gerald Yeo's lectures published in our columns last year. Professor Robert McDonnell's address to the Surgical Society of Ireland in 1878, and Professor Heidenhain's well-known pamphlet, "Die Vivisection in Dienst der Heilkunde," The appendix contains an enormous number of quotations from different writers, proving not only the utility but the absolute necessity of making experiments on the lower animals. A list of the scientific witnesses examined by the Royal Commission divides them into those who considered experiments necessary for original research, and those who were of an opposite opinion. These were two out of forty-seven, and the list should be consulted by those who believe that "doctors disagree" on this question. The most valuable portion of the book in some respects, and the most important to those who have been influenced by the agitation and reiterated assertions of the antivivisectionist press on the uselessness of experiment, is that part of the appendix in which the recent work of another objector—Mr. Lawson Tait—is criticised and answered. Another chapter in the book deals with the legislative restrictions on vivisection, and shows how oppressively some of these have worked; but as Sir Wm. Harcourt has recently stated in the House of Commons that it was now his practice only to allow certificates upon the recommendation of the Association for the Advancement of Medicine by Research, we need not refer any further to this part of the subject. In conclusion, we must again express our opinion that this is by far the most important contribution to the vivisection controversy that has come under our notice, and, in the words of the author, we commend it to the "dispassionate consideration of all who can place truth above feeling—still more, above prejudice."

Archives de Neurologie, Vol. V., No. 15. Paris. 1883.—Altogether the current number of this

quarterly journal is one of average excellence. A contribution to the study of the localization of cerebral disease by Dr. Ballet forms the opening paper; four cases are described, in each of which a crural monoplegia was associated with a lesion situated about the paracentral lobule of the opposite side of the brain. The next two papers we have already had occasion to notice, one by MM. Pitres and Vaillard on non-traumatic peripheral neuritis, the other on neuro-muscular hyperexcitability by Charcot and Richer. A long clinical description of a case of otorrhoea, associated with signs pointing to a coarse lesion of the brain, possibly the result of meningitis, is given; the morbid signs indicative of cerebral disease suddenly disappeared whilst the patient was *en route* for Lourdes. A critical anatomical study of the plexuses of spinal nerves by Féré is an elaborate paper on interesting and disputed points. The next chapters are devoted to the production of abstracts selected from various papers on neuro-pathology and the pathology of mind. The remainder of the number is taken up with reports of learned societies, reviews of books, and items of medical news.

Elements of Histology. By E. KLEIN, M.D., F.R.S. Illustrated with 181 Engravings. London, Paris, and New York: Cassell & Company. 1883. pp. 352.—This is the first of a new series of manuals, by men of good repute, intended for students about to present themselves for the preliminary and pass examinations at the College of Surgeons, and the corresponding examinations of other examining bodies. If the other volumes that are promised—on Human Physiology by Mr. Henry Power, on Pathological Chemistry by Dr. Charles H. Ralfe, on Surgical Pathology by Dr. A. J. Pepper, and on Surgical Applied Anatomy by Mr. Frederick Treves—are at all equal to the volume before us, we venture to predict a very great success for this the first venture of Messrs. Cassells in the domain of medicine. It is simply excellent: short, clear, intelligible, well illustrated, written by an acknowledged master, it leaves nothing to be desired, and is yet so small that it can be slipped into the pocket. The only addition we should be inclined to suggest to increase its usefulness would be a short chapter on the methods of investigation in histology.

Anatomy; Descriptive and Surgical. By HENRY GRAY, F.R.S. Edited by T. Pickering Pick, Surgeon to St. George's Hospital; Examiner in Anatomy, Royal College of Surgeons, England. Tenth Edition. London: Longmans. 1883.—The appearance of a new edition of so well known and valuable a work as "Gray's Anatomy" hardly requires notice, but this edition is of more than usual importance, as the editorship has now passed from the hands of Mr. Holmes into those of Mr. Pick, who has most ably discharged the duty. Whilst the general character of the work is carefully preserved, some parts in the sections on Microscopical Anatomy have been rewritten, and a few corrections made in the descriptive portion of the book. Many new illustrations, diagrammatic but very clear, have also been introduced, and this edition in every respect fully maintains the reputation secured by its predecessors of being the most popular text-book on anatomy in our language.

Clinical Lectures on Diseases of the Urinary Organs. Delivered at University College Hospital by Sir HENRY THOMPSON, Consulting Surgeon to University College Hospital, etc. Seventh Edition. London: J. & A. Churchill. 1883.—We are glad to find that within the short period of a year Sir Henry Thompson has been called upon to publish

a second issue of the student's edition of his well-known Clinical Lectures. It is the best evidence of the appreciation it has met with. This, the seventh, edition contains two additional lectures on the subjects, on which Sir Henry Thompson has of late been addressing the profession: the digital exploration of the bladder from the perineum through a small incision into the membranous urethra, and the possibility and advantage of removing tumours of the bladder by forceps passed into the bladder through the same wound.

What to do in Cases of Poisoning. By WILLIAM MURRELL, M.D. Third Edition. London: H. K. Lewis.—This edition of Dr. Murrell's book is, practically speaking, a new work; the text has been entirely rewritten, and the most valuable addition has been made by the statement of the symptoms of the various poisons, an omission which, to a certain extent, marred the usefulness of the former editions. It contains plain straightforward directions for the treatment of the common poisons, and will be invaluable to practitioners in those cases of sudden emergency which may arise in any moment and at any place in these days of what may be almost called free trade in poisons.

Tapeworms: their Sources, Varieties, and Treatment. By T. SPENCER COBBOLD, M.D., F.R.S. Fourth Edition. London: Longmans, Green & Co. 1883.—The fact that a fourth edition of Dr. Cobbold's work has been called for is unmistakable evidence of its usefulness as a practical guide to the profession in the treatment of tapeworm. Eighty additional cases from private practice have been added to the hundred contained in previous editions, and it may be safely recommended as the most useful and convenient book on the subject of which it treats in the English language.

Medical Annotations.

"Ne quid nimis."

TREATMENT OF PUERPERAL CONVULSIONS BY HOT BATHS.

In a paper by Dr. Carl Breus, in the *Archiv für Gynäkologie*, is given an account of eleven cases of puerperal convulsions treated by diaphoresis produced by means of hot baths. Other means, as the inhalation of chloroform, and the administration of chloral hydrate, were also employed. The convulsions set in at different periods during labour, and in the course of the first day after delivery. In four cases they came on at the beginning of labour, in two after the first stage had lasted some time, in one during the second stage, and in four a few hours after delivery. One only of the eleven cases died. There was present in all the cases albuminuria, together with more or less oedema. The baths were employed after the convulsions set in, during and after labour. A case is also mentioned in which forty-five hot baths were given during pregnancy. The author believes that the immediate danger to life in these cases is due to the diseased state of the blood—hydræmia—shown by the albumen and anasarca; and that the rational treatment of this condition consists in the production of a rapid change in the blood-state. This he believes is brought about by profuse sweating, which, he states, diminishes the quantity of albumen in the urine, and the oedema. The hot baths have occasioned no bad symptoms in the author's practice; they have not

brought on premature labour when used during pregnancy, nor have they occasioned hæmorrhage when employed soon after labour.

DIGITAL DILATATION OF CONTRACTED PYLORUS.

ANOTHER method has been added to the short list of the resources of the surgery of the stomach, the treatment of the organic diseases of which organ have until comparatively recent years been left entirely in the hands of the physician. Professor Loreta, of Bologna, proposed that forcible dilatation of the pyloric orifice in cases of simple stricture might be substituted for the operation of resection of the pylorus. In the *Journal de Médecine* a record is given of two cases which, so far, have been completely successful; both patients were operated on by Loreta. Briefly, a longitudinal incision was made through the abdominal parietes to the right of the linea alba; the stomach was reached, drawn forwards and incised near the pylorus; so as to enable the right index-finger of the surgeon to be inserted into that orifice, which was by this means forcibly dilated. It would be of much interest to know what the final issue of such cases would be. Looking to the nature of the cicatricial tissue, would it not be right to think that relief could only be of comparatively short duration?

THE ANTIQUITY OF MAN.

An interesting discovery, of much importance for geological and archæological science, has recently been made in a coal-mine at Bully-Grenay, in the French department of Pas-de-Calais. A new gallery was being pierced, when a cavern was broken into, which discovered the fossil remains of five human beings in a fair state of preservation—a man, two women, and two children composed the group. The man measured about seven feet, the women six feet six and six feet, the children four feet and rather less than this. In addition, some fragments of arms and utensils of petrified wood and of stone, with numerous remains of mammals and fish, were brought to light. A second subterranean chamber enclosed the remains of eleven human bodies of large size, several animals, and a large number of various objects, with some precious stones. The walls of the cave exhibited drawings representing men fighting with gigantic animals. Owing to the presence of carbonic anhydride a third and larger chamber, which appeared to be empty, was not searched. Five of the petrified human remains will be exhibited at the mayoralty of Lens. The remainder of the bodies which have been brought to the surface are to be conveyed to Lille, there to await a thorough examination by the experts of the Faculté des Sciences. Information has been telegraphed to the representatives of the Académie des Sciences of Paris and to those of the British Museum. If the discovery be a real one, no doubt can be entertained of the value of the find, which would on the face of it seem to show that prehistoric man is anything but a myth.

THE TUBERCLE BACILLUS.

In the present state of the pathology of tubercle, perhaps the most needed and useful contributions are the records of numerous facts which, however dissimilar, may be fearlessly allowed to intermingle, with the firm belief that some day all the items will be explained, and all the facts arranged in their appropriate order. M. Malassez has been unable to detect the characteristic bacilli in a tuberculous nodule removed from the forearm of a child dead of tubercular men-

ingitis; but he has met with spherical or oval cellular masses, which he names "zoocléiques," and which, when injected into several guinea-pigs, was followed by the appearance of tuberculosis in these animals. The cellular masses are apparently of the size of some micrococci, and Malassez asks whether they may not be an embryonic stage of the bacilli of Koch. No difficulty would be found, according to Malassez, in distinguishing between the monas tuberculosum of Klebs and the micrococcus in question. In conclusion, it was stated that the guinea-pigs experimented upon were placed under the best possible hygienic conditions, and only a minute quantity of tuberculous material was injected; the masses "zoocléiques" were discovered in the morbid products of the guinea-pigs.

DEATH FROM THE STING OF A BEE.

FROM time to time we are startled by the news of a death following so closely on the sting of a bee that no reasonable doubt can be entertained of the causal relationship. The occurrence undoubtedly belongs to the chapter of accidents; and an explanation can only be obtained by considering those kinds of things which are of an exceptional nature. A sting of an ordinary bee on an ordinary man is perhaps never followed by anything more than a local reaction. To explain the lethal effect, therefore, we must suppose that the virus of the bee was of an unusual nature, either as a result of admixture from without or as a consequence of some disordered action of the physiological processes of the bee. If the fault do not lie in the insect, then we must turn to the other factors of the resultant effect. There can be no doubt that the injection of the venom directly into a vein is a very dangerous matter; and it is possible that this may be the accidental circumstance so necessary to afford a reasonable explanation. We learn from the *Sheffield and Rotherham Independent* that a small farmer, aged fifty-nine, whilst in good health and working in his garden, was stung in the eyelid by a bee; the signs of collapse rapidly set in, and the unfortunate man died within half an hour of the receipt of the sting. It is worthy of remark that the daughter stated that her father had been twice previously bitten by a bee and was very ill on each occasion.

THE PROGRESS OF CHOLERA.

SINCE the beginning of the fourth week in June, when cholera was first announced to be prevalent at Damietta, the disease rapidly acquired epidemic proportions both in that town, at Mansourah, and at Samanoud, besides appearing either continuously but to a less extent in other towns, such as Cherbine, or, again, in isolated groups or in single sporadic attacks at other places. Damietta has hitherto borne the brunt of the epidemic, and some 15,000 deaths have occurred from cholera in that one town. Nearly 400 deaths have taken place in Mansourah, where the disease is now on the increase, whereas at Damietta some considerable diminution in the daily number of fatal cases has at last occurred. So far the disease has been entirely limited to the Delta of the Nile, and, with the exception of an outbreak at Menzaleh, it has confined itself to towns situated along the lines of railway; in other words, its operations have been almost exclusively manifested along the main channels of human intercourse. Quarantine measures have been adopted in most European countries; but our Government have wisely decided to trust to the system of dealing with the sick and with infected things, and to leave the healthy at

liberty. The effects of quarantine, as rigidly carried out, are already manifest in all their cruelty at Mansourah, where the suspension of all intercourse with the outside world prevents any food supplies from being taken in, and so this town, with its population of 16,000 souls, is hemmed in by bayonets to contract cholera or die of starvation. But whilst discarding this barbarous and antiquated system, our Government has decided to take all such precautions as are necessary for the protection of this country. The present order relating to the importation of cholera and similar foreign diseases is to be strengthened and re-issued. A Departmental Committee is to be appointed to sit in London under the orders of the President of the Local Government Board, and a physician connected with the India Office is to proceed to Egypt with a view of maintaining efficient relations with the home Government. Our Port Sanitary Authorities have had full warning as to their responsibilities. The distance between Egypt and our shores will go far to prevent any unexpected occurrences of cholera in ships not already obviously infected at the time of their arrival, and we may fairly hope that even if cholera should be imported the arrangements which are now, or will shortly be, in operation in our several port districts will amply suffice for such work of isolation and disinfection as will be necessary to prevent further extension of the disease.

TYPHUS AT LIVERPOOL.

As yet typhus has shown no signs of diminution in Liverpool. According to the weekly returns of the Registrar-General, no distinction is drawn between the various forms of continued fever, but the fever deaths, which in the five weeks ending May 26th numbered 49, amount again to 42 for the same number of weeks ending June 30th, and, according to a statement made at the last meeting of the Toxteth-park guardians, the disease was spreading to districts hitherto free from infection. Some sort of arrangement has been entered into between the guardians and the corporation with regard to the isolation of the sick—an arrangement which will apparently involve the pauperization of all who are compelled to accept it. This result is the more unfortunate because it is alleged that "in most cases" the fever does not exist amongst persons in receipt of relief. We trust, however, that the scheme is merely a provisional one, and that in view of the fact that Liverpool now contains numerous centres of typhus infection, which will probably constitute a far greater source of danger to the population as winter advances than they do now, the corporation will, in their capacity as a sanitary authority, lose no time in securing the protection of public health by the provision of such means of isolation as will not involve the disgrace and disabilities which attach to the use of an establishment under Poor-law authority.

RISKS OF PRACTICE.

MEDICAL MEN are always liable to have their actions misconstrued, but it has been reserved for these latter days to see a father suing two doctors because they trusted to the parental instinct too implicitly. For only a short time since a jury was engaged in the Queen's Bench Division upon a case in which this state of affairs was literally true, and yet the jury could come to no agreement. The plaintiff in the action was a manufacturing chemist, and his son took ill with diphtheria, for which tracheotomy was performed by one of the two medical men in charge, and against whom this action has been raised. The operation necessi-

tated the immediate freeing of the trachea from materials occluding it, and the father was directed to suck the tube, which he did twice. The onset of the disease had been so sudden that it was legitimate for the surgeon to think the case one of inflammatory croup and not diphtheria. Two or three days after the operation the child died, and the father fell ill from diphtheria. His accusation was that he had not been warned that the disease was diphtheria, and he had not been directed to use any antiseptic gargles after sucking the tube. But it was clearly proved that there was no absolute indication of diphtheria in the child's throat until the day after the operation; and, even if there had been, what could have been more natural than that a father should have lent his aid in saving the life of his child? Moreover, it could not be actually proved that the parent had been so inoculated, since he was living under the same conditions as the child who was attacked first with the disease. Two things are clear—the doctors were quite justified in appealing to the father to come to the aid of his child; and, secondly, they were not at the time in a position to judge of the infective character of the disease so as to warn the parent of a possible risk to himself in doing what was in truth his duty.

CRUELTY TO ANIMALS.

THE Royal Society for the Prevention of Cruelty to Animals is doing excellent work, and when we contrast the state of matters in the streets now with that which even middle-aged men must remember in relation to the treatment of the dumb part of the creation, it is impossible not to feel thankful for the improvement which has been effected. One excellent feature of the work done by the Royal Society has hitherto been its freedom from "fads." The enterprise has been catholic, and it has not lent itself to private or clique influences. The medical profession will not yield place to any other profession or class of the community in its abhorrence of cruelty. It may, indeed, claim to have done more than many, if not most, other sections for the amelioration of the condition of the brute world. Those who characterize medical men as devoid of humanity, or addicted to cruel practices, because they have recourse to vivisection for scientific purposes, are either ignorant of, or wilfully distort, the facts. We heartily wish the Society success, and offer our congratulations on the highly successful meeting at which Her Royal Highness the Duchess of Connaught recently presided.

WHOOING-COUGH IN SCHOOLS.

It is a sign of the increased attention paid to sanitary and hygienic matters generally that the managers of our educational institutions are awakening to a sense of their responsibility as to the means best adapted to guard against the introduction and spread of epidemic disease in their establishments. Until quite recently there was a kind of fatuous belief that epidemics must occur from time to time as a matter of course, and be patiently endured. But nothing is more erroneous or opposed to the teaching of sanitary science. To obviate the occurrence of an outbreak, what is needed is vigilance to prevent its entrance and prompt recognition of the disease when by accident it has made its appearance, so that it may at once be completely and efficiently isolated—in fact, the establishment of effective and systematic medical supervision. The methods by which complete isolation can be secured are by no means a matter of difficulty with schools, especially those

that have no day boarders. On the occurrence of an epidemic in a town all communication with the townspeople should cease, the boys be confined to the school-grounds, the washing be done on the school premises, and by persons whose families are known to be free from the disease. A watchful eye must be kept on the health of the inmates of the baker's shop and also of the school dairy. Instead of going on Sundays to the parish church, services ought to be held in the school-room. If a boy complain of even the slightest malaise he should be at once separated from his companions till seen by the doctor, and in case the disease prove of an infectious nature he should be promptly removed to the sanatorium. In schools where arrangements of this kind are complete, serious outbreaks are rare. At Marlborough, where some years ago outbreaks of scarlet fever were of frequent occurrence, since the inauguration of a system of medical supervision the disease has been kept in almost total abeyance. At Winchester, where the means of isolation are very complete, our Commissioner on the Public Schools, 1875, reported that "in the last ten years there have been only two deaths from zymotic disease in the whole school, and no outbreak of scarlet fever has occurred now for some years." What has been effected at these large schools can be as readily carried out in smaller establishments. The frequent breaking up of schools on account of epidemics is a reproach on their management, and is an evidence that the proprietors do not avail themselves of the means sanitary science has placed at their disposal for dealing with these diseases at the very outset. With regard to the spread of whooping-cough, about which our opinion has now been asked, we can only say that the very best results are to be obtained by rigorous exclusion of the boys from the town and the frequent inspection of them by the school doctor, in order to detect the first symptoms of disease and thus secure early isolation. These precautions should be continued so long as the disease is prevalent in the neighborhood. We are pleased to see that the Council of the Parkes Museum have recognized the importance of the subject of school hygiene by devoting a lecture to its special consideration, an abstract of which will appear in our columns. Among the many subjects touched upon by the lecturer none is of more importance than the considerations for preventing the occurrence of epidemics in our educational establishments, and it is one that for years we have specially insisted on.

ACTION OF DRUGS ON SECRETION OF MILK.

We are already acquainted with the fact that a certain number of medicines when ingested by the ordinary channel were, in part, eliminated by the secretion of milk, but we do not possess precise information concerning the influence of the medicaments on the quantity and quality of the secretion. Observations recently made by M. Strumpf on the milk of goats as well as on the secretion in the human female during lactation have in a measure supplied this want. Iodide of potassium was found to lead to a marked fall in the quantity of the fluid secreted, the proportion of proteid and saccharine principles was increased, whilst the proportion of fat was diminished. The quantity of iodide secreted was very small, so that the notion that iodide of potassium can be administered to children by way of their nurse is not sustained. Alcohol increased the richness of milk in fats, whilst the proportion of albuminoids and carbohydrates was not modified. Unaltered alcohol was not detected in the milk. Neither alcohol, morphia, nor the preparations of lead had

any influence on the quantity of the secretion. Salicylic acid seemed to excite secretion a little; pilocarpine exercised no effect in this direction. The richness of the milk in sugar was increased by salicylic acid, which passes out of the milk secretion in greater quantities in the human female than in the herbivora. Traces of lead were also recognizable in the milk of those subjects who were ingesting the preparations of lead.

THE CHOLERA IN EGYPT.

THE diminution in the cholera mortality at Damietta and Mansourah which has been in progress for some time past appeared in itself a hopeful feature of the epidemic, but it was unfortunately accompanied with a large increase in the number of infected localities, the disease gradually making its appearance day by day in towns, lying for the most part along the line of railway towards the Egyptian capital, which had heretofore remained free from infection; and lastly, the spread of the infection to Cairo itself, a spread which had been so much feared, but which it was still hoped might be averted, became an accomplished fact. At the same time a steady mortality has been maintained at Samanoud, Menzaleh, and Cherbine, and isolated attacks have occurred at Alexandria. The latter are, however, of a doubtful character and, if it be not too late, a great effort will be made to keep that port free from infection. As regards Cairo and the greater part of Egypt, we fear that little can now be done to avert the progress of the epidemic. The measures of sanitary improvement which are needed are far too sweeping in their character to admit of their being carried out on a sudden emergency, such as the present one affords. Even Damietta, where the disease first appeared, remains much in the same sanitary state as it did when cholera broke out there in the middle of June, and probably nothing short of a general conflagration would suffice to remove from the midst of the principal towns now affected those conditions which must necessarily tend to favor the spread of a disease which finds in filth the principal elements for its propagation. But strong measures are needed to save both our troops and Europe from infection, and it is to be hoped that our Government will not allow itself to be fettered by the Egyptian Government, or by any Commission under Egyptian control, in effecting these important and imperial objects. We found it necessary to step in and take supreme control in face of the military danger to which Egypt was exposed last year, and the utter incapacity which has been hitherto displayed in face of the present danger from cholera calls for resort to similar measures at the present stage. In short, the Egyptian Sanitary Board has tried its hand, and failed. We cannot submit to its dictates in so far as our troops are concerned, and the only alternative seems to be the immediate appointment of a Sanitary Commission, composed of British officers and medical practitioners, many of whom are on the spot, and who have had wide experience of cholera in India and our colonies. Not a few, we fancy, have given but a half-hearted assent to our condemnation of quarantine as a measure of cholera prevention; but the experience of the present outbreak in Egypt has fully confirmed the views we expressed, and has shown that this measure, even when carried out with a stringency which has involved acts of gross inhumanity, fails to stay the spread of disease. No quarantine measures can be so rigid as to escape evasion. Cholera in Egypt has, notwithstanding all sanitary cordons, steadily progressed along the lines of human traffic; and should it unfortun-

ately extend to Europe, we shall feel more trust in an efficient system which involves the careful examination of all suspected vessels and persons, together with the adoption of measures for dealing with infected persons and things, than in a system which herds the healthy and the sick together under circumstances which offer every inducement to fraud and evasion.

BATHING AND CRAMPS.

A SAD instance of fatal cramp from bathing occurred at Durham a short time since. A fine young fellow, a trooper in the 3rd Dragoon Guards, then on the March from Edinburgh to Manchester, took advantage of the night's halt to have a dip in the Wear near that city. Being strong and a good swimmer, he took an oar, at which he worked for some time in the sultry evening till he came to deep water, and in a suitable place took his plunge. That he was immediately seized with cramp is evident from the statements of his companions, who, alarmed at his cries, hastened to render assistance, but he had sunk before they reached him, and he never rose again. When the body was recovered, a considerable time afterwards, it bore every evidence of the cause of the disaster. It was described as being "twisted"—that is, contorted; while the vessels of the head, especially in their gorged condition, pointed to congestion, in fact to stagnation of the circulation! That this young soldier lost his life by bathing when in an overheated condition is quite clear. It would be well if soldiers and civilians would remember the lesson conveyed in the classical case of Alexander, quoted by Dr. Jones from "Quintus Curtius"—viz., "It was in the middle of one of the hottest days of a burning summer that Alexander arrived on the banks of the Cydnus. The freshness and clearness of the water invited the King, covered with sweat and dust, to take a bath. He stripped himself of his clothes, and, his body all in a sweat, he descended into the river. Hardly had he entered when his limbs became suddenly stiff, the body pale, and vital heat seemed by degrees to abandon him. His officers received him almost expiring in their arms, and carried him senseless to his tent." The account goes on to show the means taken for his recovery; but it is evident that his life was in great jeopardy from cramp, and that he was just saved by the speedy action of his attendants.

PROFESSOR HUXLEY.

THE election of Professor Huxley as President of the Royal Society will meet with general approval. No ordinary man can aspire to fill the place which has been occupied by so many brilliant predecessors, and much is expected of him who is the chosen representative of English science. The requirements of the office are numerous: he who holds it must be thoroughly versed in at least one branch of human knowledge, and be regarded by those who are most familiar with it as its most brilliant exponent. But he must be something more than this, and be capable of recognizing and appreciating the value of other lines of thought and research than those at which he has worked. Lastly, he must be fitted to conduct the business relations of a large and rich society. No one combines these qualifications for the office more perfectly than Professor Huxley. He has been an energetic and steady worker, and is the unrivalled head of biological science in this country. He may be ranked next to Darwin himself as the ablest exponent of the doctrines of evolution, which have had so powerful an influence on every department of knowledge. He is a subtle

dialectician, and as a man of wide and liberal education may be depended on to promote the cause of science by every legitimate means.

FLOATING HOSPITALS.

THE German Admiralty, it is reported, are going to try a novel experiment, as they intend to send a complete hospital ship to accompany the Baltic squadron on its evolutionary cruise. A corvette has been fitted with cots, requisites for the sick and wounded, instruments, and operating tables. It is intended that in any future war the vessel shall accompany the fleet into action, carrying the Geneva flag, and, in order to distinguish her, she has been painted white with a red streak.

Correspondence.

"Audi alteram partem."

"EXCESSIVE SWEATING OF THE HANDS."

To the Editor of THE LANCET.

SIR—Your correspondent, "Puzzled," would find the following treatment for the above both efficacious and satisfactory.

The patient should soak her hands night and morning in warm water, in which should be dissolved about two drachms or half an ounce of the chloride of ammonium, and about twice as much carbonate of soda (crystals), enough water to be used to well cover the hands. I generally prescribe for my patients sufficient for six applications, and, as skins vary in tenderness, tell them to use as much as will temporarily to a slight extent cause the wrinkling known as *cutis anserina*, a condition which I describe to them as looking like the hands of a washerwoman. After well bathing, the hands are to be well rubbed with the following embrocation:—Tincture of iodine one drachm, compound camphor liniment and glycerine of each a drachm and a half, and compound liniment of belladonna one ounce. (If for the hands, a drachm of *eau de Cologne* makes the embrocation more agreeable.) The embrocation to be applied twice a day. A cure quickly follows. This treatment is equally appropriate and successful for excessive sweating and even bad smelling feet, for that odor is due to the excessive function of the sudoriparous glands.

I am, Sir, your obedient servant.

FREDK. H. ALDERSON, M.D.

Seutherton House, Glenthorne-road, Hammersmith, July 21st.

To the Editor of THE LANCET.

SIR—All the cases of "hyperidrosis" of the hands that have come under my notice I have found to be due to some one of the protean forms in which dyspepsia is wont to manifest itself. The first thing to do, then, is to regulate the digestive system. In the case of a young girl aged seventeen who consulted me lately for this complaint, I pursued the following line of treatment with marked success:—Every day, one hour before dinner, I gave five grains of compound rhubarb pill. Immediately after the three principal meals of the day I ordered a teaspoonful of Fellows' compound syrup of the hypophosphites in a wineglassful of cold water, with once or twice a week an aloes and myrrh pill. From her dietary I excluded pastry in any form, and recommended fish, fowl, and tripe whenever the last-mentioned article could be procured, giving directions that it should be thor-

oughly well stewed; also plenty of skimmed milk, but no tea or stimulant (alcoholic) of any kind. Night and morning the hands were to be well sponged with belladonna liniment, and whenever she washed her hands I directed her to pour a teaspoonful of Jeyes' purifier into the water used. This local treatment I have also found most beneficial in hyperidrosis of the feet with offensive smell.

I am, Sir, yours, etc.

W. A. GORDON LAING, M.B.

Tregony House, Mevagissey, Cornwall, July 23rd, 1883.

SANTAS OIL IN PSORIASIS.

To the Editor of THE LANCET.

SIR—In the face of so many different remedies, both external and internal, for the above complaint, I should hesitate to draw the attention of the profession to the value of another application were it not for the fact that most of the medicaments used for this complaint are the reverse of cleanly.

In a case of psoriasis of fifteen years' standing, where nearly every kind of treatment has been tried—including long courses of arsenic (which were injuring the patient's health), chrysophanic acid, tar ointment, turpentine, etc.—with only slight benefit, I was induced to try an ointment composed of vaseline, oxide of zinc, and sanitas oil, and was rewarded by a speedy removal of most of the patches of psoriasis, the usual brown discoloration of the skin, and a few small irritable spots alone remaining, which are disappearing under the same treatment, now continued for a month.

I suppose the *modus operandi* is similar to turpentine and like preparations, but sanitas oil has one very great advantage over other applications, and that is its cleanness and freedom from disagreeable odor, and the fact that the linen of the patient is not stained or injured, which is a great consideration in private practice. Of course it is impossible to judge of the value of sanitas without extended trial, which I am unable to give at present, but I shall be very pleased if any member of the profession will give this drug a trial, and make known the result of treatment by this means.

Believe me, Sir, yours, etc.,

R. H. PATERSON, M.R.C.S., etc.

Gainsborough, June 24th, 1883.

OATMEAL v. RICKETS.

To the Editor of THE LANCET.

SIR—Dr. Drewitt attributes rickets to the use of meal. Whilst heartily agreeing with the substance of his article as to the great value of condensed milk in the artificial dieting of children, I cannot but dissent from his views on the influence of meal, which, when properly prepared, I consider to be a most valuable food. Needless to say, this, like any other food when badly prepared and administered, may be incapable of maintaining health or life; but in such cases the symptoms are not those of rickets, but of simple marasmus, characterized by clean tongue, absence of fever, great craving for food, emaciation, and exhaustion. The period when children suffer from meal diet is in early infancy (first to eighth month). Rickets is most frequent after the twelfth month, and in very few cases, in my experience, is meal an element of their diet. Women in this part of the world need no caution against the use of meal. They apparently regard it as unfit for human food, being entirely ignorant how to cook it either for themselves or their children. There is abundant

clinical proof that, properly prepared, meal is in many cases digestible from the earliest days of infancy; that it is capable of maintaining a child in robust health; that many children are reared on it with little or no milk; and that in many cases where cow's milk is rejected in every stage of dilution, the addition of a little well-cooked meal renders it perfectly digestible.

Finally, I do not believe that meal is ever directly concerned in the production of rickets, but that it is an important agent for the relief of that condition.

I am, Sir, yours truly,
ED. GEO. WHITTLE, M.D. Lond.,
Senior Surgeon to the Royal Alexandra Hospital
for Children.

Dyke-road, Brighton, June 26th, 1883.

"LAWN TENNIS LEG."

To the Editor of THE LANCET.

SIR—Some cases of rupture of the pronator group of muscles having been recorded as due to the back stroke in lawn tennis, and termed "lawn tennis arm," I have thought it of sufficient interest to forward you a report of a case that has recently occurred in my practice, where rupture of the plantaris tendon took place during recreation at the same game. It is of more than passing interest, inasmuch as both the tendons gave way on separate occasions, and because no extreme tension can be said to have happened either time.

I was summoned to see J. C. C., aged forty-one, an able-bodied, muscular, healthy Englishman, on Feb. 21st, 1883, who was said to have met with an accident while playing tennis in the Drill Hall (the ground at this time of the year being covered by about four feet of snow necessitating playing under cover). He told me that while reaching for a ball (not at all violently) he was seized with a sudden sharp pain in the left calf. It stung so that he turned round and asked who threw the ball at him. He then found he could not stand or bear any weight on that leg. He was lying on a couch when I reached him, and quite free from pain. I found the calf swollen and stiff, with a slight contraction of the gastrocnemius as if to steady the injured tendon. On deep pressure about the lower fourth of the belly of the gastrocnemius I could feel a small boggy swelling, and this pressure caused much pain. I was feeling the fractured tendon through the thick muscular layer which covered it. No doubt the plantaris tendon had snapped. I put the part at rest, and approximated the ends as well as possible by flexing the leg on the thigh and extending the tarsus. In this position, which he maintained during the healing process, no pain was experienced. In about four weeks he began to walk, though a little lame, and in a short time everything seemed as before. I gave him permission to play tennis again before the middle of May, cautioning him to begin quietly, and not to exert himself. This he did, and in a couple of weeks could play as vigorously as ever and as well, and suffered no pain whatever. On May 29th, after playing a whole two hours hard, he was walking across the ground to take the "serve," when he again felt something suddenly snap, and again made precisely the same remark to the bystanders, asking who struck him on the leg. On arriving I found exactly the same condition as before described, but in the other leg. I have him at present under the same treatment (rest), and I may say he is eagerly looking forward to having it united again, so that he may measure bats once more across the grassy sward.

I am, Sir, yours, etc.,
R. W. POWELL, M.D.

Rideau-street, Ottawa, Canada.

News Items, Medical Facts, &c.

IRIDECTOMY.—A correspondent asks the reasons for performing iridectomy in the operation for extraction of cataract. They are patent. First, in whatever way the operation is performed without removal of a portion of the iris, coughing, vomiting, or failure of some part of the wound to unite frequently leads to prolapse of the iris. Iridectomy materially diminishes or entirely abolishes the chance of this very troublesome accident occurring. Secondly, in a large number of cases, however skilfully the operation is executed, a considerable quantity of cortical substance of the lens remains behind the iris. This, swelling, especially in gouty persons, irritates the iris and sets up iritis, or, gradually filling up the area of the pupil causes secondary cataract, with adhesions of the iris to the remains of the capsule and lens. Iridectomy enables the operator to remove the greater part of such residue of the lens, and thus prevents a second operation. Lastly, when the lens is large and the section is a trifle small, the lens in escaping may stretch, tear, and bruise the iris, and again lead to iritis. By iridectomy all chance of this accident is avoided. Those who practice iridectomy know very well that it has troubles of its own. The hemorrhage from the cut vessels is troublesome, and is withal of bad augury, as showing that the vessels are not healthy. The wound of the iris sometimes induces iritis; and prolapse of the cut edges at the corners of the corneal incision, almost as painful and troublesome as complete prolapse, sometimes occurs. We are inclined to think that in spare, healthy subjects, from fifty to sixty-five years of age, with otherwise sound eyes, iridectomy may be dispensed with; but that when from any cause the result of the operation appears doubtful by anticipation, it will be prudent to have recourse to it. Vision is as perfect after it has been done as in cases where it has been omitted.

THE PROPHYLACTIC POWER OF COPPER.—Dr. Burq, whose researches on the prophylactic virtues of copper in cholera are well known, has followed up his investigation of the merits of the drug by a digest of the figures relating to the last epidemic of typhoid fever which occurred in Paris. He shows that the 40,000 men and women employed in working copper would, if the death-rate among them had been, as with the rest of the population, 1·3 per thousand, have lost fifty of their number. As a matter of fact only ten died, and seven of these were very little exposed to swallowing the copper dust, in which, as Dr. Burq believes, the healing virtues of copper reside. Dr. Burq draws from all these facts the conclusion that the organism of workmen exposed to the action of copper undergoes a progressive cupric impregnation opposed to the development of the microbes of infectious diseases. He proposes, moreover, to verify this conclusion by studying the action of salts of copper upon the microbes cultivated by M. Pasteur.

On July 12th the Bill increasing M. Pasteur's pension from 12,000 to 25,000 francs, with reversion to his wife and children, passed the French Chamber without a division. In reply to certain dissentients, M. Paul Bert cited the English grant to Jenner, and scouted with warmth the charge of sordid motives brought against Pasteur.

PRINTED AND PUBLISHED BY

THE INDUSTRIAL PUBLICATION CO., 294 Broadway, N.Y.

Digitized by Google

THE LANCET.

A Journal of British and Foreign Medicine, Physiology, Surgery,
Chemistry, Criticism, Literature, and News.

JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

PUBLISHED MONTHLY.

No. 4.

NEW YORK, OCTOBER, 1883.

Clinical Lecture

ON

TETANY.

at University College Hospital,

By W. R. GOWERS, M.D., F.R.C.P.,

Assistant Physician at University College Hospital, and Physi-
cian to the National Hospital for Epilepsy and Paralysis.

GENTLEMEN—I propose to show you to-day an example of a very rare disease—the spasmodic affection which is termed “tetany.” So rare is it, that probably none of you have hitherto seen a well-marked case, at least in an adult. Because a disease is uncommon it is not, therefore, to be disregarded. There are few diseases, however infrequent, which some of you will not meet with in the future. It is necessary for you to be acquainted with the diseases which are rare, as well as familiar with those which are common.

The patient before you is a cook by occupation, single, and forty years of age. There is nothing in her present healthy aspect to suggest that she is the subject of any malady. But it was otherwise, as some of you may remember, when she first came into the out-patient room, about six weeks ago. Her arms and hands were then fixed by spasm in a peculiar manner. The elbow-joints were slightly flexed, the wrist-joints in somewhat greater degree, while the fingers were strongly flexed at the metacarpo-phalangeal joints and extended at the others, the thumb being adducted and pressed against the side of the first finger so strongly that its last phalanx was bent backwards. The spasm was attended by a painful sense of traction in the affected muscles; it could be overcome by force, but the attempt gave much pain, and the hands afterwards at once resumed the same posture. The legs were free from spasm, and she could walk well. She told us that for three months similar attacks of spasm had come on each morning, which passed away in an hour or so. During the day she would be free, but each evening the spasm recurred. In some of the previous attacks the legs also had become stiff. On the day on which she came to the hospital the spasm had continued without remission. Inquiry into her history elicited no symptoms of hysteria, and nothing in the past, save overwork, to which

the affection could be ascribed. The next day the spasm resumed its intermitting type, coming on in the morning and passing away, to recur in the afternoon and evening. Since then the attacks have gradually become slighter and briefer, and there is now only a little stiffness of the hands for half an hour after rising in the morning. From the first, when the hands were free from spasm, this could be readily induced by pressure on the position of the nerves of the arm. I will show you this effect. The right hand, you observe, is now quite free from spasm. I press firmly on the nerves just below the brachial plexus. At first no change is seen; but now, about a minute having elapsed, you may notice a slight quivering of the abductor indicis, and then the index-finger becomes slowly flexed at the metacarpo-phalangeal joint; the thumb is gradually pressed against it, and next the other fingers are flexed in the same manner; last of all, the wrist also becomes flexed. The pressure being discontinued, the spasm lasts for a few minutes and then passes off. If I compress in the same way the nerves of the left arm, the spasm is induced in like manner in the left hand. No such effect is produced in health by similar compression. There has been much discussion whether the result is due to the compression of the nerves or of the brachial artery which runs beside them. But that it is due to compression of the nerves is proved by the fact that in this patient I can produce it by pressing on the ulnar nerve, away from the brachial artery. A morbid irritability of the nerves is also conclusively shown by the effect of percussion of the nerves. If I give a smart tap to the nerves of the arm, it causes a single quick contraction of the muscles. This is still distinct, although less than it was a few weeks ago, as the patient is recovering, and it was then even more conspicuous in the facial than in the brachial nerves. The slightest tap on the facial nerve in front of the auditory meatus caused an instant momentary contraction in all the facial muscles, exactly similar in character to that produced by the stimulation of a healthy nerve by a single induction shock. The increased irritability of the nerves was as great to electrical as to mechanical stimulation. It was equally marked to faradism and voltaism. The voltaic current, for instance, from a single Coxeter cell, caused contraction in the muscles supplied by the nerve. There was also a qualitative change in the mode of reaction. In health, as you know, if the strength of the current is slowly increased, the first con-

traction is obtained when the negative pole (kathode) is on the nerve and the circuit is closed, or, in the usual terminology, the K.C.C. (kathodal closure contraction) is the earliest, and a stronger current is required to cause contraction when the positive electrode is on the nerve and the circuit is closed or opened (A.C.C., A.O.C.); while a still stronger current is necessary to cause contraction when the negative pole is on the nerve and the circuit is opened (K.O.C.). In this patient, however, the earliest reaction (with one cell) was the positive opening contraction (A.O.C.), and two cells caused not only positive and negative closure contraction, but also distinct tetanic contraction the whole time the current was passing.

Such, gentlemen, are the main points in the case. As the disease is rare, it may be well briefly to mention the chief facts regarding its causation and clinical features. The general history of the disease has been ably sketched by Trousseau,¹ Riegel,² and Weiss,³ abroad; and in this country by Buzzard⁴ and Abercrombie.⁵ The conclusions of these observers I have endeavored to verify and extend by an examination of the details of 150 cases, eight of which have come under my own observation, and the others have been recorded by various writers.⁶ I need not trouble you with statistical results, except as regards age and sex. On other points I will merely give you the chief conclusions which a comparison of these cases suggests.

Tetany is rather more frequent in males than in females, the ratio being as 7 to 6; but this relation, as we shall see, does not obtain at all ages. The disease occurs at all periods of life, from infancy to old age, but is most frequent in early childhood and in early adult life, as is shown by the following table of the cases in which the age is mentioned:—

Age.	Males.	Females.	Total.
1—4	26	8	34
5—9	5	3	8
—	—	—	—
1—9	31	11	42
10—19	23	13	36
20—29	9	15	24
30—39	4	19	23
40—49	5	8	13
50—61	4	0	4
—	—	—	—
	76	66	142

Thus the disease is most frequent in infancy and in the second decade of life. More than half the cases occur during the first twenty years. During early childhood the disease is far more frequent in males than in females (as 3 to 1). Between the ages of twenty and fifty, however, the liability of the sexes is reversed, and females suffer twice as frequently as males. Over fifty, on the other hand, the affection is practically confined to males. A neuropathic heredity can rarely be traced; but that a family tendency to the disease may exist is shown by some facts recorded by Abercrombie.

who, in an interesting description of the disease as it occurs in children,⁷ has mentioned one family in which three cases occurred, and two others in each of which four children suffered.

A direct exciting cause can be traced in about three-fourths of the cases, and the absence of such cause renders the case I have shown you somewhat exceptional. The most frequent excitant is diarrhoea, long-continued and exhausting. Next in frequency are exposure to cold (especially when conjoined with fatigue), acute disease, and lactation. A series of cases in women who were suckling led Trousseau to propose for the disease the name of "nurse's contracture;" but this cause, as he afterwards found, is not so frequent as to justify the designation. Tetany may also come on during pregnancy, usually in the second half, and after delivery. The relative frequency of the disease in adult women is due almost entirely to these various influences of maternity. Other occasional causes are simple anemia, prolonged muscular efforts, alcoholism, and sexual excess, especially masturbation. I have once seen it as a consequence of lead poisoning. In young children it is usually associated with rickets, and is evidently closely allied to the "carpopedal contractions," which are so common in that disease. Laryngismus stridulus and convulsions are frequent accompaniments. In three recorded instances the affection was apparently due to tapeworm, and ceased when this was expelled. Traumatic causes are extremely rare, and yet, strange to say, one surgical operation, excision of an enlarged thyroid, has been followed by an attack of characteristic tetany in four instances.⁸ Although an association with hysteria has been occasionally observed, it is certainly infrequent and exceptional. The acute diseases during or after which tetany has been observed, are (in the order of frequency) typhoid fever, small-pox, cholera, rheumatic fever, measles, febricula, catarrh, and pneumonia. In some epidemics of typhoid fever it has been comparatively frequent, coming on in the latter period of the disease or during convalescence. Lastly, singular epidemics of tetany have been met with, and in some of these hysteria has probably played a larger part than it does in the sporadic cases. In a girl's school in France, in 1876, thirty cases occurred. A still more singular epidemic occurred in certain Belgian prisons in 1846.

The symptoms of the disease, in a moderate degree of severity, are well exemplified in the case I have shown you, and I need not redescribe them. The peculiar posture of the hands during the attacks of spasm is that almost invariably observed, but in a few recorded cases the fingers have been flexed at all joints and the fist thus closed. Still more rarely the wrist and fingers have been extended. In cases of slight and moderate degree the spasm is confined to the hands and forearms, but in the more severe form the lower limbs are also involved. The feet are extended at the ankle-joint, and are inverted in the position of talipes equinovarus. The toes are strongly flexed. The knees are usually extended, rarely flexed. In cases of still greater severity the muscles of the trunk and head participate in the spasm. In the trunk the abdominal muscles, the flexors, suffer more than the extensors of the spine. The thorax may be fixed by the spasm, and even the diaphragm may be involved. Hence respiration is interfered with to the degree of causing cyanosis, and even loss of consciousness. The sterno-mastoids may be rigid, and the head bent forwards. Not un-

¹ Clinical Lectures, Bazire's Trans., p. 373.

² Deut. Archiv f. Klin. Med., Bd. xii., 1863, p. 405.

³ Volkmann's Klin. Vorträge, No. 189.

⁴ Clinical Lectures on Diseases of the Nervous System, p. 411.

⁵ On Tetany in Young Children. London: Ballière. 1880.

⁶ Abelin, Abercrombie, Aran, Berthelot, Broadbent, Brunnich, Burresi Buzzard, Cheadle, Chvostek, Cruveilhier and Harard, Culmann, Dance, De la Berge, Dupuilaue, Eisenlohr, Falkson, Frey, Fucel, Gauchet, Gluzinski, Green, Grisolle and Gery, Guersant and Baudelocque, Haddon, Herard and Gauchet, Imbert-Goubeyre, Jadelot, Kjellberg, Kussmaul, Larquet, Laëgue, Lussana, Maccall, Marfan, Marotte, Mikshick, Miller and Seitz, Moxon, Nöthen, Perrin, Piogey, Quincke, Rabaud, Revillon, Riegel, Rilliet and Barthez, Ritchie, Sacre, Salmonsens, Sandras, Schultze, Skoda, Sonrier, Stich, Tobiesen, Tonellé, Trousseau, Van der Eapt, Verdier, Weiss, Weiss, Wilks. I have only included the cases of which full particulars are given.

⁷ Cambridge Thesis on Tetany in Young Children. London: Ballière. 1880.

⁸ Weiss.

frequently the jaws are closed by spasm in the masseters. The angle of the mouth may be drawn outwards, and the eyes are half shut by contraction in the facial muscles. Movement is interfered with by the spasm, and in proportion to it. There is no paralysis.

Slight contracture may be painless. When considerable, there is usually an unpleasant sense of traction in the affected muscles, sometimes amounting to cramp-like pain, and sharp pains dart up the limb, often taking the course of the nerves. Tingling in the extremities may precede or accompany the attacks of spasm, and sometimes persist in the intervals, accompanied, very rarely, by an actual loss of sensibility to touch, or pain, or both.

The spasm is usually, as in this case, paroxysmal. The attacks are separated by intervals of perfect freedom. The duration of each attack may be a few minutes, hours, or rarely one or two days. The intervals between the paroxysms may be a few hours or a day or two. As a rule, the briefer the paroxysms the more frequently do they recur. Sometimes a slighter degree of spasm continues during the intervals, usually in the arms, rarely in the legs. In other cases, again, in both children and adults, the spasm may continue, scarcely varying in degree, for several days. Thus we may distinguish intermitting, remitting, and continuous forms. But cases are met with which present all gradations between these varieties.

The remarkable alteration in the irritability of the motor nerves has been already mentioned in the description of the case before you. In some cases, as Erb first showed, it is carried to a still higher degree. Not only, as in this patient, is the anodal opening contraction most readily produced, and continuous "tetanic" contraction attends the passage of the current, but a similar tetanic contraction may be induced by the anodal opening stimulation—that is to say, when the positive electrode is placed on the nerve, and the current is broken, so that the current ceases to pass, a prolonged contraction results. This phenomenon is of peculiar interest, since in no other condition has the "anodal opening tetanus" been observed in man. The change in nerve-irritability usually persists a week or two longer than attacks of spasm, but this rule is not invariable. In this patient, for instance, although the spasm still continues in the arms in a slight degree, the irritability of the nerves is becoming normal; the earliest contraction is no longer produced, as it was a few weeks ago, by the anodal opening, but, as in health, by the kathodal closure stimulation.

When the paroxysms are very severe there may be copious perspiration, and sometimes local vasomotor disturbance, redness, and even slight oedema in the affected parts. The pulse is quickened, and, in some cases, a rise of temperature (even to 101° F.) has been observed. But in cases of moderate severity, and also in continuous tetany, these phenomena are absent. The urine, as a rule, is normal, but transient albuminuria has been twice observed,⁹ and once glycosuria coincided with the attacks.¹⁰

The paroxysmal form of tetany may be either slight or severe, but the continuous form never presents a very intense degree. In young children tetany is usually continuous, but the intermitting form is not unknown. In older children and adults it is rare for the spasm to be continuous for several days; as a rule it is intermitting, or there are considerable remissions in its degree. Continuous tetany may persist while the patient

is asleep; in the intermitting form attacks occasionally, although not frequently, come on during sleep. The total duration of the disease varies much. Either the continuous or the intermitting form may last for a few days only. But it is not uncommon for the intermitting form to last for several months. In the patient before you the affection has already lasted for more than four months, and it will probably be another month before she is well. But it is rare for the continuous form, in which the spasm goes on without interruption or considerable remission for several days, to last for more than a few weeks, in adults at any rate. In the majority of cases in which the spasm continues for more than three days, the patient has only one attack; in only a few cases have there been two attacks, and the total duration of the disease has never exceeded a month. The disease is prone to occur either under the influence of an obvious excitant, or sometimes without any appreciable cause. A woman, for instance, suffered from it while suckling each of five children;¹¹ another patient had an attack in each of ten successive winters.¹² In some instances several years have intervened between the attacks—three, six, and even eleven.¹³

Almost all cases end in recovery. Death, when it has occurred, has usually been due, not to the tetany, but to its cause, as diarrhoea. In a very few instances the spasm has caused death, either directly by exhaustion from its violence (as in a case recorded by Trousseau), or indirectly by the influence on the lungs of the repeated interference with respiration, which has induced pulmonary congestion and a low form of pneumonia. Nor does it, as a rule, leave behind any troublesome sequela. In a few cases weakness of the leg was persisted for a time. It has once been immediately followed by chorea,¹⁴ and once by acute and general muscular atrophy.¹⁵

The little that is known of the pathological anatomy of the disease throws no light upon its nature. In a few cases minute changes have been found in the spinal cord,¹⁶ capillary hæmorrhages, accumulations of lymphoid cells around the blood-vessels, and minute foci of myelitis. These are, doubtless, of secondary origin, the result of the acute disturbance of function, and afford no indication of the morbid influence by which the function is disturbed. The one almost solitary fact which we have to guide us in seeking for the seat of the disease is the change in the irritability of the motor nerves. This proves beyond a doubt that the nutrition of these nerves is changed. But such a change in the nerves suggests a similar change in the motor nerve cells of the spinal cord. Of these the motor-axis cylinders are the processes, and share the changes in nutrition of the parent cell. Moreover, the spasm itself indicates that there is a morbid state of grey matter, since we know that only nerve cells can liberate the energy which causes spasm. We may feel sure, therefore, that the motor nerve cells of the cord and the fibres proceeding from them are in a morbid state. The tingling and impaired sensibility occasionally observed, suggest that the sensory cells of the cord may participate in the alteration. But here we must stop. Whether the morbid condition arises primarily in the cord, or descends from higher centres, we cannot tell, and opinions which have

⁹ Kussmaul, Nöthen.

¹⁰ Stich.

¹¹ Maccall.

¹² Lussana.

¹³ Chvostek.

¹⁴ Salmonsens.

¹⁵ Bondet.

¹⁶ By Weiss, Langhans, and Ferraris.

been put forward, that this or that part of the brain is the seat of the disease, are still in the region of unsupported theory. In passing, however, I may direct your attention to the peculiar position which the hand almost invariably assumes during the contracture, a position determined by the predominant spasm in the interossei and some of the lumbricales. It is the opposite posture to the flexion of the phalanges at all joints, in which the "fist is closed." The posture is evidently one of high physiological importance. It enters, in greater or less degree, into many delicate movements of the hands, as in writing; whereas the flexion of the phalanges at all joints occurs especially in coarse movements of the limb, as in lifting a weight. Evidently the "interosseal flexion," as it may be termed, depends upon well-organized nervous arrangements; but where these are placed we do not know, and hence we are ignorant of its localizing significance. It is conspicuous in many cases of post-hemiplegic mobile spasm, an approximation to it is observed in paralysis agitans, and it is the most common posture of the hands during epileptic fits. Probably it ultimately depends on nervous arrangements situated in the cerebral cortex; but doubtless, if so, there are corresponding subsidiary arrangements in the lower centres, even in the spinal cord, through and by means of which it is effected. Hence this posture does not, in itself, justify us in going for the seat of the disease beyond the spinal axis (including the grey matter of the pons and medulla), in which, as we have already seen, a morbid state is indicated by other symptoms.

Of the nature of the change in the nerves and their centres we know almost nothing. The enduring alteration in function, demonstrated by the change in mechanical and electrical irritability, conclusively proves some change in their nutrition, but the fact that this change remains limited to increased irritability, and in the end passes away entirely, proves that it is comparatively slight in degree and probably limited to such fine molecular changes as could not be recognized by any means of investigation at present at our disposal. "Vaso-motor spasm" in the nerve centres has been invoked as an explanation of the attacks of contracture, but it seems to me without sufficient reason. There is nothing in the symptoms to suggest the hypothesis; the adequacy of the mechanism is as unproved as it is improbable; and it leaves unexplained the one fact of the functional alteration in the motor nerves, which is at present the only pathological indication we possess. But functional excitement in the nervous system often induces vaso-motor disturbance, both central and peripheral. The vaso-motor symptoms which have been, in rare cases, observed at the periphery, were clearly secondary in time, and we are justified in assuming that the same is true of the slight and variable traces of similar disturbances in the spinal cord (leucocytal aggregation about the vessels) which have been discovered in one or two severe cases.

In chronic poisoning by ergot there is often contracture which singularly resembles that of tetany, and the similarity has struck many observers,¹⁷ and has suggested the dependence of the disease we are now considering on some toxic influence. But the significance of etiological facts is on the whole opposed to such an assumption. Although in some cases reflex irritation has appeared to excite the disease, it is doubtful whether this plays a large part in its pathology.

The diagnosis of a case of tetany rarely presents any considerable difficulty. The symptoms are char-

acteristic, and in the paroxysmal form are unique. In spite of the unfortunate resemblance in name, it could be confounded with tetanus only in cases in which the spasm develops suddenly with extreme violence, and such cases are so rare that only one or two have ever been recorded. It is sufficiently distinguished in ordinary cases by the peculiar posture of the hands, by the invariable commencement of the spasm in the extremities, and by the fact that the masseters, which generally are the first to suffer in tetanus, are always the last to be involved in tetany. In organic cerebral disease, attended with contracture, this is usually unilateral, and continues not only for a day or two, but for months; there is paralysis as well as spasm; and cerebral symptoms are never absent. Hysterical contracture may resemble tetany in form, but is almost always unilateral. In ergotism the spasm is secondary to other symptoms, and the disease is fortunately scarcely ever met with in this country.

Only under two conditions is the prognosis other than favorable. If the paroxysms are extremely violent, and interfere distinctly with respiration, the disease may be fatal from pulmonary complications. Secondly, if the tetany is due to grave debilitating disease there is considerable danger to life from this cause; but the prognosis in such a case depends on the primary disease, rather than on the secondary malady. The duration of the affection is often difficult to foretell. It will probably be brief if the disease depends on a cause which is speedily removable. It is likely to be long if there is a distinct alteration in the irritability of the motor nerves. If in an adult, the individual attacks continue for several days, the disease is not likely to last more than two or three weeks.

The treatment must first be directed to the removal of any derangement to which the disease is apparently due. Diarrhoea must be arrested; lactation stopped. If the affection followed exposure to cold, and the case is seen early, warm baths and free diaphoresis should be employed. The treatment of the developed malady itself consists in the diminution or arrest of the attacks by sedatives, and in the removal of the morbid state on which they depend by tonics. For the former purpose bromide of potassium is the most effective, but it must be given in full doses, as half a drachm three times a day. Chloral, Indian hemp, and hypodermic injections of morphia have also been found effective, but, as a rule, the bromide answers best. The inhalation of chloroform at first increases the spasm, but all contracture disappears when the patient is fully under its influence, although the subsequent recurrence of the spasm is not thereby prevented. Stimulating liniments to the extremities and ice to the spine have also been observed to lessen the spasm. The voltaic current has been said to do good in some cases, but in others it has so distinctly failed that it is doubtful whether the improvement ascribed to its influence may not have been due to other causes. Those of you who have not read Trousseau's striking lecture on the disease will be startled to learn that the chief treatment for the malady in France twenty years ago was venesection, and what is still more surprising, it is said to have been followed by rapid recovery, even in weakly women. But it was not invariably successful, and where it failed tonics often succeeded.

The most useful tonics are, as might be expected, iron, quinine, and strychnine. In very slight cases no other treatment is needed. The patient you have seen is taking only tincture of nux vomica, and, as you have heard, she is steadily getting well, the disappearance of the augmented irritabil-

¹⁷ Imbert-Goubeyre (1844), Hasse, Moxon, Eulenberg.

ity being a satisfactory proof of the reality of her progress. The continuous tetany of young children is less amenable to sedatives than the paroxysmal variety of adults; and the most important element in its treatment is that of the rickety diathesis which accompanies it, and on which it certainly to a large extent depends.

Clinical Remarks

ON

SOFTENING OF THE CRUS CEREBRI AND PONS, AND ON SYPHILITIC DISEASE OF THE CEREBRAL ARTERIES.

Delivered at St. Thomas's Hospital,

By J. SYER BRISTOWE, M.D., F.R.S.,

Senior Physician to the Hospital.

GENTLEMEN—The four cases to which I wish to call attention present, each of them, individual points of interest; but doubtless their chief value resides in the fact that they have a close pathological and clinical relationship. They are all of them cases of softening of the pons Varolii, or crus cerebri, and adjacent parts. The symptoms were in all cases those of what is roughly termed cross paralysis, and in every instance the affection was ushered in by premonitory symptoms. The symptoms, however, presented considerable differences of detail, and there were differences as regards etiology.

The first case is that of a young man who had contracted a chancre exactly six months before his death, and who was suffering from secondary symptoms in the form of psoriasis at the time when his fatal illness seized him. The symptoms of this illness began five or six weeks before he died (and certainly therefore within five months of his syphilitic inoculation) with occipital headache and sickness. After three or four weeks, or, more exactly, fourteen days before his death, he began to ramble a little in his mind and to be troublesome; and the next morning it was noticed that his pupils were contracted, his conjunctivæ congested, and his left eyelid a little dropped. Five days later, when he woke in the morning, he was found to be hemiplegic on the left side; and after another four days it was noticed not only that the left eyelid was a little dropped, but that there was paralysis of all the muscles of the right eye, excepting probably the superior oblique. Meanwhile the patient was becoming more and more drowsy and stupid, and he died quietly on the fourth day after the paralysis of the muscles of the right eye had declared itself. Syphilitic disease of the internal organs generally arises as a part of the so-called "tertiary symptoms" of syphilis, and therefore late in the progress of the disease, and often after many years have elapsed. Still, as the patient here appeared to have been in all other respects a healthy man, it was assumed during life that his cerebral affection was syphilitic, and he was treated accordingly. Further, it was not difficult to speculate, from the symptoms, as to whereabouts the cerebral lesion would be found. The left-sided hemiplegia pointed to involvement of the motor tract, issuing from the right hemisphere of the brain; and that the part directly implicated was the right crus cerebri or the contiguous portion of the pons had been foreshadowed by the slight ptosis observed in the left upper eyelid. This surmise was confirmed when, a few days subsequently to the occurrence

of hemiplegia, total paralysis of the right third nerve was added to the other phenomena. At the post-mortem examination there was found syphilitic thickening, with obstruction, of the right posterior cerebral artery, and consequent softening, with more or less disintegration in patches, of the right crus cerebri, and of some of the neighboring parts to which this artery is distributed. The paralysis of the right sixth was no doubt due to the thickening of the membranes observed at the base of the brain, and the very partial affection of the left third was probably connected with some special but concurrent lesion of that nerve. It may be assumed, that the patient's early and comparatively vague cerebral symptoms were due to the disease of the arterial walls and slight associated inflammation of the membranes in the neighborhood; that the hemiplegia took place when the channel of the posterior cerebral became suddenly occluded; and that the right third nerve got involved as the area of softening extended.

The second case was also that of a young man who had somewhat recently contracted syphilis, but who gave no history of having suffered from secondary symptoms. The duration of his fatal illness was between four and five weeks. For three weeks he complained of frontal headache, unattended with sickness or other important symptoms, at the end of which time he was seized during the night with almost complete left hemiplegia, associated with rigidity of the arm and leg, inability to speak, and well-marked paralysis of the third nerve on the same side. On the next day he had attacks of partial unconsciousness, during which the head and eyes were strongly turned to the left. On the following day he manifested some return of the power of articulation, and was evidently not aphasic. All signs of paralysis of the left third, seventh and ninth nerves had disappeared, and the paralyzed arm and leg had become limp. Three days later the urine, which from the beginning had had to be drawn off with a catheter, had become alkaline and offensive, and there were manifest signs of cystitis; and on that day his temperature reached 103.4°. After this the pulse increased in frequency, the temperature rose irregularly, and on one occasion he had a prolonged rigor; there was a slight return of the paralysis of the left third, seventh, and ninth, and the left arm and leg again got rigid; he passed into a state of coma, and at the time of death the temperature in his axilla had risen to 109.2°. In this case, as in the former, there was reason to suspect the presence of some syphilitic lesion of the brain, and the sudden occurrence of left hemiplegia during its progress, pointed to the direct and sudden involvement of the motor tract in, or issuing from, the right cerebral hemisphere. The partial paralysis of the third nerve on the same side as the hemiplegia seemed to show that the lesion was situated somewhere about the crus cerebri or pons; and that the pons was the actual seat of disease was to some extent confirmed by the attacks of partial unconsciousness, with turning of the head and conjugate deviation of the eyes towards the paralyzed side, which occurred on the second day of his hemiplegia. It will be recollected that deviation of the eyes and head in cases of cerebral disease is towards the lesion and away from the paralyzed side, while it has been observed that, at any rate occasionally, when such deviation shows itself in affections of the pons the direction of the deviation is reversed. The post-mortem examination to some extent confirmed the inferences that might have been, and in a measure were, drawn from the symptoms. There was syphilitic disease of the posterior cerebral and of some of the smaller arteries in the neigh-

borhood; and there was pulpy softening of the right half of the pons. No distinct occlusion of vessels was discovered; but there can be little doubt, I think, that the breaking down of tissue, which was exactly of the same kind as in the former case, and such as one meets with when arteries are obstructed, was the result of obstruction of the small arteries distributed to the softened region.

In this case, as in the other, the cause of the partial paralysis of the third nerve on the same side as the hemiplegia is not clearly explained by the obvious position of the lesion. But the difficulty of articulation which the patient manifested, and the retention of urine with tendency to rapid inflammation of the bladder, had doubtless some relation to the seat of disease. The extremely high temperature which was reached on the approach of death is a noteworthy feature in the case.

The third case was that of a man of middle age who was said to have been temperate and healthy, and never to have had syphilis. His illness began about twelve weeks before death, of which the last seven weeks and a half were spent in hospital. The onset seems to have been a kind of rigor; on which followed persistent headache and giddiness. The first definite sign of brain disease was the occurrence of double vision four days before admission, and the second left hemiplegia, which supervened on the morning of admission. When he came under observation it was found that he had partial paralysis of the right external rectus, and nystagmus of the right eye when trying to look to the right, incomplete left hemiplegia, and unsteadiness of gait. He rapidly got worse, and after four or five days it was observed that his intelligence had become affected, and that he was emotional, that his hemiplegia had become more complete, that the left internal rectus as well as the right external rectus were paralyzed, and that all movements of the eyeballs, excepting that to the left, were attended with nystagmus. He had no optic neuritis. During the following two or three weeks the symptoms underwent little change; but about three or four weeks before his death partial paralysis of the right seventh and ninth was observed for the first time, and he presented also some difficulty of speech and of swallowing. There was no manifest increase of paralysis after this; but he gradually became more and more feeble-minded, and at length comatose. Before death his temperature rose to 103.2° , his pulse to 160, and his respiration to 72 in the minute. In this case there was no evidence of syphilis; but the occurrence of paralysis of the right external rectus with left hemiplegia pointed pretty clearly to mischief about the pons, right crus, or the immediate neighborhood of these parts. And this inference was confirmed when, later, paralysis of the left internal rectus, and still later partial paralysis of the seventh and ninth nerves on the right side, and difficulty of speech and deglutition, supervened. The post-mortem examination revealed softening in about exactly the same situation as in the first case. There was only a little atheroma in the vessels at the base of the brain; there was no sign of syphilitic disease, and no recognized obstruction of vessels. The softening, however, was in the domain of the right posterior cerebral artery, and as there was no trace of present or bygone hemorrhage it seems probable, at least to me, that the softening was the consequence of thrombosis of some of the smaller branches of the artery just named. It is not easy to understand from the post-mortem facts of the case the cause of the paralysis of the left internal rectus or of the right seventh and ninth nerves. It is noticeable that in this case there was nystagmus, and

that in this case, as in the last, there was considerable rise of temperature as death approached.

The last case occurred in the practice of my colleague, Dr. Stone. It was one of thrombotic plugging of the anterior part of the basilar artery, followed by softening of the corresponding region of the pons. The limits of the softening are not defined with precision in the post-mortem record, but the symptoms were those of interruption of the motor tract on the right side, together with much impairment of articulation. It is curious that scarcely any symptoms were present in this case to indicate the exact seat of mischief. It is probable, however, that paralysis of one or other of the cerebral nerves would have appeared had not the patient's life been cut short by his pulmonary complication.

Before proceeding to the detailed account of my cases there are a few points of more or less interest in connection with them, mainly as a group, to which I may briefly refer. 1st. In no case was there any obvious impairment of common sensation or involvement of any of the nerves of special sense. 2nd. In no case did the patient suffer from convulsions. In one, however, there were, for one day, attacks of partial unconsciousness, attended with deviation of the head and eyes towards the paralyzed side. 3rd. There was absence of optic neuritis, at any rate during a considerable period of the patient's illness, in my third case, and I believe the same fact was observed in the second, but the record of it has not been preserved. 4th. The affection of the motor nerves at the base of the brain was different in the different cases, and varied to some extent even in the same case; and, moreover, the paralysis was by no means generally most pronounced in those nerves which, judging from the seat of obvious lesion, might have been expected to be the chief sufferers. Several explanations of this phenomenon suggest themselves. Thus, the primary embarrassment of circulation may have involved a wider area than the subsequent softening, and nerve-nuclei at first implicated may have become reinstated; or, again, when necrosal softening had involved a certain district it may either have extended or, acting as a foreign body, may have excited inflammation in the circumambient parts, and so have brought additional nerve-nuclei within its influence; and, further, it is well known that most of the motor nerves at the base of the brain, and more especially, perhaps, the sixth, are liable to be interfered with either by the effects of basal meningitis, or by direct pressure exerted by a superincumbent tumour or swelling. The cases show, however, that valuable as paralysis of these nerves is as a guide to us in the diagnosis of the seat of intracranial lesions, their indications require to be read with care, and we cannot safely attach specific value to them indiscriminately. It may be added that in one of my cases there was paralysis of the right external rectus, which might have been expected from the seat of lesion, and also of the left internal rectus, of which the cause was not apparent. It seems probable that in this instance there was implication of the centre, which co-ordinates the actions of these muscles.

Secondary Syphilis; Disease of Right Posterior Cerebral Artery and Softening of Right Crus Cerebri, Optic Thalamus, etc.; Left Hemiplegia; Paralysis of Right Ocular Muscles.—F. M. W. B.—, aged thirty-three, an attendant at a lunatic asylum, was admitted on April 16th, 1872. It was stated that he had had primary syphilis in the previous October, and that this had been followed by sore-throat and psoriasis. He had been treated for his complaint, I believe, with iodide of potassium and mercury, and under the influence of treatment his symptoms

had gradually subsided, but not disappeared. In all other respects his health had been good up to three or four weeks before admission. He then complained of headache, chiefly occipital, which was followed in a week or ten days by vomiting, coming on for the most part directly or very shortly after meals. These symptoms have been persistent since their first appearance. He has had no pain in the chest or between the shoulders either after food or at any other time, but his appetite has been bad and his bowels constipated. He has had no cough. On admission he was still complaining of occipital headache; his tongue was thickly coated, but no disease of any important organ could be detected. The heart and lung-sounds were healthy, the urine free from albumen, and with a specific gravity of 1027. The limbs, trunk, and especially the face, presented abundant traces of syphilitic psoriasis.—17th: Has slept badly, but has not been sick; has had much headache. There is no affection of any of the organs of sense, and he is perfectly rational. Tongue very thickly coated, white. Pulse 52; temperature 99°; bowels not open.—18th: Seems better, but has much headache, and slept badly. Temperature 99°.—20th: Has been twice sick since the last visit, has slept badly, and has rambled a little both day and night. Last night he got out of bed and tried to get into one on the opposite side of the ward, and he threw a spoon at the nurse. He speaks quite rationally when answering questions, but does not know where he is, and rambles a little when left to himself. He complains very much of headache, which appears to be general. He can see with both eyes, but complains of muscæ. Both pupils are contracted, but the right is most so, and seems to act less perfectly than the other. Both conjunctivæ are congested, especially the left. The muscles of the eyeballs act normally, but the left upper eyelid seems a little dropped. Tongue less thickly coated than it was; appetite bad; pulse 50. No indications of thoracic mischief or of renal affection.—24th: No material change. He had thirty grains of chloral hydrate last night, slept well, and is very drowsy this morning. Says he feels better, but that his head is painful. Tongue much furred; bowels confined; pulse 54.—25th: Had a tolerably quiet night, but this morning it was noticed that he had paralysis of the left side of the body. Neither himself nor the nurse could give any account of its coming on. He cannot now move arm or leg; but sensation appears to be unimpaired in them, and reflex movements are readily excited. The mouth is drawn to the right, and the tongue deviates slightly to the left. There is no change for the worse in any of his organs of sense. He is fairly sensible, and answers questions pretty readily. Complains of pain across forehead, in back of head, and in neck. Pulse 68.—27th: Has slept pretty well the last night or two. Complains of headache still. Paralysis continues unchanged. Has had no sickness lately, and the bowels have been confined since the 25th, since when he has passed his urine into the bed. Conjunctivæ congested; pupils contracted. Tongue furred. Pulse 56.—29th: No improvement. Is certainly more dull and stupid than he was. The tongue still distinctly deviates to the left. There is no change in the condition of his pupils, but their axes now do not correspond. The left eye seems to move freely and perfectly; but the right moves neither upwards, nor inwards, nor outwards; the only movement which it executes is downwards, with an inclination to the right.—May 1st: Now takes no notice of anything that is said to him. The left upper eyelid droops more than the right; but the muscles of the right eye are paralyzed. The pupils are equal and somewhat con-

tracted. He does not appear to see. Water passed into the bed. Pulse 60.—2nd: Was very quiet all last night, and now takes no notice whatever, however loudly he is addressed. He lies on his back with the eyes closed, and when the lids are raised the right eye is seen to be directed straight forwards, the left pointing downwards and to the left. The former is quite motionless, but the left is occasionally brought into the same position as the right. He does not follow or appear to notice the light of a candle however near it is brought to the eyes, nor does the light affect the pupils, which are as nearly equal as possible, and somewhat dilated. He breathes gently and noiselessly, and occasionally rubs his eyes with his right hand. He has had no convulsive attacks. Pulse 96. The syphilitic eruption has improved since admission, but it is still quite apparent. His death took place next morning.

Autopsy.—There is slight thickening of the membranes at the base of the brain, but no noticeable flattening or congestion of the general surface. The right posterior cerebral artery for about an inch of its length is considerably thickened and slightly translucent, and the channel of the vessel, which is much narrowed, is occluded by a tough, adherent, cylindrical, fibrinous coagulum. All the other vessels are healthy. A tract of softening involves the right crus cerebri, the outer part of the right optic thalamus and internal capsule, and the brain substance to the outer side of the hippocampus major; and patches of disintegration are present in each of these situations. The third nerve of the left side is enlarged. There is a great deal of effusion into the lateral ventricles. All other parts of the brain are healthy. Thoracic and abdominal viscera all healthy. No syphilitic disease of any of these organs.

Acute Softening of Right Half of Pons Varolii; Left Hemiplegia; Partial Paralysis of Left Third Nerve, &c.; Coma and Great Rise of Temperature before Death.—James P—, a gardener, aged twenty-seven, came under my care on Dec. 24th, 1881. Has been of loose habits and has drunk a good deal, and about two years ago had an attack of syphilis. Has had no other illness of importance. For three weeks he has complained of pain in the frontal region, which has become more severe during the last two days, and has been attended with loss of appetite; no sickness. He went to bed on the night of the 23rd fairly well but for his persistent headache. At 5.30 the next morning his brother found him lying on the floor, and thought he was drunk; he was partially insensible, and when he was being replaced in bed the brother noticed that he struggled only with one side. He was admitted into the hospital a few hours afterwards. At that time he was partially unconscious; the pupils were dilated and equal; there was an external squint of the left eye, and ptosis of the left eyelid; the upward movement of this eye also was a little impaired; the mouth appeared to be drawn slightly to the right, and the tongue was protruded markedly to the left; he was unable to speak, but seemed to understand what was said to him, and complained of pain in the frontal region; no difficulty of swallowing; the left arm was flexed at the elbow and lay across the chest; the hand also was closed; the whole limb was rigid and completely paralyzed; the left leg also was rigid, but extended, and he retained slight power over the movement of the toes; the patellar reflex was brisk in both legs, but chiefly in the left; no ankle clonus; plantar reflex almost absent in the left side; left leg colder than the right; no loss or impairment of sensation; thoracic and abdominal viscera healthy. Pulse 90.—25th: Was very restless dur-

ing the night, and to-day is much the same as yesterday; paralytic phenomena remain unchanged; he is unable to speak, but evidently understands what is said to him; the water has to be drawn off; he has had occasional attacks of increased, but still incomplete, unconsciousness, during which the head and both eyes were turned strongly to the left.—26th: Still very restless. He begins to speak, though indistinctly, and is evidently not aphasic. The paralysis of the left third has almost wholly disappeared, and the suspected paralysis of the other muscles of the face is not noticeable. The left arm and leg are fully as powerless as they were, but they are now limp. Superficial and deep reflexes increased on left side. Urine still has to be drawn off; specific gravity 1028, no albumen.—29th: The patient has been very restless; has suffered from much pain in the bladder, and the urine has become offensive and alkaline. The bladder has consequently been washed out. The temperature, which ever since admission has varied between 99° and 100·2°, began to rise on the morning of the 28th, and this morning early reached 103·4°; tongue dry.—31st: The restlessness and severe pain in the vesical region have continued; but the urine, which still has to be drawn off, has ceased to be offensive, and has become slightly acid, and contains no trace of albumen. The temperature rose to 104·9° last night, when he had a rigor of twenty minutes' duration. This afternoon it reached 105·2° without the occurrence of a rigor; tongue dry; no rigidity of limbs; speech as before.—Jan. 2nd, 1882: Still restless and in pain; complains also of pain in the right side of the head and down the left arm; is quite sensible, and occasionally cries out. The limbs are rigid again, and since yesterday there has been slight ptosis of the left eyelid, and protrusion of tongue to left. The condition of the facial muscles is doubtful; tongue dry and brown; much vomiting; obstinate constipation; pulse 116. The temperature on the 1st fell from 103·2° in the early morning to 98·2° at noon; it subsequently rose again, and during the later part of this day and the 2nd varied from 97·8° to 101·4°; a bedsore on left buttock.—3rd: Much quieter, and almost unconscious. Both pupils much dilated, especially left; pulse 132; respiration noisy, 48 in the minute. Tongue very dry; paralytic symptoms unchanged; temperature varying between 100·8° and 103·5°.—4th: When seen this morning he was fast sinking and wholly unconscious. He died at noon. His temperature rapidly rose before death. At 11 it was 106·6°; at 11.30, 107·1°, and at the time of death, 109·2°; half an hour later it was 108·4°.

Autopsy.—Vessels of pia mater injected, but no trace of meningitis, and nothing abnormal as regards the form of the general surface of the brain, or the subarachnoid fluid. The posterior cerebral, and some of the smaller arteries in the neighborhood, were much thickened, yellowish, and opaque, apparently the seat of syphilitic disease. But the other and larger vessels were fairly healthy. There was slight comparative softening of the left temporo-sphenoidal lobe; and the pons, which was somewhat swollen, was soft and semi-fluctuating. On incising this part an irregular patch of broken-down brain substance occupied the greater part of its right half, being separated from the surface, and from the surrounding healthy substance, by a zone of congested and apparently inflamed tissue. The substance of the temporo-sphenoidal lobe appeared fairly healthy. The rest of the brain substance was normal. There was, perhaps, a slight excess of fluid in the ventricles. A few old pleural adhesions. Lungs congested and cedematous below. Larger bronchi full of muco-purulent fluid. Pericardium

and heart healthy. The abdominal viscera presented nothing unusual. Kidneys rather large and pale. No syphilitic affection of any of these organs.

Softening of Right Crus Cerebri and Lenticular Nucleus; Left Hemiplegia; Paralysis of Right External and Left Internal Rectus, and later of Right Facial and Right Hypoglossal Nerves; Nystagmus; Giddiness; Headache; Emotional and Mental Disturbance.—H. T—, a laborer, aged forty-six, came under my care on Dec. 11th, 1879. He has been a temperate and healthy man, and has had no important illness since childhood. Never had syphilis. His illness began early in November with a sense of coldness and shivering, which were not relieved by sitting in front of the fire. The next day he first complained of giddiness, and a feeling as if he were drunk. This giddiness, which continued, was most marked in the morning, and was always relieved by lying down. He further complained of pain at the right side of the head and neck behind, and also across the back of both eyes. He has had no nausea or sickness. On Dec. 7th he began to see double, and on the day of admission he first noticed that his left arm was weak, and his leg dragged. He is a well-nourished man. He is quite sensible, and complains of constant headache, liable to exacerbations of a shooting character, and referred mainly to the back of the right ear and the occiput. He is very unsteady in his gait, and inclined to fall over, but not to one side more than to the other. Can stand with eyes shut when legs are kept apart, but not when feet touch. The movements of both legs are somewhat ataxic; patellar reflex slight. His left leg is somewhat weaker than the right, and the left hand grasps much more feebly than its fellow, and cannot be raised above his head. There is marked weakness of the muscles of the lower part of the face on the left side. The pupils are equal, and respond to light, and there is no very obvious squint. But he complains of seeing double, especially when he looks to the right. In trying to turn his eyes to the right, the right eye lags a little and oscillates. The movements of the left seem quite natural. Optic discs healthy. Tongue protruded straight. No loss of cutaneous sensibility or of control over rectum or bladder. No defect of speech. There are no signs of thoracic or abdominal disease; and the urine is free from albumen and healthy. During the next few days the patient rapidly got worse; he became restless and troublesome, and rambled; he grew emotional, but usually disposed to cry; he lost control over his bladder; his arm became much more enfeebled, and he could do little more than move the fingers; the paralysis of the left side of the face got confirmed, and his tongue was protruded to the left; he still complained of headache, mainly in the right occipital region, and the movements of the eyes became more defective. They were carefully examined on the 16th by Mr. Nettleship, who reported as follows:—"There is diplopia when patient looks to right, but not to left. The movement of the right eye outwards is defective, and efforts to effect it always cause rapid horizontal nystagmus. The left eye cannot be moved inwards beyond the middle line, and the attempt to move it in this direction always causes vertical nystagmus, which is much slower than the nystagmus in the right eye. Both eyes can be freely moved upwards and downwards, but these movements are attended with vertical nystagmus. The only movement of the eyes unattended with nystagmus is that to left. There is paralysis of the left internal rectus, and in a less degree of the right external rectus. There is no optic neuritis." He remained in much the same state for the next two or three weeks; emotional, rambling, and complaining of

pain and sometimes tenderness at vertex; but the paralysis of the left internal rectus diminished somewhat, and on the whole the weakness of the left arm also diminished. The left pupil became larger than the right. On Jan. 6th, it was noticed for the first time that the right side of the face was smoother than the left; that the right eye did not close so perfectly as the other; that the tongue, which had hitherto inclined slightly to the left when put out, now protruded distinctly to the right; that he talked with difficulty, and that he had some difficulty in swallowing. From this time he gradually became more and more feeble-minded and more and more prostrate, without any material change or aggravation in the paralytic symptoms. On Jan. 31st, special note was made of the presence of difficulty of deglutition and of stertorous breathing. On the morning of Feb. 1st, his temperature for the first time exceeded the normal. At this time he became comatose with stertorous breathing, his respiration being 72 in the minute; his pulse was 160; his temperature 102.7° , and his skin was damp. In the course of the day his temperature rose to 103.2° and he died at seven that evening.

Autopsy.—Dura mater and skull healthy; arachnoid and subarachnoid tissue somewhat opaque, with patches of fibroid thickening; slight atheroma of vessels at base. The only lesion discovered in the brain was a patch of softening, with yellow discoloration, which involved the right crus cerebri and the right lenticular nucleus. The surface of the crus looked healthy; and no marks of disease were apparent in the wall of the ventricles. The nerves at the base looked healthy. There was some congestion and lobular pneumonia at the base of the lungs. No other lesion was discovered.

Thrombosis of Basilar Artery; Softening of Anterior Part of Pons; Left Hemiplegia; Death from Bronchitis.—John B—, a laborer, aged thirty, was admitted, under Dr. Stone, on March 16th, 1882. He is said to have been a temperate man, and to have had no previous illness; previously, however, he must have suffered for some time with bronchitic symptoms. He was taken ill five days ago, while at work, with giddiness. He was not sick, and did not fall down; and, indeed, was able to walk home unassisted. After reaching his home he gradually lost power in the left arm and leg, and also his speech, which, however, has improved since. He is a fairly healthy-looking man, but hemiplegic on the left side. There is complete loss of power in the arm; the leg is only partially paralyzed; the mouth is drawn to the right, and the tongue, when protruded, points to the left; pupils equal, contracted, no squint or impairment of vision; speech thick and indistinct; no aphasia; no loss of sensation, either of touch or of special senses. He is quite sensible. He has a frequent dry cough, and some difficulty in breathing. The respiration is 32 in the minute; the breath sounds are attended with sibilant and sonorous rhonchi; chest resonant; heart's sounds and action normal; pulse 100; urine pale, slightly acid, sp. gr. 1015; temperature 99.2° . The paralytic phenomena continued without change, but the bronchitis and dyspnoea increased rapidly; and he died of the effects of bronchitis on the evening of the 22nd. Before death he became very livid and partly unconscious; his respiration rose to 48 in the minute, and his pulse to 144. His temperature never exceeded 101° .

Autopsy.—The basilar artery, just before giving off the the posterior cerebrals, was obstructed for a length of two or three lines by a firm decolorized adherent clot, and the fore part of the pons was softened, and broke up under a stream of water.

No other cerebral disease whatever was discovered. The heart was enlarged on the right side; but all the valves were healthy; and there were no vegetations. The tricuspid, however, was incompetent under the water test. The pleurae were extremely thick and strongly adherent. The lungs were congested, and the bronchial tubes were dilated, and contained muco-purulent fluid. Other organs healthy.

Lectures

ON THE

RELATIONS OF THE TUBERCLE BACILLUS TO PHTHISIS.

By C. THEODORE WILLIAMS, M.A., M.D.,

Fellow of the Royal College of Physicians; Physician to the Hospital for Consumption, Brompton.

LECTURE I.

ITS PATHOLOGICAL ASPECTS.

GENTLEMEN—More than a year has elapsed since Koch's important discovery of the tubercle bacillus, and this period has been occupied by observers of various countries in testing his conclusions in their different aspects, clinical and pathological. We must bear in mind that the great problem which Koch set himself to solve was whether the disease called phthisis was due to the presence in the system, and to its rapid multiplication, of a definite organism, and to no other cause whatever. Villemin, Marcet, Simon, Andrew Clark, and others, finding that by inoculating rodents with tubercular matter they produced tuberculosis in these animals, concluded that phthisis was a specific disease, capable of inoculation, and could only be generated by tubercle. Later on Drs. Sanderson and Wilson Fox succeeded in inducing tuberculosis in guinea-pigs, not only by inoculation with phthisical sputum and tuberculous products, but also with pus, putrid muscle, lardaceous liver, and a number of non-tuberculous materials, and even by inserting setons under the skin, thus overthrowing, for a time at any rate, the doctrine of the specific character of tubercle production. An important point to bear in mind with regard to these last-mentioned experiments is that the experimenters never succeeded in producing tubercle traumatically if the influence of the external air was entirely withdrawn, or if the setons were steeped in carbolic acid. These experiments were repeated by Drs. Waldenburg, Cohnheim, and Fraenkel, who at first apparently arrived at corresponding results, but afterwards were led to change their opinion, as will be seen later on. Schottelins, of Würzburg, produced granular pulmonary tuberculosis in dogs, by making them respire air charged with pulverized phthisical sputum, but he produced similar results with air charged with the expectoration of bronchitis, with Limburg cheese and with vermillion. Klebs, firmly convinced of the specific nature of tubercle, had described an actively moving organism as its cause. Schüller and Toussaint had pictured a spherical micrococcus in connection with the disease. Anfrecht had found more than one form of organism, and thus paved the way for the next step, which was the discovery of Koch. Koch having by means of certain aniline dyes detected the bacillus tuberculosis, succeeded through a series of ingenious cultivations in procuring it pure and simple. He first took tubercle, and after washing it with a solution of corrosive subli-

mate, removed the outer layers and separated a portion into which he might fairly expect that no bacteria of putrefaction had penetrated. This he spread over a nutrient soil consisting of the blood plasma of the ox, which had been previously sterilized by boiling in a test tube. The coagulum of this, with the tubercle added, was introduced into a test-tube with a cotton-wool plug and kept in an oven at a temperature of 37° to 38° C. (98.6° to 100.4° F.) Nothing appeared during the period of incubation of the ordinary bacteria of putrefaction, but at the end of ten days there were seen on the dry surface of the coagulum a number of very small points or dry-looking scales, surrounding the pieces of tubercle spread out in circuits more or less wide according to the distribution of the tubercle fragments. After a few weeks' more exposure these crusts ceased to enlarge, and were then transferred to a fresh test tube containing blood plasma similarly prepared. After another interval of ten days the scales appeared, became confluent, covering more or less of the surface of the coagulum as the seed was scattered, and so from test tube to test tube the experiment was carried out under the most rigorous antiseptic conditions as many as a dozen times and for a period extending over 150 days. With the results of these culture experiments 200 rabbits and guinea-pigs were inoculated, the places selected being under the skin, the peritoneal cavity, or the anterior chamber of the eye. With one exception all these animals acquired tuberculosis of the lungs, liver, spleen, and other organs, the tubercles having the structure of true tubercle and including giant cells, which latter were found to contain bacilli. Such being Koch's results, how are we to account for the production of tubercle by non-specific inoculation, such as Schottelins and others performed? Klebs suggested that they might be ascribed to infection, as the experiments were performed in laboratories at Berlin in the presence either of animals already tuberculous, or where tuberculous materials might remain from previous investigations. Cohnheim and Fraenkel, to test this, repeated their experiments with non-tuberculous materials on similar rodents, Cohnheim in the laboratories of Kiel and Breslau, and Fraenkel in his own home, and with absolutely negative results in both cases, thus demonstrating that the septic atmosphere, and not the simple irritation, was the cause of the tuberculosis. Cohnheim held, previous to Koch's discovery, that the best test of tubercle was its inoculability, and that it was conveyed by specific organisms to the lungs, and affected thus both pleura and bronchial glands. Mr. Watson Cheyne¹ confirms Klebs' suspicions by a series of recent experiments on rodents, which he states he performed under the best hygienic conditions, with complete isolation of the animals from each other, and thorough disinfection by heat of the instruments used. In six cases setons of various kinds were introduced either subcutaneously or into the anterior chamber of the eye. In ten vaccine lymph was used, in three pyæmic pus was injected either into the eye or under the skin, or into the abdomen; in six, various materials, such as cork, hardened tubercle which had been soaked for three months in alcohol, or worsted, were introduced into the abdominal cavity. In none of these rodents did tuberculosis result. Mr. Cheyne also made experiments with cultivations of bacilli obtained from Dr. Koch. He inoculated twelve animals with these organisms, chiefly into the anterior chamber of the eye; all of them became tuberculous, and more rapidly than after the inoculation with tubercular tissue. The tubercle obtained

from these cases was again inoculated and shown to be infective, causing tuberculosis in other animals and containing the tubercle bacilli, which were found to be most numerous when obtained from bovine tuberculosis, and least so when taken from human tubercle. It appears impossible to resist the force of these demonstrations, and we are compelled to admit that there is a specific element in tubercle, the presence or absence of which determines the success or failure of the inoculation. This element is apparently the tubercle bacillus, but we must not exclude the possibility of other organisms playing a part in the process of tuberculosis. The publication of Koch's paper was followed by a search after the bacillus by a large number of observers in various countries. The sputum of phthisis was tried for the bacillus by Balmer, Fraenkel, D'Espines, Heron, Heneage Gibbes, West, Dreschfeld, Whipham, and myself among others, and our conclusions confirmed those of Koch as to its almost invariable presence in phthisis and its absence from the sputum of other chest diseases. To the particulars of my own researches I will allude more fully presently. The bacillus has also been detected in the purulent effusion of a knee-joint, in tuberculous ulcers of the intestine, and in tuberculous kidney, and it is stated to have been discovered in the lymphatics of the lung, and doubtless in time it will be discovered in other organs.

Few institutions could be more interested in this discovery than this hospital, which is for the most part devoted to the investigation and treatment of consumption, and in which any aids to diagnosis and prevention are heartily welcomed. The subject was soon taken up, and our labors were directed towards testing (1) the sputum, (2) the blood of the patients, and (3) the air of the wards. With regard to tests, Koch's original plan did not give us very successful results; Ehrlich's answered better, and with Weigert's additions seems excellent, but Heneage Gibbes' was early adopted on account of its simplicity and speed, and a fresh mass of cases were thus examined, the bacilli being stained with magenta-aniline, and the ground substance with chrysoidin or methylene blue. Lately, however, I have adopted a modification somewhat resembling Rindfleisch and Chill's,² which still further simplifies and shortens the process. The cover-glass with the dried sputum thereon is floated in a few drops of magenta aniline in a watch-glass, and heated over a flame till vapor is seen to rise from the surface. The watch-glass is then removed and allowed to cool for two or three minutes, the cover-glass is afterwards treated successively with nitric acid (1 in 4), with distilled water and a weak solution of alcohol. It is dried and mounted in Canada balsam, the whole process not exceeding eight minutes. When, however, I am doubtful of a result, I test a second specimen, this time allowing the cover-glass to remain in magenta-aniline for a long period—say, of twenty-four hours—and subsequently compare the two; but I generally find that the first method is sufficiently accurate. This process has answered well for detecting the bacillus tuberculosis quickly in sputum; but Gibbes' solution does sometimes color putrefactive bacilli, and if the second solution be not used, we have to be careful, though the form and size of these latter differ entirely from those of the tubercle bacilli. Another difficulty is that the red staining of such preparations often fades, owing, Dr. Gibbes tells me, to the fact of heat being used; but I have also noted the fading in several slides where heat was not used. Dr. Gibbes' new process has the advantage of

¹ Practitioner, April, 1883.

² Deutsche Medicinische Wochenschrift, No. 2, 1883.

getting rid of the nitric acid, of rapidly staining the tubercle bacilli, the putrefactive bacilli, and various micrococci blue, thus demonstrating most of the organisms present in the sputum of phthisis. Dr. Gibbs showed me the process, and kindly furnished me with some of the solution. He has noted one form of micrococcus frequently present in addition to the tubercle bacillus. I have not tried this process largely; but as yet it has not proved as successful in my hands as the former ones, partly owing to the density of the fluid, and partly to some of the tubercle bacilli being colored a sort of neutral tint instead of red. The Weigert-Ehrlich solution (saturated watery solution of aniline 100 cubic centimetres, saturated alcoholic solution of fuchsin or magenta ten cubic centimetres) is an excellent stain for sputum sections. I have sometimes substituted it for Gibbs' because of its less intense color and greater fluidity, and obtained very good results. Under the microscope you will find sputum of consumptive patients containing bacilli stained by all these various processes, as well as some admirable sections of tubercle of the lungs and trachea, and cavity scrapings tinted by the Weigert-Ehrlich process, kindly exhibited by our pathologist, Dr. Percy Kidd. (Specimens exhibited.) One of these last shows the massing of the bacilli on the ulcerated mucous surface of the trachea in a remarkable manner. Some account of the general results of the examination of the sputum were given in *THE LANCET* a few months since; but since that time we have added considerably to our numbers, which amount now to about 200, many of which have been made the subject of separate clinical study, as will be seen later on. Twenty-three patients were examples of lung affections other than phthisis—viz., asthma, emphysema, bronchitis, pleurisy, chronic pneumonia, pulmonary congestion, bronchiectasis, and empyema. In no one instance of these did the sputum contain bacilli. On the other hand, of the 200 cases of phthisis, which included acute and chronic forms in all stages of the disease, in all but three, bacilli were found. The blood of several acute cases of phthisis was next examined, but here we entirely failed to detect bacilli, though, judging by the height of the fever and the evident infection of the system, we were quite prepared to find them.

The next point of investigation was the air of the hospital. As a convenient way of testing this, I selected one of the ventilation shafts in which the flues of several wards converge, and in which extraction takes place at the rate of 300 to 400 feet a minute. In this current I suspended glass plates smeared with glycerine for a period of five days. The plates were then washed with distilled water, the fluid mixed with a little mucilage and evaporated down to half, and the residue tested for bacilli, which were found in fair abundance. I may mention that the wards from which this air came contained a small proportion of chest cases other than phthisis, though the great majority of the patients were phthisical. As a further experiment, by Dr. Green's suggestion, I had a number of non-phthisical patients placed in a ward recently cleaned out and whitewashed, and I suspended similar glass plates in the extracting flues, and here there were no bacilli found. Another ward was filled with consumptive patients, some in an advanced stage, and the air extracted from this ward similarly tested. A slide containing dust from this ward flue is placed under one of the microscopes, and you will see a few bacilli in the field, not in abundance, or of great length, as we see in the sputum, but few and rather short, but still definite. This plate was exposed for fourteen days in the flue, and is conclusive in its

results. Mr. Percex, one of the clinical assistants, at my request, examined the blood expectorated in two cases of hæmoptysis under the care of Dr. Tatham, and in each found bacilli.

Before giving in detail the clinical cases bearing on the bacillus, it would be well to advert to what is at present known of the part it plays in the pathology of phthisis. The able report of Mr. Watson Cheyne has shown that the success in inoculating animals, whether rodents or carnivora, depends on the bacilli contained in the material employed, the certainty of the production of tuberculosis by inoculation of tuberculous material, and the rapidity of its occurrence, being in a direct ratio to the number of bacilli present in the inoculating material, whether this is caseous gland, bovine tubercle, phthisical sputum, or bacilli growing free in serum, the two latter being by far the most efficacious agents. All these experiments, however, produce general tuberculosis, and the only disease that is exactly akin to this induced form is acute tuberculosis in man, and Mr. Cheyne considers these to be identical. But when we come to pulmonary phthisis, chronic or acute—that is, the disease beginning in the lungs—we are met by some difficulties with regard to the bacillus, for while bacilli are found in great abundance on the linings of cavities and in caseous masses, they are not so commonly detected in other parts of the lung structure—in fibrosis, for instance. Dr. Samuel West regards their presence in the sputum as a proof of excavation, and their numbers as easy means of estimating the rate at which this process is taking place in the lung. Mr. Cheyne, as an explanation of the comparative rarity of the bacillus in sections of tubercle, states that two distinct structures have been described under this title:—

1. Nodules of lymphatic tissue in close proximity to the vessels and bronchi. These contain no bacilli.
2. Nodules largely made up of epithelioid cells and containing bacilli.

The first he considers the result of irritation on the lymphatic tissue of the lung, the second being the seat of infection. These last consist of epithelioid and giant cells surrounded by inflammatory (lymphatic) tissue, the bacilli being found in the epithelium, and largely in the giant cells. When caseation takes place in the centre of the tubercle, the bacilli are to be found in the caseous mass, but are best seen in the still living cells. One of the chief points which Mr. Cheyne lays stress on is that the habitat of the bacillus is the aveolar epithelium and the products of its proliferation—to wit, the single nucleated and the multi-nucleated or giant cell. It is here that the bacillus settles and causes multiplication of the cells, even escaping from the circulation into the lymphatics to reach this favorite haunt. In ordinary phthisis the bacilli are supposed to reach the lung by inhalation, and to develop in the aveolar epithelium, causing its proliferation by irritation. The aveolus becomes stuffed with cells; giant ones being formed, if the process be a slow one; if quick, caseation taking place early. Infection of neighboring aveoli proceeds partly by continuity, partly by the coughing up and re-inhalation of bacilli into other parts of the lung. The further progress depends on the rate of growth of the bacilli, and on the fitness of the soil for their development. If they multiply quickly, caseous pneumonia and rapid excavation of the lung will ensue; but if slowly, the irritation of their presence, and of the resulting caseation, may cause thickening of the aveolar wall with inflammatory tissue, and a fibrous barrier be presented to further infection, and thus the evil doing of the bacilli may be localized. This is what takes place most markedly in fibroid phthisis, where the bacilli are very rare. On the

other hand, if the barrier be feeble and the lungs become largely involved, the walls of the pulmonary veins having tubercular masses in them, as Weigert and Mügge have shown, the bacilli enter the circulation and acute tuberculosis is the result. Weigert has also found that the innominate veins may be affected from the neighboring bronchial glands, and Koch had a case, cited by Mr. Cheyne, in which the wall of an artery was involved in acute miliary tuberculosis, through spread of disease from a bronchial gland.

It must be admitted that this view of the pathology of phthisis is lucid, and, as far as the results of experiments on animals can be cited to prove the analogy with human disease, it is apparently impregnable. It explains several of the histological features of tubercle, the epithelial accumulations within the alveoli, the formation of giant cells, the exudation of fibrin and leucocytes, all these being the result of irritation from the bacilli; but it does not equally well explain the small-celled or lymphoid tissue commencing in the alveolar walls, and by its rapid growth, according to Dr. Wilson Fox, leading to obliteration of the capillaries and necrobiosis of the parts involved. The inflammatory tissue described by Mr. Cheyne differs from this in the absence of the delicate reticulum noted by Dr. Sanderson, the existence of which Mr. Cheyne appears to doubt, and instead of leading to destruction by caseation appears to resemble the part played by the interlobular growth in limiting the spread of the changes, caseation taking place only in the epithelioid elements, and not in the alveolar wall; this latter, however, eventually disappearing by pressure, and its destruction giving rise to the formation of cavities. The limited portion of the lungs attacked in early phthisis is also accounted for; for here the bacilli enter only a few alveoli; and the fact of the apices being first attacked may depend, as Dr. Green shows, on the presence of inflammatory exudations, the result of more or less injury to the pulmonary vessels through stagnation of the blood. This arises from the imperfect exercise of the upper lobes. The spread of tubercle round cavities or centres of caseation would be assigned to the bacilli entering the lymphatics of the district, and the infection of the opposite lung might arise through the lymphatics or the blood vessels from inhalation of some of the sputum. For infection of other organs we must take it for granted that the pulmonary vessels are involved, and in this case we may have tuberculosis of the membranes of the brain, spinal cord, abdomen, as well as the liver, kidneys, etc. Infection might also take place through the lymphatic system of the bronchial glands. On this theory we may explain the limitation to the lungs of acute phthisis (caseous pneumonia), acute tuberculo-pneumonic phthisis, catarrhal phthisis, and the spread through the whole body of acute tuberculosis. The predominance of the growth of the inflammatory tissue would give us some key to the phenomena of fibroid phthisis, but to my mind it fails to explain the thoroughly constitutional features of scrofulous phthisis, nor do I quite see how the causation of the hæmorrhagic variety, characterized by small consolidations and large hæmoptyses, is brought about. Laryngeal phthisis is also a difficulty; for why, as Dr. Percy Kidd suggests, with the bacilli-laden sputum passing continually over the larynx, do we not get ulceration in all cavity cases? Another grave objection lies in the fact, that though the bacilli have been found abundantly in the walls of cavities, they have seldom been detected, and only in small numbers, in sections of human phthisical lung tissue. Even Mr. Cheyne admits this; but it may be due to so much of the epithelial element, the

habitat of the bacilli, disappearing before death, either by the invasion of fibrosis or by caseation and expectoration. The bacilli have been detected in tubercle of the peritoneum, and in miliary tubercle of the lung, but always in small numbers. There is, therefore, a wide field for further pathological investigation on these points, but seeing how many difficulties in the way of accepting the bacillus theory have already been overcome, it must be admitted that there is strong probability, in favor of these also being explained by the aid of improved methods of investigation. Another element which we must not overlook in the consideration of this matter, is the question of a fitting soil, and assuredly all the advocates of the bacillus fall back largely on this, for in many cases we can hardly escape the conclusion that bacilli enter the respiratory tract, and even the alveoli, and do not give rise to phthisis, which can only be explained on the ground that the constitution of the individual rendered the epithelium unfit for their reception; and in truth, if we are to accept the bacillus theory at all, we must suppose that the various and well-known predisposing causes of phthisis, such as dampness of soil, bad ventilation, bad confinements, and other debilitating conditions, must act by preparing a fit soil for the bacillus either by bringing about low inflammatory conditions, which tend to cellular products, or by weakening the resisting powers of the constitution. The recognition of one exciting cause instead of many will tend to simplify the etiology of phthisis, and will lead us, it is to be hoped, not only to direct remedial measures against this latter, but equally, and perhaps more effectually, against the predisposing causes.

The tubercle bacillus is generally described as varying in length from 1-3,000 of an inch to 1-12,000, and having a breadth one-fifth of its length. As regards breadth, it is generally uniform, though I have noted some bacilli double the thickness of others, the thickest ones being invariably beaded and ready to divide. I have, therefore, concluded that these are the older rods, and that the others are of younger growth. As regards length, I find them vary greatly. Some are only twice as long as they are broad, others extend over a twelfth of the diameter of the microscopic field. In form most are straight, with somewhat rounded extremities. The bacilli are not always straight, but often have a curve, sometimes forming a portion of the arc of a circle. With reference to the varying thickness above mentioned, I am aware that this might be due to two bacilli lying on each other, as is often the case; but this can be easily detected by adjusting the focus to different parts of them. Bacilli are found singly or in groups. In the latter case they appear like bundles of sticks, numbering three, four, five—a very common position is two bacilli touching at one end, at an angle of 45°. The grouping of the bacilli generally means mischief, as it is rare to find a number of groups without distinctly advancing disease being present. Bacilli appear to multiply by division, and not uncommonly we see one long straight rod, and parallel with it a second one which is evidently in process of division—i.e., with slight spaces separating three or four segments, all lying in the same line. Often we see a third bacillus in the vicinity, still more broken up into numerous segments, these being separated by wider intervals, but the original connection being still widened by their distribution along the same line. Even under a low power they frequently present a beaded appearance, clear spots alternating with dark germ-like bodies, the beadings varying in number according to the length of the rod. As a rule five or six

are seen, sometimes a larger number, in long rods about to divide. My experience is that the beaded rods may break up into single beads, the bright spore-like bodies of Dr. S. West, which afterwards develop into fresh bacilli, and I have not always been able to recognize the surrounding membrane which Mr. Cheyne describes. In sputum containing bacilli, after being kept in a moderately warm room for ten days, I have noticed a decided increase in the number of bacilli; and when one reflects on the conditions of the air-passages, the combination of warmth and moisture always present, we can understand how multiplication and growth proceed, not only in the alveoli, but in advanced cases, probably also in the larger bronchi, where, owing to the difficulty of expectoration, large accumulations of sputum take place.

Diagnosis.—It is probable that the discovery of the bacillus will assist us more in diagnosing phthisis from other lung affections than in the treatment of the disease. Where it is most useful is in separating clearly cases of chronic pneumonia and those of dilatation of the bronchi from phthisis. We often see an instance of chronic pneumonia with extensive consolidation and well-marked crepitation at the apices of one or both lungs. The history is somewhat obscure, and often, especially if hæmoptysis be present, points to phthisis, and the physical signs rather incline us to hold that softening is taking place in an old consolidated lung. The expectoration if carefully examined and found to contain no bacilli at once settles the point. A good instance of this was a coachman, aged forty-six, whom I saw in consultation with Mr. Tweed in February, 1883. He had been a hard drinker, and had had pneumonia three years previously. A week before a fresh attack had come on, with high temperature and quick pulse. The cough was incessant, the expectoration partly frothy and partly purulent. Crepitation was audible over both lungs, and some dullness at the bases, but cavernous sounds were heard above the right clavicle, which made us both suspect that a cavity had formed in the old consolidated lung, and that the case might have become one of phthisis. Examination of the sputum, which was made more than once, failed to detect any bacilli, and we accordingly came to the conclusion that the case was one of pneumonia, in which previous attacks had given rise to dilatation of the bronchus. It must be borne in mind that had the case been one of phthisis, the bacilli would not only have been present, but in great abundance, as they usually are in cavities when a large discharge is taking place. Another instance was a gentleman, aged forty-six, whom I saw in February of this year. He had pleurisy several years ago, and for four or five years had suffered from cough and expectoration, with slight hæmoptysis. The pulse and temperature were normal. The physical signs showed crepitation over the whole right side, with some spots of coarser crepitation in the first interspace and between the fifth and sixth rib. Dullness extended over the lower half of the right front chest. He complained of great dyspnoea on exertion. Under treatment the cough moderated, but the expectoration remained yellow; there was no wasting, night sweats, or fever. Examination of the sputum showed abundant bacilli, which gradually disappeared as the symptoms diminished. Another class of cases, which are very difficult to diagnose are those of dilatation of the bronchi, following on chronic pneumonia or bronchitis. When the dilatation of the tubes occurs in the lower lobes, the physical signs and the convulsive character of the cough, as well as the factor of the expectoration, render diagnosis easy, but when the bronchiectases are

found scattered over the upper portions of the lungs, as well as in the lower, and when they give rise to cavernous breathing in the first and second interspaces, the diagnosis often becomes exceedingly difficult, and depends chiefly on very careful mapping out of the area of cavernous sounds, such as I have shown elsewhere². In such cases examination of the sputum removes all doubt. The following is a good instance:—

Hannah I—, aged twenty-four, servant, was admitted March 3rd, 1883. Her father died of phthisis; one sister suffers from some chest affection. She had typhoid fever fourteen years ago, followed by scarlet fever, and has been subject to cough ever since; six years ago she had disease of the hip-joint, and become an in-patient of the London Hospital; three years ago she had hæmoptysis (one pint), and the cough has been worse ever since; she has had night sweats for twelve months, and shortness of breath lately; she has lost flesh for six months; her voice disappeared for the whole of one winter two years ago. At present her cough is incessant, and somewhat hard in character. Expectoration yellow, two to three ounces. The patient complains of pain in the left chest; tongue clean; bowels relaxed; pulse 116; respiration 16; temperature 99°. Catamenia absent seven months; aspect cachectic; weight 7 st. 13½ lb. Physical signs: On the left side dullness, crepitation to the fifth rib, posteriorly crepitation over the whole side.—15th: Her cough more troublesome; expectoration one ounce daily; her voice has disappeared; crepitation audible under the right clavicle. No bacilli could be found in the sputum.—30th: Her cough worse; crepitation less on the left side; no bacilli in sputum.—April 7th: Her cough increasing; expectoration more abundant, purulent, and decidedly fetid. The patient has herpes labialis. Dr. Kidd examined the larynx and found the vocal cords healthy, but adduction imperfect. No bacilli in sputum.—19th: Her cough somewhat better, but still bad at night, and is remarkably convulsive; expectoration has a sulphurous odor. Physical signs: On the left side the crepitation has much diminished, but tubular sounds are audible over a small area below the scapula. The sputum has been again examined, with negative result. The history of this case, especially the facts of the cough and expectoration following hip disease, pointed towards phthisis. The convulsive character of the cough and the hysterical aphonia raised doubts in my mind, which the examination of the sputum strengthened, and which were entirely confirmed by the latter becoming fetid.

Another group of cases in which the diagnosis will be materially assisted by the bacillus, is where the catarrhal symptoms mask the consumptive ones; and here specially, when there is no pyrexia present, the detection of the consolidation is often difficult. A good example of this will be later given in Lecture II., where the history pointed to asthma, though the phthisical signs made us suspect tubercular disease at one apex, which the detection of bacilli confirmed.

I had a remarkable exemplification, the other day, of the use of this test in a case of chronic empyema, where in spite of free drainage and absence of all fever, the temperature chart pointed to some form of septicæmia, and I suspected at once that there was absorption of the matter and commencing tuberculosis of the opposite lung. Examination of the sputum showed a fair number of bacilli, and about the same time, fine crepitation was detected in the first interspace on the right side, the empyema being on the left.

² British Medical Journal, 1882.

Cases of laryngeal phthisis at an early stage present occasional difficulties of diagnosis, partly from the mucous membrane of the larynx being swollen, and not presenting distinctive ulceration, and partly because, respiration being a painful act, the patient does not breathe sufficiently deeply to give auscultation a fair chance. Here, again the examination of the sputum helps us considerably. A gentleman, aged thirty-five, who is at present under my care with a decidedly phthisical history, came in February with loss of voice, which he stated was only an occasional symptom, with cough and abundant expectoration, loss of flesh, and night sweats. Examination of the chest showed obscure breathing in almost every part with fine crepitation under the right clavicle. The larynx presented a red and somewhat tumid mucous membrane, and at a later date the crepitation above mentioned passed away. The sputum was examined and found to contain abundant bacilli. About a month later crepitation was detected at the left apex, and a cavity rapidly formed, the larynx now exhibiting the characteristic features of tubercular ulceration. In this case it is true that the general evidence pointed towards phthisis, but the paucity of the physical signs and the character of the patient made me strongly suspect syphilis, which the detection of the bacilli and the after-history of the case negatived. However valuable this test is in the above classes of cases, we must never allow it to interfere with most careful physical examination of the chest, as, after all, the presence of bacilli cannot define the locality, or even the extent, of the diseased area, but can only indicate the existence of the morbid process.

Original Papers.

REMARKS ON ONE FORM OF LAWN TENNIS KNEE.

By C. MANSSELL MOULLIN, F.R.C.S.,
Assistant-Surgeon to the London Hospital.

ALL amusements have their drawbacks, inherent and unavoidable. Concerning football, it is scarcely necessary to speak, perhaps too much has been said already; rowing, especially in scratch races, the same; riding, not to include falling off, has its riders' sprain; lawn tennis its wrist, and now I must add its knee. As in all the rest, so in this; it is not the practiced player who comes to grief; most often it is he who has enjoyed a reputation in years gone by. Those who contend in university races, for which men are selected and trained with the greatest care, rarely meet with harm; college fours and scratch races of like character, perhaps only for a very short distance, for which all trained and untrained alike enter, too often work the ill for which the others get the blame. Thus it may be that, just now, at this time of year when tennis is being extensively played in suburban gardens, when the city clerk and the professional man engaged all day and for days past through the winter in some sedentary occupation suddenly indulge in an afternoon's amusement, tennis knees come prominently before our notice. At least, to say nothing of old friends whose appearance one expects regularly at the commencement of each season, I have quite recently seen several all of the same character. They do not understand how it could have happened; "it was only a twist, you know; just like that you—," and the sentence ends unfinished, while the patient sits down abruptly on the nearest chair

with a look on his face that may express anything, but not comfort.

Now there are many kinds of ill that may befall a knee as the result of tennis, but it is only with one of these that I intend to deal at present. Loose cartilages attributed to it as a cause are certainly not infrequent; nor is that condition of profusely fringed synovial membrane that often gives rise to the same sort of symptoms, and keeps working within a most vicious circle by being at once the result of past attacks and a sufficient cause for future ones; irregular sprains of all or any of the ligaments in and round the joint, and even complete displacement of a semilunar cartilage, have been recorded; while more rarely found are instances of that peculiar form of internal derangement, causing locking of the joint, described by Hey and Knott.

Mine is not quite any of these, but rather a strain of that particular portion of the internal semilunar cartilage which finds its insertion by means of a strong band of ligamentous fibres on the outer side of the inner tuberosity of the tibia, just in front of the spine, and it is always produced or capable of being produced by the same definite and characteristic movement. The player is standing with his knee slightly flexed, resting his weight on one foot—say the right—the left one touching the ground behind with the toes; suddenly he makes a twist round, bringing the left leg to the front, and while doing so either reaches as far forward as he can, or more frequently attempts to spring from the right foot. The immediate result is a fearful pain in the right knee, often causing him to fall, while at the same time his face becomes pale, and the feeling of sickness so characteristic of a sprain comes over him. The knee itself rapidly fills with fluid. In the majority of cases nothing else abnormal can be found, and though the effusion under proper treatment is readily absorbed, there is left an indefinite sensation of weakness and a tendency to refill, not only when the same movement or anything approaching it is repeated, but under any condition of slight over-exertion. There is no locking of the joint at any time, and in this it differs from both the forms of internal derangement; flexion and extension are only limited by the amount of the effusion and by the pain always felt at the attempt, and there is only one tender spot on a level with the head of the tibia, just on the inner side of the ligamentum patellæ. Sometimes one hears that immediately after the accident there was just at this spot a slight projection, which disappeared at once. One of my patients was quite clear as to this, but I have never seen it myself. Later on, after several attacks, the knee loses its natural shape, and assumes the well-known appearance always left by repeated attacks of synovitis, with wash-leather creaking and the rustle of synovial fringes well marked.

There is only, I believe, one way in which it is possible to explain this accident. The player's right foot is fixed by his weight and by the structure of his tennis soles, and with the foot the tibia, there being of course no rotation permissible at the ankle-joint, so that at the very instant that vigorous extension is being made at the knee-joint the whole momentum of the body, as it is twisted round with the impetus of a sudden spring, is communicated to the lower extremity, which is violently rotated round a vertical axis passing through the inner side of the external condyle of the femur, and corresponding in this position with the plane of the plumb line drawn from the centre of gravity. Thus the two condyles are carried on the tibia, the internal as far forward as the ligaments will allow it, the external to a much less degree backward.

Now this rapid and vigorous movement of the condyles on the tibia is exactly the opposite of that which takes place in normal extension of the limb. There are two kinds of rotatory movement possible between the femur and the tibia. The first is one of pronation and supination in the semi-flexed position of the limb round an axis passing through the tibial spine, and permitted by the relaxation of the anterior crucial ligament in this position; in this the internal condyle remains nearly fixed, the chief movement taking place on the outer side owing in great measure to the mobility of the external semilunar cartilage. The other is a movement of true rotation round a vertical axis running through the external condyle, in virtue of which, when extension takes place, this remains nearly stationary; while, on the other side, the internal tuberosity of the tibia is rotated outwards, carrying with it out of the way the internal semilunar cartilage. The anterior crucial ligament has very little to do with checking this movement, which is mainly controlled by the obliquity of the internal lateral ligament.

In the accident that I have described, at the very instant that rapid and complete extension is made, instead of the inner side of the tibia being rotated outwards as it should be, it is the inner condyle of the femur that is carried in this direction (or the inner tuberosity of the tibia inwards) so far as the posterior crucial ligament and the posterior ligament of the joint will allow it, for the lateral ligaments have no influence, the external being too near the axis, the internal sloping downwards and forwards. As a consequence of this, the anterior portion of the internal semilunar cartilage, which ought in extension to be carried forwards out of the way, is caught by the prominent internal condyle, and, owing to its wedge shape, driven violently to the front. So far as the cartilage itself is concerned, this is of small moment, as it appears to be a tissue especially constructed with a view to sustaining direct pressure; but when it is driven forwards in this manner, a violent strain is thrown on its ligamentous attachments, which they are not equally calculated to resist. The internal limb of the segment suffers little, for its half of the stress is rapidly weakened and toned down by its attachment to the coronary and internal lateral ligaments by its length, and above all by the direction of the strain, which would tend only to straighten out the curve of the posterior cornu. The outer limb, on the other hand, must suffer severely. Here, without anything to break or even modify the violence, full half of the strain falls directly on the attachment of the anterior cornu, stretching it or even partially tearing it from the bone, and causing the extreme pain and the rapid effusion; and this accounts for the occasional prominence on the front of the joint when the cartilage is completely displaced, and for the exceedingly tender and accurately defined spot which corresponds precisely to this attachment.

In treating a sprain, as in everything else, a definite and accurate diagnosis is of the utmost consequence; but I am afraid the smallest things, perhaps because they interfere mainly with amusements, are sometimes the most baffling. Nothing is more easy in a young and healthy adult than to assist the absorption of a slight synovial effusion; nothing more difficult than to prevent its recurrence when the same causes are allowed to work. Of course, if people will abstain from lawn tennis after meeting with an accident of this kind and use reasonable care for some time, there is a fair amount of hope that the same mischief will not return, though I regret to say I have known it brought back, in a very much aggravated form, by

a single game after two years' complete abstention. Carefully strapping the joint would probably be the most effectual method, but I scarcely think it probable that many patients would be found willing to submit to it. The only mechanical contrivance that I have found to be of any service, and that only with complete abstention from fast play and in those who will be sufficiently watchful, is an accurately made knee-cap, preferably laced, with a pad in the popliteal space, and another over the internal semilunar cartilage, to be worn, of course, only during play. The inconvenience is great, and the interference with play so considerable that some may prefer leaving it off altogether; but the danger is so real that that alternative is, I believe, the only one.

Porchester-terrace, W.

ON AN EASY METHOD OF POSTERIOR RHINOSCOPY.

By W. J. WALSHAM, F.R.C.S.,

Assistant-Surgeon and Demonstrator of Practical and Orthopedic Surgery to St. Bartholomew's Hospital.

THE importance of making a rhinoscopic examination of the naso-pharynx and posterior nares in diseases of the nose of a doubtful nature cannot I suppose be questioned, and that considerable difficulty under ordinary circumstances attends such an examination few who have practiced posterior rhinoscopy will, I venture to think, deny. Much may, of course, be learned by passing the finger behind the soft palate; but I question if an ocular inspection in addition to a digital examination is not in some cases essential for arriving at a correct diagnosis, or, at any rate, an accurate knowledge of the extent and character of the disease. Although, no doubt, practice, as in all things, will enable us to a great extent to overcome the difficulty of obtaining a view of the parts, even then, except in favorable cases, much patience and perseverance on the part of the surgeon, and education in the manner of breathing and controlling the palate on the part of the patient, are necessary. So well recognized is this difficulty that many ingenious instruments for hooking forward the palate, etc., have from time to time been invented. None, however, have proved of much help in my hands, at any rate for obtaining more than a momentary view, and, consequently, for demonstrating to my class any morbid conditions that might be present. "The principal difficulties in rhinoscopy," says Dr. Morel Mackenzie, "consists in the unusual length and breadth of the uvula, or a too short distance between the anterior pillars of the fauces and the posterior walls of the pharynx. The former obstacle may be overcome by following the directions above given, but the latter is insuperable. In a certain number of cases," he goes on to say, "it is quite impossible to practice rhinoscopy, and it is generally easy, by examining the fauces and observing whether this space exists, to tell beforehand whether an inspection of the nasal fossæ is possible." By the following method I have in all cases succeeded in overcoming this difficulty, and in making a complete, and if necessary, a prolonged, examination of the parts, with no or little annoyance to the patient. On looking up the subject I find that I can claim little originality for the method, as a somewhat similar procedure has been adopted by some American surgeons. As my method differs, however, in what I consider an

¹ The Use of the Laryngoscope, third edition.

essential point—viz., that in its use no instruments are required—and, as far as I am aware, is not generally known or used; and, moreover, as I have myself found it of much service, especially for purposes of demonstration, it appears worth while calling attention to it. A piece of soft red rubber tubing, about one-eighth of an inch in diameter, is introduced into one nostril, and pushed very gently along the floor of the nose till it presents just below the soft palate. It is then gently seized with a forceps, drawn out through the mouth, and loosely tied across the upper lip to the end protruding from the nose, the elastic tube being stretched just sufficiently to loop upwards and forwards the soft palate, and draw it well away from the posterior wall of the pharynx. The looping of the palate on one side is often sufficient; but a better view is obtained by passing a tube through the other nostril and looping up the soft palate of that side in the same way. The posterior nares and naso-pharynx can now be examined with the ordinary laryngoscopic mirror with the greatest facility. One hand only is required to hold and direct the mirror (the stem answering the purpose of a tongue depressor), the other hand is consequently free to perform any manipulation or operation that may be required. The tubes serve as a good guide, as they can be followed in the mirror winding round the upper surface of the palate, and so into the respective choanæ. The introduction of the tube causes hardly any discomfort or annoyance to the patient. Care, however, should be taken in passing the tube to let it only just present below the soft palate, as otherwise, if it is pushed further, it may impinge upon the lower pharynx, and is then apt to produce a tickling sensation and desire to vomit. When the examination is finished, it is better to withdraw the tube through the mouth rather than through the nose, and when the nasal end is just about to drop into the pharynx to give it a sharp whisk forwards. If it is withdrawn through the nose, the mouth end trails along the tongue, causing a tickling of its posterior part.

In place of the red rubber tubes, the American surgeons referred to use flat tapes or narrow bandages for tying up the palate. These have necessitated the use of various instruments for passing them, such as the Eustachian catheter, Balloco's sounds, etc. The advantages I claim for the red-rubber tubing is that it is soft, non-irritating, and possesses just sufficient resistance to enable it to be passed through the nose by itself, thus dispensing altogether with the use of an instrument, the passage of which, as for instance in plugging the nares, is, as is well known, a source of much discomfort and annoyance to the patient.

Weymouth-street, W.

ON THE HISTORY OF FEVER IN THE ROYAL NAVY.¹

By SIR WILLIAM SMART, K.C.B., R.N.

THE author gave a sketch of the sanitary history of the navy up to the present time, exemplified by the greater or less prevalence of fevers at various periods, showing how much that class of diseases was answerable for the failure of numerous expeditions, and the cause of incalculable sufferings and loss of life. From 1585, when Drake lost 750 out of 2,300 men by yellow fever in the West Indies, and again in 1594, when Drake and Hawkins fell victims there, up to 1794, when Sir John Jervis

and Sir Charles Grey reduced the French islands, probably not less than 100,000 men were sacrificed by yellow and remittent fevers alone on that single station. On the home station, from the Thames to Gibraltar, from the days of Howard and Drake to the end of the Seven Years' War with France and Spain, not less probably than 150,000 men were lost by typhus. The former were from tropical endemic malaria, and the latter from contagion received from the gaols on shore, and disseminated from ship to ship, and dispersed around the coast towns at which the sick were landed; but it soon died out when carried to tropical climates, whilst the West Indian fevers were never brought to England. In each there was an essential cause—in the former the product of vegetable, and in the latter of animal decomposition—much aggravated in its intensity in ships by overcrowding, foul atmosphere, defective nutrition, and inattention to cleanliness of person and of locality. From French naval history it is learnt that from the same causes their fleets suffered, at the same period, even more terribly than our own. For example, in 1757 a large fleet infected with typhus left Brest for the protection of Louisburg, and returned to it in 203 days totally disabled by typhus, by which the town was infected grievously through five months, with a loss of above 10,000 lives, including five physicians, 150 surgeons, and 200 priests, which far exceeds anything in our own annals from a similar cause. Two years later the fleet under Sir E. Hughes which defeated that of Admiral Confans was at sea six months before the battle took place, and yet on the day of it there were only twenty-four sick out of 14,000 men, owing to their having been kept well supplied with fresh meat and vegetables. In fact, whenever, before or after that event, fever and flux committed ravages, there was always the scorbutic diathesis undermining the general stamina of the men. The first and second voyages of Captain Cook—1768 to 1773—afford a contrast: in the first, with scorbutic diathesis, 35·7 per cent. of the crew died of tropical fevers with flux in four months; but in the second, only one man died of disease in three years, under sanitary and antiscorbutic precautions. These are facts typical of the period. From that time, however, there was much less of fever, as before the next naval war, 1778 to 1782, the sources of fevers were cleansed by improved management of the gaols, and by improvements in the ventilation and the cleanliness of ships, but the causations of scurvy remained unmitigated, notwithstanding the experience of Hawke's fleet. In 1759-60 the admissions to Haslar for fever were 393 and for scurvy 119 per 1,000 of all admissions; but in 1782 there were 329 and 112 respectively, showing a larger proportional abatement of fever than of scurvy; and in 1780 the Channel fleet, after a ten weeks' cruise, returned with 2,400 men sick of scurvy, proving that the causes of scurvy were as rife as ever, while the causes of fever were less so. From that period, however, there was a considerable abatement progressive in both; but at no period was it so marked as immediately after the mutiny in 1797, which was followed by great reforms in the quantity and quality of the seaman's rations and pay. In proof of this, the data from the same source show that in 1796 the admissions were in the ratios of 257 per 1,000 for fever and 74·5 for scurvy, and that in 1799 they had declined to 200 and to 20 per 1,000 respectively, being a rapidity never before experienced, and that, too, in war time. In the last century, and that very late in it, scurvy disappeared in its epidemic type, and epidemic typhus has been unseen since, on account of reforms that have acted preventively, as soon as the propriety of them has been recognized.

¹ Abstract of a paper read at a meeting of the Epidemiological Society.

Superior means of ventilation have been invented; cleanliness of ships and of persons has been enforced; while overcrowding, by reason of employing larger ships in proportion to the crews, has been lessened; iron tanks have been substituted for wooden casks for water; and a very progressive improvement in the food, in quality and in variety, as regards both fresh meat and vegetables, has taken place wherever possible. Cinchona was given until supplanted by quinine as a preventive of fever; lime-juice, as a preventive of scurvy; and more frequent intercourse on shore has produced cheerfulness amongst the seamen; while the half pint of spirits allowed daily in the last century, encouraging if not legalizing drunken habits, has been abolished save on emergencies, and sobriety is no longer the rare virtue it was formerly in the navy; and, finally, the employment of iron instead of wood in naval construction, and the use of steam as a motor power, render long detention at sea unnecessary—all these changes have combined to make the navy as healthy as life on shore. The last century was, in a medical sense, devoid of experimental spirit in the navy, while such cannot be said of it since the dawn of the present century, when medical officers first began to obtain a recognized position in its ships and service.

The latest hospital statistics, from 1869 to 1877 inclusive, yield, at Haslar and Plymouth, 51,584 total admissions, with 2,539 for fevers of all types, and no scurvy, being less than 50 per 1,000, showing a decline of 150 cases per 1,000 since 1799; and of mortality from 70·5 to 60·5 in each 1,000 cases of fever, exhibiting the extent of mitigation as regards febrile forms of disease in the present century.

It is to be lamented, for the good of the service, that hospital returns ceased in 1877 to be published, thus precluding useful and encouraging comparisons in future.

LUMBAR COLECTOMY.

By CLELAND LAMMIMAN, F.R.C.S. Eng.

THE operation called lumbar colectomy seems likely in the advance of abdominal surgery, to become a generally adopted one, and as since its introduction it has only been performed on one or two occasions, the following notes of a case upon which I have recently operated may prove of some value to any who are purposing to pursue this method of relief in cases where the position of the stricture can be settled as lying in either the upper part of the sigmoid or in any part of the splenic flexure of the colon.

I first saw Mrs. —, with Dr. Ivers of Tonbridge, on Feb. 2nd (Friday), when the following history was given:—On the previous Sunday she failed to effect her usual morning evacuation, and towards the evening had some amount of distress, when vomiting came on. Dr. Ivers had given several doses of purgative medicine without effect, and had succeeded in passing O'Beirne's tube into the bowel (its whole length apparently). She had taken only fluid food in small quantities with opium. There was no history of cancer.

Physical examination.—A well-nourished woman of fifty-four years, dark, somewhat sallow, and inclined to obesity. Abdomen not tender, but filled with flatus, which could be perceived rolling the intestine over and over with loud noises. No tumour could be detected; no hernia. No evidence of anything wrong in rectum. She informed us that upon several occasions, which had increased in frequency lately, she had had great pain in her ab-

domen, with constipation and vomiting, once or twice with jaundice.

Concluding that we were dealing with an occlusion of the intestine, we resolved once more to give a competent purgative, hoping that the case might yet turn out to be fecal impaction. This produced in an hour or two some very suspicious-looking vomit. In the meantime, we introduced O'Beirne's tube into the rectum, and apparently into the sigmoid flexure, as the whole tube, save an inch or two, was passed in; but when we injected gruel, we found that not more than half a pint was retained, the rest flowing out as it was injected. Now, as at the operation the stricture was found in the upper part of the sigmoid flexure, it is plain that the tube must have turned upon itself. There was during this period and up to the time of operation no fever. After the stercoraceous vomit had appeared, we used no food, save ice in small quantities, by the mouth, using by the rectum the juice of raw meat expressed by the tincture press, and Carnrick's peptonoids, with which latter we were very pleased. Small quantities of morphia were used hypodermically twice in twenty-four hours.

We advised colotomy at once, and should have selected the right loin because of the distance to which the tube was introduced, but the patient would not consent, resolving to have Mr. Bryant down to see her. On Sunday, Feb. 4th, that gentleman came down, and he concluded that an operation should be performed without delay; but, impressed with the fact that we should, notwithstanding the passing of the tube, find the stricture in the descending colon, he directed me to open the left loin, and, if not then successful in finding the stricture, to draw down the bowel through the wound and search for it; if not finding it there, to reject the left, fasten up the wound, and proceed to open the bowel on the right side. And he added, "When you come down upon the stricture, after fastening the upper aperture of the bowel in the usual way to the skin, proceed to remove the stricture itself. I have once done this, and am satisfied that it will soon be the usually adopted operation for this trouble. I would call it colectomy."

The patient obstinately refused the operation until Feb. 14th, when without food by the stomach for seventeen days, she was manifestly going downhill; there had been no rise in temperature. On this day, having at last prevailed upon her to allow something to be done to give her a chance of life, which seemed now almost hopeless, with the assistance of Dr. Ivers, Dr. Hawthorne, of Tonbridge, and Mr. W. Rix, of Tunbridge Wells, I proceeded to operate. Dr. Hawthorne administered a mixture of one part absolute alcohol, two parts chloroform, and three of ether, on a list cone; it answered admirably, and after one hour during which the operation was proceeding, it still acted well and did not depress. Making the usual incision, six inches long, half-way between the last rib and crest of the ilium, I dissected as quickly as possible down to the fascia transversalis, but having to deal with very free hæmorrhage my progress was somewhat slow, as I had to tie many vessels as I went on. Then, having cleared the fascia through the whole length of the wound from muscle and fat, I divided the fascia transversalis upon the director and my forefinger. Now, having scraped away a large quantity of sub-colic fat, I came upon the intestine, not a distended but a collapsed one, and speedily found the stricture itself just at the bottom of my incision, now some inches deep. My colleagues assisted me in raising the gut to the surface, but it was not an easy matter, for it did not leave its bed as I had hoped it

would; it required much patience and gentle force to accomplish this. At last, having freed enough of it, I opened the intestine above the stricture, fastened it to the skin, and having placed a very stout ligature of carbolized catgut round the gut below the stricture, I cut the latter completely away. Having to our satisfaction concluded that all hæmorrhage had ceased, I cut off the ends of the ligature short, and returned it into the abdominal cavity with the lower end of the intestine, fastened up as much as seemed necessary of the wound, and placed the patient in bed, with warmth to the head and feet and a small hypodermic in the arm.

Upon examination the stricture proved to be scirrhus, and the aperture so small that it would hardly admit a probe. In the course of an hour or two a large amount of fecal matter passed through the wound, but the patient was so weak from her starvation that for hours we could not rally her from the prostration following the operation, which but for this I am convinced would have been successful. She sank about forty-eight hours afterwards. No post-mortem examination was made.

Tunbridge Wells.

ANOTHER EPIDEMIC OF TRICHINOSIS NEAR THE SOURCES OF THE JORDAN.

By JOHN WORTABET, M.D.,

Physician to the Hospital of the Knights of St. John, Beyrout, Syria; Corresponding Member of the Epidemiological Society, etc.

In a paper which appeared in *THE LANCET*, in 1881, I gave an account of an outbreak of trichinosis from eating the flesh of a wild boar, near the sources of the Jordan. Two hundred and sixty-two persons ate of the animal (November 25th, 1880), and when I visited the place of the disaster at the beginning of the new year five had already died, and the rest were more or less ill with the disease. One more died afterwards, and I succeeded in obtaining from the body a piece of muscle, in which I found trichinæ in great abundance, and thus verified the nature of the epidemic. This death happened about the fiftieth day after infection, and the trichinæ was still non-encysted. A few weeks after one of the victims came into the hospital for a slight operation in the eye, and he allowed me to take out a minute piece of muscle from the calf of the leg for examination. It was about the hundredth day after infection, and I found the parasites in as great abundance as before, but they were all by that time encysted. From frequent communication with the place, I heard that in few months all the sufferers gradually recovered, the last symptoms being slight muscular pains and general debility. Another outbreak of the same nature has recently occurred in Ain-Kiniah, near Banias (the ancient Cæsarea Philippi), and a young medical man, a former pupil of mine, who was called to the scene of the epidemic, has sent me the following particulars:—"About the 1st of March of this year a fine boar was shot in the marshes of the Jordan, and brought to Ain-Kiniah, and a part of it was sent to three other neighboring villages. Some forty or fifty persons ate of it, and they were all taken ill between the fifteenth and twentieth day afterwards. The general symptoms in every case were the same: muscular pains, œdema, and fever. The muscular pains were not limited to the extremities, but extended to the muscles of the face, the lower jaw, the neck, and abdomen. The œdema was often very great; in one case the face was so swollen that

the eyes were closed, and in an infant the general œdematous state of the body was such that its life was despaired of. The fever always increased at night. It is strange to say that not one of them died, and that they are all in a state of convalescence.

It appears that this is the third outbreak of trichinosis which has happened in those parts in recent years, the first having taken place about 1868, though wild boars are numerous in the jungles of the Jordan, and often shot and eaten during the winter and early spring. The flesh is always eaten in that part of the country in a raw or imperfectly cooked condition, and this accounts for the fact that no one who eats it escapes infection. In the outbreak of 1880 there was a remarkable exception in the case of the head of the infected animal, which was very thoroughly boiled before it was eaten, and of all the persons who ate of it not one showed any sign of the disease.

Note.—It is remarkable that there is a general unanimity among Eastern nations as to the unwholesomeness of pork. It is interdicted in the sacred books of the Hebrews and Mohammedans; and among the ancient Egyptians—from whom the Hebrews borrowed many of their sanitary laws—the pig was an emblem of Typho, the god of evil, and was held by them to be unclean and abominable. From personal observation and experience I have found the use of pork in Syria decidedly unhealthy. The wild boar in winter is a delicacy, but unless previously examined with the microscope, according to German law, or cooked more thoroughly than is usually done, its use cannot be free from the danger of communicating trichinæ to man.

SPINA BIFIDA SUCCESSFULLY TREATED BY INJECTION, AND EXAMINED POST MORTEM.

By NOBLE SMITH, F.R.C.S. Edin.

Surgeon to the All Saints Children's Hospital, and to the Orthopædic Department of the Farringdon Dispensary.

A. W—, aged two months, was born with a deficiency of the arches of the lowest lumbar and upper sacral vertebrae. The size of the tumour was in circumference at the base $8\frac{1}{2}$ in., from side to side over the tumour $5\frac{1}{2}$ in., from above downwards $4\frac{1}{2}$ in. The tumour was fully distended, translucent, and presented an ulcerated surface in the centre, secreting fluid. There was no appearance of large nerves in the sac. The right leg was small, deficient in muscular power, and the foot was affected with talipes valgus, but in other respects the child appeared to be healthy. I punctured the tumour with a No. 3 trocar low down upon one side, drew off two ounces of clear, straw-colored fluid until the tumour was diminished to half of its original size, and injected forty minims of Dr. Morton's iodo-glycerine fluid, and closed the opening with collodion and plaster. The constitutional disturbance was severe for twenty-four hours, after which the tumour began to cicatrize, and gradually shrivelled up and became like a piece of rough puckered leather. The operation was performed upon the 5th of September, 1877, and in twenty-five days the tumour consisted only of rough thickened skin, which was slightly protuberant from the surrounding surface. A part of the wall of the sac the size of a shilling remained there, and apparently unaffected by the injection. This could doubtless have been destroyed by a second injection, but the mother refused to allow another operation because her child had seemed to suffer so much from the first one. The treat-

ment was so far perfectly successful, and I anticipated a satisfactory progress of the case, although I should have preferred completing the transformation of the wall of the tumour.

In February, 1878, nearly six months after the operation, hydrocephalus made its appearance, and ran its course in two years, at the end of which time the child died. I was permitted to make a post-mortem examination of the spina bifida. Externally the remains of the tumour appeared as thickened and puckered skin, and resistant to the touch. At the centre was situated a small patch, less than the size of a shilling, of thinner skin, beneath which could be felt a small cavity. Upon dissection the remnant of the tumour was found to consist of very dense fibrous cicatricial tissue, in the form of fibres and bands passing in all directions, and closely united together. The deficiency in the wall of the spinal canal was blocked up by this cicatricial material, but with difficulty a very small probe could be passed along a tortuous passage leading from the small cavity, already referred to, to the canal. There be no doubt that a second injection would have completely obliterated this small cavity and its connection with the canal, and have rendered the tumour more thoroughly solid. The cicatricial tissue did not extend beyond the opening into the canal, but it formed a remarkably firm wall in place of the deficiency of bone. I could not discover any nerves passing from the canal to the wall of the sac.

The result of this examination seems to me of value, as supplying a proof that an efficient closure of the deficiency in the vertebræ can be effected without encroachment upon the spinal canal.

ON THE SAFE ADMINISTRATION OF BICHLORIDE OF METHYLENE.

By WM. MARTIN COATES, F.R.C.S. Eng.,
Senior Surgeon to the Salisbury Infirmary.

SOME months ago a paper appeared in *THE LANCET* from my pen on the "Safe Administration of Chloroform." From the inquiries I have received about my mode of administration and the inhaler used from every part of the United Kingdom and distant parts of Europe, I conclude that my contribution has attracted much attention, and I sincerely hope that many lives will be saved by my earnest appeal to the profession to take into serious consideration the necessity for using anæsthetics, as they do other potent agents, in the smallest dose capable of producing the desired result.

In the communication referred to I stated that by putting into Snow's inhaler, modified by Matthews Brothers, first five minims of chloroform, then in twenty seconds ten minims, in forty seconds fifteen minims, and the latter quantity every minute, I produced complete insensibility to pain with a total quantity varying from twenty minims to seventy-five, with, I believed, perfect safety, and with a great diminution of the struggling and subsequent after-nausea and vomiting. I have also found the best means of remedying the struggling or failure of the pulse in the introduction of thirty minims of pure ether by the same inhaler. I promised in the same paper to work out in the same manner the absolute and comparative power of bichloride of methylene. I have since then, both in private and hospital practice, administered the bichloride of methylene with the same apparatus, but without the hot water between the compartment containing the anæsthetic and the outer jacket of the instrument, with the following

most satisfactory results. In almost every case the bichloride of methylene was as efficient in the same small doses as an anæsthetic as chloroform. The heart's action in no case failed in the slightest degree, the struggling was less violent, and the after-nausea and vomiting were very much less troublesome. I recollect only two cases where they were present out of a great many administrations. To show that I did not select my cases I will shortly relate two.

CASE 1.—A man, aged seventy, but looking much older, had a very suspicious tumour on and extending under the left part of the body of the lower maxillary bone. He had considerable insufficiency of the mitral valve. Mr. Harcourt Coates operated. It was foreseen that a careful dissection would be required, for the tumour dipped into and among important structures under the angle of the jaw. The operation lasted half an hour. I administered methylene. Anæsthesia was obtained by forty-five minims, and kept up by ten minims poured into the inhaler whenever unconscious movements occurred. The quantity used was seventy-five minims in all.

CASE 2.—A man, aged forty-nine, with largely consolidated apex of his left lung, with crackling on coughing, under the care of Dr. Coates in a medical ward of the Salisbury Infirmary, suffered from intense pain in defecation. On examining the rectum with Curling's speculum, we saw pus oozing from an opening about an inch and a half from the anus. I decided to make an incision through the abscess, and to divide by the same incision a few fibres of the sphincter ani. This man inhaled 125 minims of bichloride of methylene before he became unconscious, and there was considerable struggling. I performed the operation. He soon recovered his consciousness, and was entirely relieved from pain. Mr. Wilson, our house-surgeon, reported to me that he had suffered no unpleasant after-effects from the anæsthetic. This is the largest quantity required by any patient.

I cannot conceive two more unfavorable cases for anæsthesia, yet no symptom of danger arose. The struggling in both cases ceased on administering through the inhaler thirty minims of ether. The absence of failure of the heart has been mentioned in this mode of giving small but efficient doses of this agent, as also the great comparative absence of nausea and vomiting. I have observed that the patients under bichloride of methylene became much sooner conscious when the inhalation was discontinued than under chloroform. In this lies the comparative safety and weakness of the bichloride of methylene. It does not in some cases abolish so completely the reflex functions as does chloroform, and in two cases of operations on the rectum, where the reflex action is so easily excited, fifteen minims of chloroform were substituted for the methylene, with immediate advantage. For the same reason I can conceive that in delicate operations on the eye or its appendages chloroform would be better than bichloride of methylene. This is a point I shall test with some anxiety, as in some eye operations vomiting is a matter of great importance. I allude of course to extraction of cataract and iridectomy. In the removal of a sightless eyeball from injury I found the bichloride of methylene in an old man quite as effective as chloroform, and, I feel sure, freer from danger. As my plan, no doubt, has been tried by many, and no contradictions have come from any quarter, and as no death has occurred or been reported under this mode of administration of chloroform or bichloride of methylene, and as, moreover, it is in strict accordance with the principle universally acknowledged and adopted with all other potent medical agents—viz., to confine

ourselves to the smallest dose capable of producing the result aimed at—I sincerely trust that in the interest of their patients and of themselves medical practitioners will give this mode a fair trial and record the results. Anyone not doing so, and having a fatal case, would be most painfully situated, I should think, at the subsequent coroner's inquest. My conviction is that the danger from chloroform and bichloride of methylene is so minimized by this method, if closely adhered to, that they may be used with the most perfect confidence in persons free from organic disease; and, if I may judge from my own practice, in cases in which we should not have dared to do so—i.e., in cases of advanced organic disease of heart or lungs. The repeated small doses by their insistence on the attention of the administrator might, if necessary, as a gentleman who came from Birmingham to witness this mode said, be advanced as an additional source of safety. I must repeat, in reference to the bichloride of methylene, what I advanced as to chloroform, that as some persons are very easily affected so there are others who require increased doses (twenty minims per minute), though this is very rare.

I may here add that I formerly used Junker's inhaler, but it has not the accuracy of the one I use now; and there is the disadvantage that a quantity of the vapor remains in the atmosphere of the operating room, and so becomes a source of danger. It has been proved on every occasion when looked into that the whole of the fifteen minims of the anæsthetic have been consumed at the end of each minute with the instrument used by me. I trust that my medical brethren will not think that any of my utterances in this paper have been too strong; if so, I hope that in extenuation they will consider my deep conviction that some, perhaps many, lives must be sacrificed if the adoption of small doses be not made general.

Salisbury.

NOTES AND REMINISCENCES OF A CHOLERA EPIDEMIC AT KOTREE AND HYDERABAD, SCINDE, INDIA.

By JOHN ROCHE, M.D.,

Retired Surgeon, Bombay Army; formerly Civil Surgeon, Kotree; Civil Surgeon, Hyderabad; Vaccination Superintendent, Scinde and Mahratta Circles, etc.

CHOLERA attacked the laborers who were engaged in canal digging near Hyderabad in August, 1869, having been for some time previously amongst the inhabitants of Thurr and Parkur to the south-east of Scinde. On September 3rd, 1869, the first case was reported at Kotree, as being in a village about three miles to the north, on the right bank of the Indus. On inspection it was ascertained that the man attacked had been suffering from diarrhoea for some time. He had been at work on the canal near Hyderabad, where cholera was prevailing, and had only arrived the day previous for the purpose of receiving the attention of his people. In two days a second case occurred in a hut close to where the first was ill (it was a woman who had been nursing the first victim), and after another few days a little girl was attacked in the same house with the woman. Notwithstanding that every effort was made to isolate the cases the disease spread rapidly through the village. On the 12th of September the first case broke out at Kotree, a town of about 20,000 natives and about 400 Europeans, being at that time the headquarters of the Scinde Railway and Indus Steam Flotilla, with workshops and the Settlement Survey of the Right Bank Division of Scinde. The case was

a policeman's wife, who came from Hyberabad to visit her friends the night previous. The other cases, which soon followed, were traced distinctly to contagion from this source. Personal intercourse and association were traced between those early affected in the epidemic, so as to convince the most sceptical as to the infectious nature of cholera. There was no predisposing cause that could be discerned, excepting that there was an excess of rain and floods in the preceding months, and that the air in September was unusually sultry, still, and moist. There was no defect in the water-supply, nor was there any insufficiency or deterioration in the food of the inhabitants. Amongst a population embracing many castes, the lower orders were more amenable to the disease than those who could live in comfort; but one caste following a particular occupation or existing on a specific food was not affected more than another. The Europeans escaped comparatively well; only three were attacked, two of whom were intemperate in habits and died. They became literally panic-stricken directly the cholera made its appearance in the locality. The symptoms were the usual ones: vomiting and purging, first of contents of alimentary canal, next bilious matter, afterwards whitish rice-water discharge; cramps, epigastric heat, burning thirst, a semi-intoxicated state of the nervous system, præcordial anxiety, coldness of surface of body to the touch, choleraic voice, the eyes sunk in the sockets, and collapse. Death was preceded in most instances by a very offensive, tarry evacuation. The temperature in every stage, as taken in the axilla and the thermometer held well covered for above ten minutes, was over 99°, and in some cases in what is written as the algide or collapse stage over 100°. At this time this phenomenon had not been promulgated, as far as I could learn, so as to ensure credence. I secured Major (now Major-General) Malcolm Haig to witness it in two Europeans in different degrees of collapse, and whose bodies were extremely cold to the touch, and whose temperature, taken by the application of the instrument for two minutes, did not register more than 94°. I solicited Surgeon-Major Nolan, M.B., H.M.'s Bombay Army, to observe the rise in temperature attendant on covering and on excluding the cold air, who deemed the fact of great importance. It led me to conclude that cholera was purely and simply a specific fever, only inferior in its ravages to yellow fever, and closely allied to it.

There were altogether about 700 cases of cholera in a period of over two months, about 400 of which were treated directly by myself. The severity of the type has scarcely ever been equalled; 86 per cent. of those attacked were fatal. The duration of the disease varied from half an hour (there were two cases that never vomited or purged, that fell down with all the signs of cholera and died in less than half an hour) to three days, when, if the patient survived, remittent fever of a typhoid character supervened. The eyes were in some instances affected, and in three the recoveries were marred by blindness. A port-wine-colored discharge was also a harassing complication.

The detailed reports of some forty cases, which I closely observed from commencement to termination, were forwarded to the Inspector-General of Hospitals at the time at Bombay, and also a full history of the epidemic, in which I satisfied myself of the truth of my contention against the fungus theory of Kloba, Bary, and Hallier, and the peculiar underground theory of Kölliker, as utterly unsound, towards the end of the year 1869, some months before Messrs. Lewis and Cunningham furnished theirs, which condemned the fungus theory.

I stated then, that I had found the temperature in every stage raised when observed according to my directions, the capacity for resisting the abstraction of heat by surrounding elements diminished, the absorbents devoid of function, and the excretory organs much impaired. I have observed a similar condition of things following snake-bite, as published in a case by me in Fayer's "Thanatophidia of India." The antiseptics (carbolic acid, sulphites, and quinine) had no beneficial action in treatment. Alkalies, acids, and metals availed not much, and ether and ammonia seemed not of great importance. In the collapse stages internal medicines were not apparently absorbed. The only applications which responded to any hope were sinapisms to the epigastric region, with mustard and turpentine frictions to the seat of cramps; and in the reaction, or recovery stage, by treating the disease purely and simply as a remittent fever, with quinine, arsenic, ammonia, and bark, with diaphoretics and cholagogues; ipecacuanha and antimony in small doses often repeated seemed most beneficial in the port-wine-colored diarrhoea, which in many cases was a rebellious complication. Particular cases are gone into in my original report, and therein is a clear refutation of any other theory of cholera than that it is a malignant fever subject to epidemic and endemic influences. Cholera has a period of incubation varying from two to fourteen days; prone to attack the enervated and those subject to depression from any cause. It is contagious, and liable to occur periodically about every ten years in some parts of India. It seems to have visited the British Isles about every sixteen years, and as the period has elapsed since the last outbreak, it is more than likely to occur this year. The affection has a predilection, or wears its virulence out amongst a people. A fortnight after the last case occurred at Kotree a number of Afghans arrived, and there were some of the worst cases amongst them, but not one of the inhabitants of the town then took the malady. Those persons who indulge in no enervating habits, and take nothing internally which would arrest the secretions nor too drastically stimulate them, and partake of nothing which is highly fermentable, may safely feel that they are cholera-proof during an epidemic.

ON FIFTY CASES OF TURNING.¹

By F. H. V. GROSHOLZ, M.K.Q.C.P.I., Etc.

It is not my intention to give a detailed account of each individual case of the fifty in which I have thought it necessary to perform the operation of version, as, though such minuteness might prove not altogether uninteresting nor entirely unprofitable, yet doubtless a summary of the facts and the deductions to be drawn therefrom will more graphically, and at less expense of time, effect the object I have in view—viz., the consideration of the causes which demand an artificial termination of labour by the aid of turning, the results of that operation as regards both mother and child, the method and time of performing the operation, and the lessons which are taught by its results, whether successful or otherwise.

First, then, as to the causes which necessitated version. As turning is generally understood to mean a restoration of a child to its normal position in the uterus, or the substitution of some other portion of the body for that originally presenting, it will not seem surprising that the operation was performed for the rectification of some malposition

of the fœtus in thirty-eight out of the fifty cases. Of the remaining twelve, five were cases of placenta prævia, four of contraction of the pelvis, and three of uterine inertia. We thus see that thirty-eight, or about four-fifths of the cases in which the operation was performed were cases of *malpresentation* of the fœtus, four of *malformation* of the mother, five of *malposition* of the placenta, and three of failure of the uterine contractions. To go a little more into detail, I have tabulated the above facts as follows:

Malpresentation	Shoulder.....	18	}	38
	Arm and funis....	8		
	Arm.....	6		
	Face and Hand....	3		
	Brow.....	1		
	Brow and hand....	1		
	Back.....	1		
Pelvic contraction.....				4
Placenta prævia.....				5
Uterine inertia.....				3

50

Secondly, as to the results of the operation as regards both mother and child. The average maternal mortality has been estimated by Dr. Churchill as 1 in 15, and the infantile as 1 in 24. In my fifty cases I have had no deaths among the mothers; twenty children were either born dead or died soon after birth. This seems a rather high infantile mortality; it is indeed exactly in the proportion above named; but as eight of the children had manifestly been dead for some time (as evidenced by signs of putrefaction more or less advanced), it is hardly fair to class their death among those due to turning. Omitting these, the proportion of dead children delivered by version is reduced to 1 in 34, which I consider a very fair average. Of the other twelve children which were born dead, two were cases in which the funis was prolapsed; two in which there was placenta prævia; and the remaining eight may be roughly classed together as owing their death either to a disproportion between the maternal pelvis and the infantile cranium, or to a too prolonged compression of the umbilical cord. One woman was only twenty years of age, and another as old as forty-five. One child weighed 13 lb. 2 oz.; and one, which lived nearly two days, weighed only 2 lb. 1 oz.

Having enumerated the causes which demanded version, I will next briefly remark on the signs by which I have been guided in the selection of the time which seemed most favorable for performing the operation. In every labour all obstetricians will concede that it is of the utmost importance to become acquainted with the exact position of the child at the earliest possible opportunity. Where there is a malpresentation, its early discovery is of the greatest importance, for before the membranes are ruptured not only can turning be performed more easily, and with less risk to the mother, but the chances of the child's life are also much increased. After the membranes are ruptured, the danger to both mother and child becomes greater and greater as time goes on. Indeed, no cases require such gentleness, patience, and persevering courage on the part of the operator as those cases of malpresentation in which the membranes have long been ruptured, and the uterus is closely contracted around the fœtus, pressing it more and more firmly down into the pelvis. In cases where the os has not been sufficiently dilated to admit the passage of the hand, and where a speedy termination of labour was essential, I have found very satisfactory results from the practice of gently and gradually dilating the os by passing the tips of the thumb and two

¹ A paper read before the North Wales Branch of the British Medical Association, July 3rd, 1883.

fingers within it, and have by their aid, without the use of anything like undue force, frequently been able to effect a comparatively speedy dilatation. In two cases I used Barnes's dilators, and they most fully answered my expectations. I need hardly say that Braxton Hick's method of version by combined internal and external manipulation not only greatly facilitates the operation, but also enables us to perform it sooner than would be justifiable were it necessary to introduce the whole hand within the uterus. Indeed, if called to a case of arm-presentation, in which the membranes are unruptured, and the os, though small, is soft and dilatable, I see no reason to defer the operation, for, in awaiting the fuller dilatation of the os, you run the risk of a sudden rupture of the membranes, thereby losing the chance of an easy, safe, and successful termination of the case.

Having now cursorily considered the period at which it is best to perform version, I will proceed briefly to describe the manner in which I usually perform the operation. The ordinary obstetric position (the patient lying on her left side) is, I think, preferable to any other, though in a few very difficult cases where the abdomen of the child was placed anteriorly, and where the liquor amnii had long escaped, I have found it advantageous for the mother to lie on her back, and have thus been more easily able to pass the hand over the child's body. In nearly every instance I use the left hand, as I think it much more readily adapts itself to the curve of the sacrum, leaving at the same time the right hand at liberty to manipulate externally; then, too, the left hand is generally smaller than the right, a not unimportant point to be considered in the choice of the operating hand.

It is not necessary for me to describe the operation of version, whether it be the simpler and safer plan of turning by combined internal and external manipulation, or the more serious operation when it is necessary to introduce the hand into the uterus from which the waters have escaped, and which is firmly contracted around the child. On one or two points, however, I should like to say a few words, giving the conclusions I have arrived at from a not inconsiderable experience in this operation. As long as the operator's hand can take hold of one of the inferior extremities, it is immaterial whether a foot or a knee be seized. In transverse presentations, traction on the knee or foot of the side opposite to the presenting shoulder effects rotation more readily than by bringing down the leg of the same side. It is decidedly advantageous to bring down only one foot or knee instead of both, as in this manner the parts are better dilated, and less difficulty is experienced in the delivery of the rest of the body. Where, after bringing one foot down, the body does not readily turn, it is a good plan to pass a tape round the limb, and whilst making traction on it downwards and backwards, to attempt to push back the presenting shoulder. In placenta prævia I prefer to turn by Dr. Hick's method as soon as the condition is recognized; where it is necessary to pass the hand into the uterus, I try to do so at the point where the placenta seems least attached, and never through its substance.

Knowing the extreme value of chloroform in causing relaxation of the spasmodically contracted uterine fibres, it may seem strange that I have only used it in three cases. Unfortunately, my patients and their friends have all shown such a determined opposition to the administration of chloroform that I have on nearly every occasion been compelled reluctantly to proceed without the aid of anaesthesia. That this has greatly added to the risk of

laceration of the uterus there can be no doubt, nor that it has also added enormously to the anxiety, difficulty, and pain experienced by the operator; and, under the circumstances, I think it remarkably lucky that though there have been several cases of tedious convalescence, yet all my fifty patients have eventually completely recovered. In the three cases in which chloroform was administered it was of the greatest possible service, and I now more strongly than ever advise its use both in version and every other obstetric operation.

With regard to the relative merits of version, long forceps, and craniotomy, there is no doubt that each method has peculiar advantages in certain circumstances, and that every accoucheur should be intimately acquainted with each obstetric operation; yet at the same time none requires and deserves more careful study and practical skill than the ancient, most important, and truly conservative operation of turning.

Aberdovey.

ON A CASE OF PAROSTEAL SARCOMA OF THE RADIUS.

By HENRY T. BUTLIN, F.R.C.S. Eng.,

Assistant Surgeon and Surgeon for the Diseases of the Larynx, St. Bartholomew's Hospital.

THE term parosteal is here employed in the sense in which it is used in Virchow's "*Krankhaften Geschwülste*,"¹ to denote a tumour growing by the side of a bone, probably from the outer surface of the periosteum. Such a tumour is easily distinguished from a subperiosteal tumour; for, while the one leaves the periosteum unbroken and closely adherent to the bone, the other raises it off the bone, erodes and destroys the compact tissue, and often penetrates into the medulla or cancellous tissue.

Parosteal sarcomas are, I believe, by no means common. Among a large number of sarcomas of various bones which I have had the opportunity of examining, I have only met with two or three instances. Partly on this account, but chiefly on account of the difference which appears to exist between these tumours and those which grow beneath the periosteum, the following case appears worthy of publication. I must thank my colleague, Mr. T. Smith, for the permission to use it, for although I first saw the patient, and operated on him, it was during Mr. Smith's absence from town.

C. E—, aged twenty-four, a railway porter, a strong and healthy-looking man, was sent to St. Bartholomew's Hospital by Mr. Hall, of Tottenham, on April 8th, 1882. On the radial side of the left forearm, about midway between the elbow and the wrist, was a tumour as large as a small fist, but lobed and elongated. It presented towards the front, as well as on the outer side. The tumour was tense, fluctuating on the outer side, but firm towards the front; the skin covering it was stretched, but not discolored. In the axilla was one enlarged gland about the size of a small nut. The man said that for four months he had been conscious of the presence of a lump in the forearm; but it had grown very slowly, and without pain, and therefore had not prevented him from pursuing his occupation, until about six o'clock on the previous evening, when suddenly, without warning and without any evident cause, it began to enlarge, and in less than half an hour had doubled its previous size. The enlargement was accompanied with excessive pain, which at once rendered him incapable of continuing his work, and compelled him to seek advice. The diagnosis was sar-

¹ Band ii., s. 97 and s. 347.

coma of the radius, probably subperiosteal, which had enlarged from sudden hæmorrhage. He was put to bed, the arm laid on a rest, and cooling lotions were applied. But the pain continued unabated, and on April 10th was so intense as to call for active treatment. A consultation was held, and two of my colleagues who were in the hospital agreed in the diagnosis, and in the urgent necessity for operation. Half an hour later, after an Esmarch's bandage had been applied, I made a free incision into the tumour, turned out a large quantity of blood-clot and soft tumour substance, and found, contrary to what had been expected, that the bone was nowhere bare. The sac which contained the tumour was everywhere perfectly smooth-walled, except where the solid tumour was lightly adherent to it, and lay deep down between the muscles and around the radius, over which the periosteum lay smooth and closely adherent. Had the tumour been subperiosteal I should at once have amputated, but the immunity of the bone from disease and the smoothness of the cavity in which the tumour was enclosed tempted me, in spite of the malignant aspect of the new growth, to scoop it out and try to save the limb. One of my colleagues was decidedly of the same opinion. Every visible and tangible particle of the growth was therefore carefully removed, the cavity was sponged out with a solution of chloride of zinc (forty grains to the ounce), a drainage-tube introduced, and the operation concluded. The patient made a good recovery and returned to his work with a perfectly useful limb. In October he was again admitted into the hospital for the removal of a recurrent growth, which had been springing up during the past few weeks in the deep tissues on the ulnar side of the scar. The enlarged axillary gland had entirely subsided. The growth was removed by Mr. Smith, who dissected it out from amidst the muscles. It was not so clearly defined as on the first occasion. The patient again recovered speedily, and was able to resume his work, the movements of the limb being unimpaired. On May 16th, 1883, Mr. Smith removed a second recurrence, much smaller than the first and seated in the fascia covering the superficial flexors. The deeper parts were not affected, and even the surface of the muscle was not invaded. The operation was therefore trivial, and the patient quickly recovered.

A microscopical examination of the tumours showed that they were chiefly spindle-celled, but contained also numerous bodies like elongated nuclei, and round cells. The disease was, therefore, a spindle-celled or mix-celled sarcoma. It is, of course, too early yet to claim success for the conservative treatment which was adopted in this case. But thus far the result appears to justify the attempt, I might almost call it the experiment, to save the limb. The appearance of the first tumour was that of a medullary cancer which had been bled into, and the situation of the disease made it almost certain that it was a round or spindle-celled sarcoma. I have already said that if it had been subperiosteal I should at once have amputated. It may be asked why an attempt was made instead to scoop the tumour out. To this the reply is that the information we possess regarding the malignancy of subperiosteal sarcomas is sufficient not only to justify but to call for amputation; that, on the other hand, our knowledge of the properties of parosteal sarcomas is very slender, but there is some reason to believe that they are not so malignant as the subperiosteal tumours. We have been too much in the habit of regarding all spindle-celled sarcomas, or all round-celled sarcomas, no matter what part they affect, as equally malignant and requiring similar treatment.

I have endeavored to show* that this is not the case, and that the malignancy of sarcomas of the same kind depends very largely on their situation. The malignancy of subperiosteal round, and spindle-celled sarcomas of the radius and ulna is much less than that of subperiosteal round, and spindle-celled sarcomas of the humerus. The malignancy of central sarcomas of the radius and ulna is much less than that of subperiosteal sarcomas of the radius and ulnar; the former may be safely treated by excision or scooping out, the latter require early amputation. From many facts of the same kind it is quite clear that the application of general rules to the treatment of malignant disease of all parts of the body is of very little use, and that it is absolutely necessary that the malignant diseases of every part should be studied separately. The comparative malignancy of parosteal tumours is still unknown, and the treatment is therefore experimental. I can shortly recall one or two instances which tend to prove that they are less malignant than subperiosteal tumours of the same parts of the body.

A woman aged fifty-five years, suffered amputation for a parosteal sarcoma of the ulna, which had projected through the skin and appeared as a very malignant mass on the inner aspect of the forearm. She died from causes connected with the amputation; and the post-mortem examination showed that the lymphatic glands and viscera were quite free from secondary disease. Yet the tumour had existed more than two years, and was an excellent example of spindle-celled sarcoma.

At a recent meeting of the Pathological Society,² Mr. George Lawson exhibited a tumour which appeared to have grown from the outer surface of the periosteum of the lower jaw. This tumour was a sarcoma composed chiefly of spindle cells, and was the eleventh recurrence, ten previous tumours having been removed during a period of many years, the first by Sir William Fergusson, the last by Mr. Lawson. The few cases of subperiosteal sarcoma of the lower jaw I have been able to collect have run a very different course from this. Of two cases of spindle-celled sarcoma, of which the result was known, one patient died at the end of twenty-eight weeks, the other within a year. The parosteal tumour of the bones of the forearm may be compared with the cases of subperiosteal tumours of the forearm in the tables in my book on *Sarcoma and Carcinoma* (page 68). To the cases there tabulated I can add another, which has just been treated in the hospital by Mr. Smith. The patient was a woman, aged twenty-seven, who had noticed a swelling in the forearm only about six months, but had felt pain for a much longer period. She appeared generally a healthy person and presented no signs of constitutional disturbance. About the middle of the right forearm, and presenting chiefly on the outer side, was a fusiform tumour about five inches long, firm and smooth. The skin was not affected and the glands were normal. On July 20th the tumour was cut into, and removed by cutting and scooping. Three inches of the radius, where it was bare of periosteum and rough, were also removed. The growth, like the recurrent tumour in the first case, infiltrated the muscles. It bore all the general characters of a soft cancer without cysts and without capsule. It consisted largely of fibrous tissue, in the meshes of which were numerous round and oval cells, and I regarded it as a fibrifying sarcoma. The wound healed well and the patient left the hospital. But, three months later, in October, she returned with considerable recurrence in the parts

² *Sarcoma and Carcinoma*, 1882. Introduction, etc.

³ Feb. 20th, 1883.

above the scar, extending so high towards the elbow as to render amputation through the arm necessary. The contrast between the infiltration and rapid and extensive recurrence in this case and the circumscribed character and more kindly course in the first case, is the more striking when it is noted that the tumour in this case was much the firmer and more highly organized. Of the diagnosis between parosteal and subperiosteal tumours, I can only say that it appears impossible until the tumour has been freely opened, but may then be easily made by feeling with the fingers whether the bone is closely covered with periosteum, or whether the latter is raised and the bone at any part rough and bare.

Queen Anne-street, W.

REMARKS UPON SOME RECENT INVESTIGATIONS ON THE VENOM OF SERPENTS.

By S. WEIR MITCHELL, M.D.,

Member of the National Academy of Sciences, U.S.A.

I HAVE been much interested by Professor Badaloni's article in *THE LANCET* for July, 1883. Although what I might have said in criticism of it has been in a measure anticipated by your quotations from a recent paper by Dr. Reichert and myself, the frequent use of my name in Dr. Badaloni's and in other late essays on snake poisons, makes it proper for me to say a few words explanatory of certain parts of the subject, which run the risk of being misstudied. I am the more willing to discuss this matter in an English journal, since the English interest in venom poisons ought to be greater than ours, so long as the deaths from snake-bite in India are so horribly numerous. I may frankly state here that my own recent researches in conjunction with Dr. Reichert were due chiefly to the fact that I had become sure of the existence in my former papers of many grave errors and defects, due largely to the want of such means of research as are to be found to-day in every laboratory. I had also reached the conclusion that the complexity of the phenomena of venom poisoning was too great to be owing to one single toxic agent. The researches which began about ten months ago, and have been continued up to this time, very clearly indicate the need for another year of work before we shall be able to report fully upon the enormous range of subjects which still demand elaborate experimental inquiry. The preliminary report made to the National Academy of Sciences was therefore in some sense premature, and already we are aware that certain of its statements need modification. So much interest had been awakened in our chemical results that it seemed best to us to publish them in some shape. If they be correct, they of course set aside the analyses both of Lucien Bonaparte and of myself. My own simply separated one element of the venom; his threw down all, and separated them more or less from the saline and other harmless constituents.

Thus far we have examined the venom of the cobra, *crotalus adamanteus*, *crotalophorus*, copper head, *moccasin* (*pugnax* and *piscivorus*) and elaps corallina, our only close ally of the cobra. Before long we shall also possess living specimens of the "vipère fer de lance." So far as we have gone we have learned that the venom of all these serpents has at least three proteid constituents:—One dialyzable, and resembling a peptone, and apparently a hastener of putrefactive change, but with little power to prevent coagulation of blood. A second venom globulin, a more deadly poison, acting powerfully on blood and capillaries so as to cause enormous

local hæmorrhages at the point where the poison is injected. These two substances differ in amount and in toxic activity in different serpents, and even in different species. The globulin, and these names are to be regarded merely as labels, is destroyed by a heat of 100° in all the venoms studied. The peptone venom also varies greatly in power and probably in quantity. In our preliminary report it was said that the V. peptone of the diamond-back rattlesnake, *C. adamanteus*, was destroyed by a heat 100° C., which would leave this serpent, as regards this, in an exceptional position, because it would then appear that its peptone in this respect stood alone. It is, however, a feeblar agent than the peptone of the moccasin, and requires to be used in large doses in order to kill, so that it seems probable that we were misled in looking on it as exceptionally liable to destruction by heat. The third proteid resembles serum-albumen, and has been our greatest difficulty. It was believed at the time of the publication of our preliminary report to be innocent, but of late it has become entirely clear that it also is an active poison, resembling globulin in its mode of action.

A brief statement will make clear some of our embarrassments. The globulin is readily obtained, as it is thrown out of solution when water is added to venom, perhaps because of the dilution of the salts which kept it dissolved. Now, when diluted venom is placed in a dialyzer, the peptone salts pass out to the distilled water on the exterior, and, owing to the loss of salines, the globulin still held in solution, or an analogous principle, falls down within the dialyzer. When no more peptone or salts pass through, the globulin is separated by decantation or filtration and washing, and the serum-albumen remains in solution. The process is, however, a slow one, and especially so if conducted at a low temperature, while, if attempted at a high one, every product soon swarms with bacteria.

The study of three poisons in each serpent must of necessity involve an amount of labor which only a physiologist can appreciate; but as the matter now appears, it is more and more probable that the differences between the most distant genera of *Thanatophidia* will be found to be rather in the relative amount and energy of these various elements than in any distinct qualitative peculiarities. The pathological study of the effects of the venoms will of course appear in a novel light, and already we have accumulated a vast number of interesting observations which will largely advance our views of the nature of animal poisons.

As regards antidotes, it does seem as if there had been introduced a great deal of very needless confusion. It is quite clear that there are several substances which, being mixed with the venoms, render them inert or lessen their toxicity. Some of them destroy the power of globulin and venom albumen, and leave the peptone intact. Alcohol merely precipitates, and does not coagulate these proteids, and, of course, does no good as a locally counter-active agent. A few agents destroy alike all the proteids of venom, or at least in more or less various ways make them inert. Permanganate of potassa does this, and so does perchloride of iron, while dialyzed iron, which throws down all the proteids, merely makes with them a combination which when injected into the tissues is still deadly.

Potassa has a certain amount of protective power, but not as complete as is that of permanganate of potassa, since its mixture with venom is innocuous, both in the areolar spaces and the blood, whilst the mixture of potassa and venom is only innocent in the areolæ and not in the blood, nor yet, according to Vincent Richards, an excellent ob-

server, in the peritoneum. Of course if we inject at once or very early such agents as permanganate or perchloride into the track of the fangs, and by friction cause them to come more or less into contact with the venom, they will neutralize whatever they meet, destroying alike the proteids of the tissues and those of venom, and be so far remedial; but we are not as yet in possession of any agent which will follow the venom through the economy and prevent it from killing. There is as yet no physiological antidote for venom poisons.

As regards the remarks of Dr. Badaloni on the inefficacy of viper poison in cold weather, I may say that in very cold weather all snakes are sluggish, and secrete so little, and renew their venom so slowly, that it is not surprising to find little snakes like the European viper unable to do harm in cold weather. I am sure that the poison is as efficient in cold as in warm weather. It must be a question of quantity. I have to regret the loss quite recently of a rattlesnake, eight feet and a half long, weighing about 18 lb. When he arrived, in midwinter, he threw out into a saucer over sixty minims of venom, but renewed it very slowly until the laboratory was artificially heated. If snakes be well fed and well warmed they secrete freely, but confinement, cold, and absence of food very often diminish remarkably their toxic activity and their administrative vigor.

I take this opportunity of expressing my indebtedness to Sir Joseph Fayrer, and to Mr. Vincent Richards, of Calcutta, for supplies of cobra poison. The difficulties of a research which demands hundreds of serpents of various genera and species, coming sometimes a thousand miles, can very well be imagined, and in fact were it not for the potent help and constant sympathy of Professor Baird, of the Smithsonian Institution, no individual resources would be competent to carry on a pursuit so burdened with difficulties.

A CASE OF LIVER ABSCESS, WITH REMARKS.

By EDWARD HENDERSON, M.D., F.R.C.S. Edin.,

Municipal Surgeon and Health Officer, Shanghai.

THE following case suggests one or two interesting considerations in relation to abscess of the liver.

G. N—, a Swiss, aged forty-nine, for many years resident in China, was seen by me for the first time on the 25th of October, 1881. He then gave me the following history. While living in Pekin, in the beginning of August, he had experienced some enfeeblement of his general health, accompanied by loss of voice. In the beginning of September he was confined to bed with "congestion of the liver," and suffered then from pain in the right hypochondrium. This pain was at first acute; it left him entirely after about two weeks' duration, but he still had fever. On Oct. 10th he went to the seaside (Chefoo) to try the effect of change of air, but his fever continued, and his general health did not improve. He now, at times, suffered from pain in the epigastrium, which he regarded as due to indigestion. Since Oct. 17th he had had diarrhoea, about three motions daily, watery, yellow, and offensive. He had had profuse night sweatings at irregular intervals for some weeks. He had a short, dry, frequent cough, and his voice continued very weak. He was thin, having, he told me, lost weight considerably, and he had an anxious depressed look. His temperature was 102.4°; pulse 124, weak. A careful examination showed nothing indicating disease of the lungs. The liver area of dulness was enlarged;

in the nipple-line comparative dulness began in the fifth interspace; absolute dulness on the sixth rib; dulness extended an inch beyond the margin of the ribs. In the middle line, at my first examination, the percussion note was clear quite up to the sternum; subsequently (on the 31st) I noted dulness as commencing three inches and a half above the navel. There was no fulness or feeling of increased resistance in the dull area, and absolutely no tenderness. The abdomen was moderately distended, yielding everywhere a tympanitic percussion note. The spleen was apparently of normal size. Between the 25th and 31st of October the patient's temperature was always raised, varying from 99° to 102.4° F. His pulse was very weak, beating usually 116 in the minute. The cough, diarrhoea, and night sweats continued. On the 31st the area of liver dulness had extended below the rib margin about half an inch, and comparative dulness was distinct on the fifth rib. I thought I detected obscure friction sounds in the right epigastrium, which now also seemed somewhat fuller than the left.

My patient's general condition not admitting of much delay, on the afternoon of the 31st I made three exploratory punctures with the No. 2 needle of a Weiss aspirator—viz., two in the right epigastrium, about two inches and a half apart, near the rib margin, and in an upward direction; and one in the right axillary line between the seventh and eighth ribs. These were without any result. The punctures were made with antiseptic precautions, but were followed apparently by some localized peritonitis; at all events the patient complained for two or three days of considerable tenderness in the right epigastrium, and his temperature rose to 103°, and maintained a higher range for a short time. On Nov. 5th, Mr. N—'s condition being decidedly worse, I made another attempt to reach pus with the aspirator, puncturing in the back, in a line with the angle of the scapula, and in the right axilla. These punctures were also without result. On the 7th, coarse friction-sounds were distinctly heard in the right epigastrium; and on the 10th I made another fruitless attempt to find an abscess by deep puncture in that situation below the margin of the ribs. These last two operations were unattended by any symptoms indicating increased local or constitutional disturbance. On the 18th there seemed no hope of the patient's recovery, the physical signs still indicating an abscess of the liver as the only probable cause of his illness. On the 18th I made a final attempt with the aspirator, and succeeded in evacuating about ten ounces of characteristic pus by a puncture three inches deep, and made in front between the sixth and seventh ribs. My patient's strength was now nearly exhausted, and as there was no chance of his being able to support a purulent drain, I proceeded at once to enlarge the wound, and to introduce a drainage-tube, using the needle of the aspirator as a guide to the abscess cavity. I dressed the wound, as I had operated, antiseptically. For ten days there was some improvement; the patient's temperature fell, and he took fluid nourishment well; but the pulse increased in frequency and diminished in strength, until, on the 27th, it could scarcely be counted at the wrist. Owing to the utter prostration of the patient, the antiseptic dressings were changed with difficulty, and on the 28th I suspected that they had failed; the discharge, though not putrid, was sour-smelling, and was increased in quantity; the skin also round the margin of the wound was beginning to ulcerate. The urine was now constantly dark-colored, and I changed the carbolic for a salicylic dressing on the 29th. The patient died on Dec. 6th, general blood-poisoning, carbolic acid poison-

ing, a second abscess, and ulceration of the bowel being all suspected during the last week as contributing to the fatal result.

The body was examined on the afternoon of the 6th. The skin surrounding the external wound had ulcerated, the ulcer being circular, with a diameter corresponding to the length of a safety pin used to prevent the tube from slipping into the cavity of the abscess. Scattered on the surface of the skin, in the immediate neighborhood of the wound, were several small (pea and pin's head) circular ulcers, where pustules had formed, apparently as a result of irritation produced by the frequently changed antiseptic dressings. The tract by which the drainage-tube reached the abscess traversed the diaphragm, which was closely applied and loosely adherent to the costal pleura round the wound. The base of the right lung throughout its whole extent was adherent to the diaphragm, but the pleural cavity was empty, and there were no other signs of inflammatory change on its surface. The tract made by the drainage-tube terminated in what appeared to be two distinct abscess cavities, communicating with one another, and being each about the size of a small orange; these were situated close to the spine, so close as to be well within a line drawn from the angle of the scapula behind to the point of the sternum in front. The nearest points of approach which these cavities made to the surface in front was about the spot where the drainage-tube entered; behind, and close to the spine, one of the cavities was only separated from the costal pleura by a thin layer of fibrous tissue. The liver tissue surrounding the tract made by the drainage-tube and the abscess cavities was breaking down, and infiltrated with pus. In this tissue there were several distinct abscesses, varying from a hazel nut to a walnut in size; but there were no abscesses at a greater distance than two inches from the tube-tract or one inch from the principal cavities. The liver was fatty, and weighed about twelve ounces. Opposite the right epigastrium some slight adhesions had formed between the right lobe of the liver and the wall of the abdomen. There were five ulcers in the cæcum; the largest was an inch and a half long, by half an inch wide, and disposed, like the tubercular ulcer, across the bowel; the others were smaller, and had circular outlines. The situations of all these ulcers were marked on the peritoneal surface by deep, black pigmentation in dots and patches; and this deposit of pigment led to the discovery of the cicatrix of another ulcer, the radiating white lines of which were clearly seen on the surface of the mucous membrane, although they had quite escaped notice when that surface only was examined. The lungs were free from disease, as were also the kidneys.

Remarks.—This case was at first somewhat obscure, the early loss of voice and the frequent cough pointing rather to the lung than the liver as the seat of disease. In this connection it may be of some slight importance to note the demeanor of the patient, whose anxious look and depressed manner contrasted with the cheerful hopeful bearing so frequently seen in consumptives. The situation of the principal abscess cavities deserves special attention. When pus forms in the liver near the spine the diagnosis is almost certain to be embarrassed by the obscurity of the physical signs, and it may be also, as in my case, by the negative result of exploratory punctures. Before such an abscess can approach the surface of the body at any point easily reached by the surgeon, much liver tissue must be destroyed and the patient's strength greatly exhausted. Internal rupture is, however, the most likely termination of such a case. The question of the origin of a liver abscess seldom ad-

mits of definite settlement in individual examples, but I am myself inclined to accept Dr. Budd's theory of portal pyæmia as probably the true explanation of by far the greater number of those we see in the East. Diarrhoea or dysentery forms part of the history of nearly all these cases, but the absence of these symptoms should not lead to a hurried or incomplete examination of the lining of the bowel. My patient suffered from diarrhoea while he was under my care, and for more than a week before I saw him, but diarrhoea may also have been present at the beginning of his illness; for his memory of the earlier events was, he said, scarcely to be trusted. Ulcers of the bowel, if of small size may be overlooked even by expert and painstaking pathologists; how much more likely are they to be passed over in the examinations made by general practitioners, whose experience of practical pathology is usually so very limited. The ulcer which leads to the formation of an abscess may heal before the death of the patient. In the case at present under consideration, the open ulcers in the cæcum could not have escaped observation, but had it not been for the sub-peritoneal pigmentation, the cicatrix would certainly never have been noticed, and, for aught any one can tell to the contrary, that scar may have marked the site of the sore in which all the mischief originated.

Shanghai.

HEPATIC ABSCESS, TERMINATING FATALLY.

By Surgeon N. M. REID, A.M.D.

T. L.—, a private soldier, was admitted into the Military Hospital, Dover, on Aug. 5th, 1882, complaining of pain in the right hypochondrium, and slight cough. His previous history was that he had served ten years in India, where he had suffered frequently from ague, and twice from dysentery. He bore a good character, and was a moderate drinker. He stated that he had been on duty at Wimbledon during the early summer, and had since then been troubled with rheumatism in the right shoulder and side. His condition on admission was as follows. Spare but fairly muscular; skin and conjunctivæ clear; thorax well developed; respiratory movements ample, but attended with stich in the right side on deep inspiration; the lungs were resonant on percussion, expiratory sounds harsh, and at the end of a deep inspiration, at the base of the right lung in the mid-axillary line, there was a very faint friction-sound. The area of hepatic dulness was increased, the upper border corresponding to the fifth rib in the nipple-line, the lower border reaching about one inch and three-quarters below the ribs. The organ seemed uniformly enlarged, and, so far as could be ascertained by palpation, the enlargement was smooth on its surface, but there was much tenderness on even light pressure, more especially in the posterior axillary line. The spleen was also slightly enlarged, reaching about an inch below the ribs, but there was no tenderness of this organ, nor any along the course of the colon in the flanks. There appeared nothing wrong with the heart, except that the sounds were somewhat quick and feeble. Urine dark, sp. gr. 1016, acid; no albumen. The evening temperature registered 100.1°; morning 99°. He was ordered low diet, and a mixture of quinine, chloride of ammonium, and spirits of chloroform; two leeches over the liver followed by warm fomentations. After this, for a day or two, he improved somewhat; the pain and tenderness were less, but he had a sharp attack of diarrhoea. Motions dark, not peculiarly offensive; unattended with hæmor-

rhage or tenesmus; this was controlled by Dover's powders. At this period I was absent from duty for a fortnight, and on my return I found my patient much worse, suffering from severe cough, attended with abundant bloody expectoration, which, however, varied in appearance considerably, at one time being pneumonic in character, and a few days later being greenish, tenacious, slightly blood-tinged but not peculiarly offensive. The base of the right lung was dull on percussion, and there were abundant coarse crepitations audible both back and front. The left lung appeared quite healthy, save that the respiratory sounds were, as was to be expected, greatly aggravated. There was also again diarrhoea, and the temperature registered 103° at night. I was informed by the patient that during my absence he had one evening while stooping down suddenly brought up a quantity of blood, and "nasty tasting" stuff, which unfortunately was thrown away. I was now a little perplexed as to whether it was a bloodvessel which had given way in the lung, followed by secondary pneumonia, or an hepatic abscess which had ruptured and discharged through the air-passages. I came to the latter conclusion, taking into consideration his previous history, present condition, and onset of the disease; and was further of opinion from the obscurity of the local signs that the lesion was probably seated at the posterior part of the organ. The sputum was examined microscopically, but I could detect nothing definite, save pus and red blood-cells. From this point the patient, in spite of the most careful dieting and nursing, got gradually worse and worse. The diarrhoea proved most obstinate, and in spite of every remedy continued. The unfortunate man was reduced to a skeleton; eventually his motions were passed involuntarily, and his legs began to swell. He was evidently rapidly sinking, and died on Oct. 25th, just eighty-two days after admission.

The post-mortem showed great emaciation; almost total absence of subcutaneous fat; right lung adherent by recent and old adhesions to wall of chest; a large abscess the size of an orange at the base, communicating by an aperture the size of a threepenny bit, with a similar but larger cavity at the back part of the liver. Both these organs were studded with numerous other smaller abscesses. The gall-bladder was shrunken, and the bile watery. The left lung, save for slight hypostatic congestion, was healthy. There were three small abscesses in the spleen. The kidneys were pale and enlarged; slight reaction with iodine. About two ounces of greenish serum in the pericardium. The colon was thin; the mucous membrane raw-looking and ulcerated in patches.

Remarks.—In this case the remedies tried, especially with a view of controlling the diarrhoea, were numerous. Their effects were, unhappily, almost futile. They included opium, quinine, sulphuric acid, bismuth, ipecacuanha (small doses), fomentations, and inhalations. Stimulants were administered with caution at first; subsequently, their effect being beneficial, in larger doses. Surgeon-General Stewart, whose experience of these cases is large, advises the use of chloride of ammonium in hepatic derangements, which he considers to be almost a specific in uncomplicated idiopathic congestions and suppurations; but he states that its value in pyæmic cases is not nearly so great. In this case it was administered for three weeks systematically, but its effects were nugatory, as, indeed, was to be readily understood from the numerous attendant lesions and complications, sufficient causes for the non-efficacy of any drug, however valuable. Lastly, it is surprising to think that a patient could, as this man prior to his admit-

tance did, go about apparently in his usual state of health, except, perhaps, for slight fugitive pains, with few, if any, symptoms, and at the same time having a large abscess and such destructive changes going on in the liver. In such cases where the local signs are few, but where suppuration is suspected, I believe it will be generally seated at the back part of the organ.

ACUTE YELLOW ATROPHY OF THE LIVER.

By C. P. B. CLUBBE, L.R.C.P.L., M.R.C.S.

THIS case occurred lately in my practice. I regret that the clinical notes are not more complete. Had the nature of the case been recognized earlier, they would have been more carefully taken. I am indebted to Dr. H. Sainsbury, who saw the case with me a few hours before death, for his notes of the post-mortem which he kindly made for me, also for the description of the microscopical sections of the liver and kidneys which he prepared.

C. S.—, aged thirty-eight, a thick-set, well-nourished man, an iron-worker at a carriage factory, a very heavy drinker both of beer and spirits for twenty years, but for the last four months a teetotaler. On August 3rd, 1882, he was seen for the first time, when he came in the evening, having been at work all day, complaining of severe headache. Face pale; expression careworn; pulse frequent; constipated. Ordered a saline.—4th: Unable to get up; rigor during the night; pulse 90 to 100; temperature 105° ; headache very severe, avoids the light; chest and abdomen, physical signs nil; bowels well opened. Ordered two drachms of the solution of acetate of ammonia every four hours; ice-bag to be applied to the head.—5th: Headache less; feels better; conjunctivæ yellow; urine high-colored; pulse 94; temperature 102.5° .—6th: Rigors followed by sweats in the night; no headache; feels better; skin mahogany-color; stools pale; temperature 98.4° ; pulse 92.—7th: Rigors and sweats again in the night; jaundice more marked; slight pain, with swelling and redness of both wrists and some of the joints of the left hand; also pain in the elbows; complains of pain in the lower part of the abdomen. Physical signs nil; pulse 100; temperature 103° . Ordered five grains of the salicylate of soda every three hours.—8th: Rigors and sweats in the night. Wandered a little for the first time; rational now. Early in the morning the forearms began to swell, and became very painful. When seen in the middle of the day the patient was found to be in a state of collapse. Much jaundiced; great dyspnoea. Pulse 120, thready; temperature subnormal; respiration 40. Hands cold and bluish; both forearms much swollen, hard and tense, but not hot; skin dusky; superficial veins distended. On the inner side of the right arm there was a large patch of ecchymosis. Ordered brandy. 6 p.m.: Now evidently dying, all the symptoms worse. Still conscious, but wanders now and then. Ordered turpentine, ammonia, and ether. Never rallied. Died at 11 p.m. The patient passed but very little urine during the last twenty-four hours of his life.

Autopsy, forty hours after death.—Rigor mortis well marked; much post-mortem staining; jaundice well marked, but not intense; body well nourished; thick layer of adipose tissue. Thorax: Both lungs were congested posteriorly, but everywhere crepitant; some little emphysema in front. Heart: Pericardium contained some three ounces of bloody serum; no petechiæ on surface of heart; valves, especially the mitral, much stained, otherwise natural. Abdomen: On opening the abdo-

men, the liver edge was well above the costal margin. The liver weighed forty-eight ounces, very limp, thin, left lobe doubled up without the least resistance; the right lobe appeared, however, equally limp; texture softened somewhat; capsule stripped easily; on section lobules were distinguishable, but appeared less demarcated than normal. Spleen very soft and diffident; on section exuded a quantity of grumous fluid. Kidneys very soft and pulpy; capsule stripped readily; some ecchymoses on surface; on section small ecchymoses were seen in the cortex of the kidney. The bladder was empty. Stomach: In the lesser curvature there was a large patch of ecchymosis about the size of a hand. On cutting into the right arm, which was much swollen, thin, bloody serum exuded from the tissues. There was no collection of fluid, but a general infiltration. Sections of the liver under the microscope showed intense fatty degeneration, the cells being simply masses of fat granules, with no nuclei visible. In many parts the cells had broken down into a granular debris. Sections of the kidney showed decided cirrhosis, whilst the cells of the cortex were swollen, bile stained, and exceedingly granular (fatty).

Remarks.—Professor Thierfelder in vol. ix. of Ziemssen's *Cyclopædia of Medicine*, says: "Acute atrophy of the liver is one of the rarest diseases. . . . In its first stage the recognition in the present state of our experience is impossible." Of the 143 cases on which he bases his description of the disease, fifty-five were males and eighty-eight females; of these thirty were pregnant. Thirteen of the cases had been topers. On page 260, he says: "Fatty degeneration more or less advanced of the epithelium of the kidneys and of muscular tissue of the heart appears to be uniformly present. . . . Extravasations of blood occur in at least three-fourths of all cases, and commonly in several and very numerous parts of the body, and ecchymoses are observed in the intermuscular connective tissue, in and beneath the outer skin, in the mucous membrane of the stomach." There can, I think, be very little doubt that this was a case of yellow atrophy of the liver, for, as is shown above, the pathological changes were just those described by Thierfelder—viz., hæmorrhages into the intermuscular connective tissue, ecchymosis in the stomach, and the fatty degeneration of the renal epithelium. Then the liver both in its naked-eye and microscopical appearances was typical of yellow atrophy, as it is found described. The rapidly fatal termination probably accounts for its not being smaller. But its weight was only 1,357·8 grammes. Professor Thierfelder gives two cases, both topers, who died of yellow atrophy, where the livers weighed 1,520 and 2,100 grammes. The peculiarities of this case seem to be the rigors and sweats, with the up and down temperature, so pyæmic in character, and the swelling of the joints, such as occur in acute rheumatism and pyæmia. On this account alone the case may be of interest, but I am induced to send it for publication because it is an example of a rare disease.

Lower Tooting, S. W.

EXCISION OF STRUMOUS GLANDS.

By HENRY A. LEDIARD, F.R.C.S. Eng., M.D. Edin.,

Surgeon to the Cumberland Infirmary.

I HAVE had but two opportunities up to the present time of dealing with chronically enlarged, suppurating, or caseous glands in the neck in the above manner, but I am strengthened in the practice by what has appeared in print since I began this method by Billroth, who has had a very ex-

tensive experience, a record of which appears in a recent volume of the Sydenham Society's Transactions.

My first case occurred on Nov. 21st, 1881, at the Cumberland Infirmary, when a servant girl, of stalwart, robust appearance, presented herself with two large glands behind and below the angle of the jaw upon the right side. She scorned tincture of iodine, which had been used locally for four years, as well as iron and cod-liver oil. The glands were still enlarged, the skin unbroken, and no fluctuation present. There was no particular inconvenience felt, but the lumps were unsightly. She consented to have them removed, and this was effected through an incision of about two inches at the anterior border of the sterno-mastoid muscle. A gland having been exposed, I teased away the connective tissue around it with two dissecting forceps, and passed a thread through the gland, giving the loop to the house-surgeon to hold and draw the gland in suitable directions, continuing to tease the gland away from its bed. It was soon loosened and liberated without hæmorrhage, care being taken to seize with artery forceps the nutrient vessels passing into the gland. A second gland, below and deeper, was similarly treated, and the wound closed and treated with Listerian precautions. The glands were both of the size of large walnuts, and when cut into were firm, the centres showing patches of caseous change.

The second case (March 8th, 1882) was that of a very strumous-looking lad with a very large collection of glands stretching from the ear to the collar-bone on the left neck, together with a large abscess in the posterior triangle of the neck on the same side. I commenced by dealing with the abscess, which was opened antiseptically, and when the discharge had somewhat abated the glands were attacked as in the above case, but here the morbid changes were so advanced that two glands only could be pulled away intact, for the capsules of the others gave way, and the curdy, cheesy contents oozed out and were removed with a scoop. Gland after gland was reached, the capsule torn through and scraped out, until the space behind the sterno-mastoid and over the sheath of the carotid vessels was quite cleared out, almost a handful of the soft material being fished out, so to speak, with a scoop. Even then many small glands were left behind the ear and in the posterior triangle of the neck, but we were content with having broken up, evacuated, and obliterated some eight or nine without hæmorrhage. The immediate result as far as the size of the neck went was most remarkable, and the ultimate result, although not obtained by union by first intention, as in the previous case, was highly satisfactory. A counter opening had on two occasions to be made on account of discharge collecting at the bottom of the pouch cleared out, but with this exception and occasional pyrexial attacks, healing went on slowly and surely, the boy going to the Convalescent Hospital about six weeks after the operation.

From my limited experience I can point to this method as a safe and ready way to hasten the natural process of cure in such cases as the above, where glands are chronically enlarged, caseous or suppurating. Better results will be obtained where the glands are firm, for then the tumours can be fixed by a thread or otherwise, and dissection rendered easy. The knife is probably required to divide the skin only, fingers and forceps will do the remainder. In softened glands excision is impossible, but a tear in the capsule will admit a spoon like Volkmann's, and the contents of the capsule may be as easily scraped out as a boiled egg is eaten in its shell at the breakfast table. In

each case the patients were very satisfied with the result. Mary T—, the first case, even called at my house to thank me on March 23rd—i.e., four months after her operation, when nothing but a linear pink scar was visible. I venture to think that were this method generally adopted in suitable cases of chronically enlarged and caseating glands, fewer cases of disfiguring scars on the neck would be seen hereafter. Many women have lived to lament over large patches of cicatricial tissue in the neck and about the jaw. A linear scar, scarcely noticeable when whitened with age, would be infinitely preferable to my mind. Plenty of enlarged glands about the body yield to rest or medicinal and dietetic treatment, but these are not the cases at present under consideration. Billroth has operated ninety-four times; a great number of his operations have been very successful; some of them long and bloody; a few have proved fatal. I urge the use of two dissecting forceps, patient teasing, and the use of a spoon if necessary.

Carlisle.

SEVERE CASE OF COMPOUND COMMINUTED FRACTURE OF SKULL; RECOVERY.

By EDWARD HOSKINS, M.R.C.S.

On March 24th last a little boy, aged six years, was brought into my surgery suffering from severe injuries to his head. On inquiry as to the cause of the accident, I was informed that the child had been playing in a stable, and had fallen close to the heels of a cart-horse, which instantly lifted its foot and stamped, unfortunately, on the child's head.

On examining the wounds, I immediately perceived they were of a terrible nature, the left side of the head being crushed in. On the top of the head, extending from before backwards, was a lacerated wound three inches and a half long, bleeding profusely, and through which a large teaspoonful of brain escaped; here also were three large fragments almost detached from the left parietal bone. Over the left temporal bone, immediately above and behind the ear, was a swelling, and through the scalp, which at this part was uninjured, the bone was distinctly felt to be fractured, the sharp edge of the upper portion overlying the lower. On the right temple was a lacerated wound an inch and a half long, with a compound fracture of the bone beneath. Blood was escaping from the nose and mouth, and blood with brain substance from the left ear. The child was quite insensible, and appeared to be dying. After plugging and dressing the wounds, the fragments of bone were not removed. Perfect quiet for twenty-four hours was insisted upon, and small quantities of brandy-and-milk administered, though with great difficulty, at intervals. The radial pulse could not be felt, and the pupils were dilated. Twelve hours after the accident there was no change in the boy's condition, total unconsciousness remaining. At the end of twenty-four hours the pulse was just perceptible, and, as it was earnestly requested by the parents, permission was granted for his removal home, fresh dressings in the shape of lint soaked in cold water being previously applied; these were renewed every day for a week; each time there was an escape of brain from the large wound and ear. Altogether more than two ounces of brain substance were lost. The temperature ranged from 99° to 101°, and the pulse from 100 to 120. On the 27th slight consciousness returned, the patient opening his eyes when spoken to. At this time I perceived that there was total paralysis of the right side;

the urine passed involuntarily, and the bowels had to be relieved by enemata. On April 4th and on several subsequent occasions Dr. Gisborne, senior consulting surgeon to the Derbyshire General Infirmary, saw the child with me, and he regarded it as the most extraordinary case he had ever known. On May 19th, eight weeks after the accident the little patient was quickly getting well; the wound on the head was two inches long and one inch wide. There were two fragments of parietal bone projecting; these, though loose, were not removed at the time on account of the close proximity of the middle meningeal artery, which could be seen pulsating, and raising the pieces with each pulsation. There was great irregularity over the surface of the left temporal bone, which somewhat projected. The pupils were alike and contracted to light. The child sat up, and ate and slept well. The right leg had regained some power, and the arm a little; and although he could only repeat one or two words said to him, he looked fairly intelligent. On the 23rd one of the fragments was removed; it was diamond-shaped, measured an inch and a quarter in its greatest diameter, and weighed two scruples. On my visit on the 30th, I found the little fellow out playing in a field, the paralysis having almost entirely disappeared; his speech was better and in every way he was rapidly improving.

P.S. (July).—Since the above was written I have removed another large piece of the left parietal bone, and there is another portion which I shall take away in a few days. The child has gone on well throughout, has had no fit or any bad symptom. The paralysis of the right upper extremity has entirely disappeared; he drags the right leg slightly in running, but is daily acquiring more power in it. He articulates perfectly, plays in the park with his brothers and sisters; he eats, digests, and sleeps well, and appears quite well. The father of the boy keeps a lodge in the park of T. W. Evans, Esq., M.P. for South Derbyshire; and the kindness of that gentleman in supplying everything necessary, during the entire time, has had much to do with the child's recovery.

Duffield.

DEPRESSED AND COMMINUTED FRACTURE OF THE SKULL; RECOVERY.

By F. A. SAUNDERS, L.R.C.S., L.R.C.P. Ed., etc.

ANDREW S—, aged ten years, of Kingsbarns, Fifeshire, was, on September 1st, 1882, playing near a large farm cart, when the horse suddenly moved and the wheel crushed his head between it and the wall, which rendered him perfectly unconscious for a few minutes, but after his arrival at home he soon recovered consciousness. I saw the patient two hours after the injury, and found on examination, under chloroform, an incision extending from the left parietal eminence to the right superciliary ridges. The scalp was detached from its connections, and turned down over the left ear, leaving bare the left half of the cranium, and exposing a very considerable surface of bone. The periosteum was completely stripped off the frontal bone for the distance of three inches. The supra-orbital and frontal arteries were torn across and twisted; the left temporal muscle was torn from its connections with the bone and hanging loose, with the posterior temporal artery also torn and twisted. Upon reflecting the flap of skin back over the ear I felt and saw that the left parietal bone, one inch above the squamous suture was fractured, comminuted, and depressed, and a splinter of bone was easily detached. He was

then in bed, conscious but restless, moaning and suffering from great pain in the head. The pulse was quick (120); temperature 102.6°. The pupils dilated, but contracted slowly under the stimulus of light. Considering his age, and as there were no prominent symptoms of compression, having ligatured a branch of the anterior temporal artery that was bleeding I simply applied cold water cloths to the wound, and determined to wait before I brought the flaps of skin in contact. The next morning, September 2nd, I asked Dr. J. Moir, of St. Andrews, to see the case with me, which he kindly did. The temperature had fallen to 101.2°, the pulse to 108. He was quite conscious, and did not complain of much pain. We then determined not to trephine, but to follow out the expectant plan of treatment.

Dr. Moir having placed the patient under chloroform, I removed the greater portion of the temporal muscle and another small splinter of bone, and then brought the flaps of skin together as much as possible, taking care that perfect drainage was established. Ice was applied continuously for three weeks. During the first seven days the temperature oscillated between 101° and 102.8°. On the eighth day, when it rose to 103°, twenty grains of quinine were administered. On the ninth day the temperature was 103.4°, and twenty grains of quinine were again administered. On the tenth day the temperature was 104°; twenty grains of quinine given. On the eleventh day the temperature was 104.2°; the same quantity of quinine administered. On the twelfth day the temperature began to fall, going down to 102, and continued between 102° and 101° until Sept. 28th, when it kept at about 99° until Nov. 2nd. On that date I opened up a sinus by a two-inch incision, having felt dead bone, and removed three pieces of necrosed bone. The temperature then went up to 103° for two days, after which, in the following week, two similar pieces of bone came away. On Nov. 27th the wounds had healed sufficiently for me to leave the dressings to the care of the mother. The boy has done well since. The interesting features in this case are:—First, that although there was such a large surface of bone stripped of its periosteum there was no exfoliation; secondly, it is another example of Sir A. Cooper's, Abernethy's, and Dupuytren's advice, not to interfere unless there are marked symptoms of compression accompanying a depressed fracture.

Craik, Fifeshire.

ON TWO CASES OF TOBACCO AMBLYOPIA.

By THOMAS BUZZARD, M.D. Lond., F.R.C.P.,

Physician to the National Hospital for the Paralyzed and Epileptic.

FOUR years ago, A. B—, a gentleman, aged thirty-two, who had previously suffered from nervous symptoms associated with uric acid dyspepsia, complained that at a certain distance he could not see people's eyes, and that in reading he now and then lost sight of some of the characters. He came under the care of Mr. Brudenell Carter and myself. The patient was slightly myopic, and his unaided distant vision amounted to only eight-fiftieths of the normal; but was raised by a concave glass of one dioptré to eight-thirtieths. He had been feeling depressed and wanting in energy for some months. By the ophthalmoscope his discs appeared pale; but he is a dark-complexioned man, and it was doubtful how far the pallor might be apparent only, and due to contrast with the darkness of the fundus. His organs generally were healthy; the urine contained no albumen or

sugar, but abounded in urates. He had never had syphilis. The pupils contracted to light. On inquiry he complained of having suffered from sudden darts of pain in his arms and legs during the past winter. These pains sometimes lasted as long as a week, and then did not trouble him again for a month or so. His description fairly corresponded with that of the shooting pains of tabes of less than usual severity. The patellar-tendon reflex was found to be normal at each knee. In spite of this, his symptoms were so suggestive of incipient optic nerve atrophy of sclerosal character as to give rise to grave anxiety. His habit was to take about a pint of claret and three or four ounces of whisky in the twenty-four hours, and to smoke six or seven pipes of tobacco daily. His tobacco was cut down to one pipe a day, his alcoholic stimulant was reduced by half, and some strychnia was ordered. In one month the unaided distant vision had increased to eight-thirtieths, and was raised to eight-twenty-fifths by the same concave glass formerly used. In the hand, by the aid of a convex of one dioptré, the best he could do was to read 0.6 of Snellen's test types. The treatment was continued, and by the end of three months the distant (aided) vision of the left eye had increased to eight-sixteenths, while that of the left remained at eight-twenty-fifths; but Snellen's 0.5 could be read with either eye without the aid of a convex glass. The pallor of the optic disc was less conspicuous. The improvement has been maintained, and at the present time his sight is reported to be perfect.

In May, 1882, C. D—, a gentleman aged thirty-one, was attended by Mr. Carter and myself in consultation on account of amblyopia, which he had first noticed in the preceding March. The patient was a man of very active habits, leading a country life, but had been a somewhat free liver. He had never suffered from syphilis. The distant vision was eight-fortieths with either eye, and No. 3 of Jaeger's types could be read with difficulty by the aid of a convex one-fiftieth lens. The tension and color-sense were normal, and at that time there were no very manifest disc changes. The tongue was foul and loaded, but the organs generally were healthy, and the urine was free from albumen and from sugar. He was put upon iodide of potassium, with blue pill and compound rhubarb pill every night, and in a fortnight his condition had improved. The tongue was clean. He read No. 3 of Jaeger unaided, and the distant vision had increased to eight-thirtieths. The iodide was continued, and the pill given twice a week. In another fortnight there was a still further advance, the distant vision being eight-twenty-fifths, and No. 2 of Jaeger being read without assistance. At this point he remained stationary for a time, and then fell back, while at the same time the discs became pallid, and the sight of the left eye failed rapidly. He owned to some "rheumatic" pains at times, but at first said that he had never experienced any of a sharp and momentary character. Later he described having had a few attacks of this kind. The knee phenomenon was present on each side; but in August it was supposed (erroneously, I think) to be diminished, and at that time a very gloomy prognosis was entertained. We expected the knee phenomenon to disappear, and regarded the case as being probably one of tabes in which the optic nerve symptoms were dominant. Various treatment had been adopted without success, and for two months from August he took strychnia to the full production of physiological effects. At the end of this time the sight of the right eye remained much as it was when its acuteness was deliberately measured; but it had lost a little even in this re-

spect, and decidedly in quickness of perception, while the left eye had lost in acuteness to the extent of being practically useless, and its disc was much more pallid than formerly. Careful examination showed the knee phenomenon to be normal on each side. The patient had been advised in May to diminish his tobacco, but the advice had not been strongly pressed, and in October his acknowledged habit was to smoke ten or twelve times a day, pipes or cigars, but mostly the former, and to drink eight or ten glasses of beer, with a few glasses of wine, daily, and a couple of "grogs" at night. At this time, being then quite unable to read, he yielded to the advice given him, and left off smoking and "grogs," but continued to take eight glasses of beer and two of sherry daily. Arsenic and quinine were prescribed for him. At the end of three months he could read *The Times* comfortably, and had read a couple of books, but his optic discs continued very pale. Four months later he wrote: "You will be glad to hear that my sight since I last saw you has improved immensely. If not quite as good as ever it was, it is nearly so. I have, as instructed by you, left off smoking, except perhaps a cigar a month. I have also decreased the amount of alcohol; but I place the smoking as the principal cause. Although at one time I could not read the clearest type, I now read any book or newspaper apparently as well as ever I could."

These cases, and especially the second one, are calculated to support the view that changes in the appearance of the optic disc, closely resembling those dependent upon the atrophy so often associated with *tabes dorsalis* (locomotor ataxy), may have their origin in the excessive use of tobacco, excess being possibly measurable by the idiosyncrasy of the patient, rather than by the actual quantity consumed. In both instances, but most markedly in the first, the sudden pains which were described inclined us towards a diagnosis of sclerosal atrophy, and it was chiefly the continued presence of the patellar-tendon reflex which prevented the too confident expression of an unfavorable prognosis. In a case of optic nerve atrophy already published¹ no symptom of *tabes* has been associated with the intra-ocular change except that the knee phenomenon disappeared in succession from each leg while the patient was under observation. He is now irreparably blind.

Grosvenor-street, W.

A CASE OF GASTROSTOMY, FATAL ON THE TWENTY-THIRD DAY FROM ACUTE PAR-ENCHYMATOUS GASTRITIS.

By HERBERT W. PAGE, M.A., M.C. Cantab.,

Surgeon to St. Mary's Hospital.

THE operation of gastrostomy was undertaken in this case, in circumstances apparently most favorable, on account of impassable organic obstruction at the lower end of the oesophagus; and although the condition of the patient immediately and for three weeks after the operation gave every promise of success, death then took place from a sudden and acute attack of purulent inflammation of the walls of the stomach. The case is therefore a most important one, for apart altogether from the rarity of this form of gastritis, I am not aware of any instance in which a like unforeseen and unfortunate result has attended gastrostomy so long after all the risks of peritoneal inflammation have been avoided.

W. M.—, aged fifty-four, hitherto a perfectly healthy man, came under observation at St. Mary's Hospital in December last; complaining that for two months he had been getting weaker and thinner in consequence of difficulty in swallowing and the constant vomiting, or regurgitation, of his food. The man looked starved and ill. There was no sign of disease in any of his organs, nor any evidence of thoracic tumour, but a small bougie passed down the oesophagus was arrested at the cardiac end. The diagnosis was made of malignant oesophageal stricture, and he was accordingly taken into the hospital to be under closer observation, and that if it were found needful gastrostomy might be performed. He was an in-patient under the care of Dr. Sieveking from Dec. 9th to Jan. 12th; and although during this period the stricture remained as impermeable to bougie as before, he was certainly better able to take the food very carefully prepared for him, the sickness and regurgitation were controlled by a bismuth mixture, he gained five pounds in weight, and looked and felt decidedly stronger. He was enjoined to come back if he had any fresh trouble, and in a fortnight after his discharge he made his appearance again, all his old symptoms having recurred in a worse degree, and himself looking thoroughly exhausted and ill. It was resolved, therefore, that before opening the stomach some attempt should be made to restore his strength by careful feeding and nutrient enemata, and this had been so well accomplished by Feb. 21st, and the sickness now occurred so seldom, that the operation was performed on that day.

As to the operation itself there is but little to be said. Following the careful directions of Mr. Bryant, an oblique incision three inches long was made about three-quarters of an inch parallel to and below the margin of the left ribs, and ending opposite the tenth cartilage. The soft parts were divided down to, but not through, the peritoneum, and all oozing of blood was arrested. The peritoneum itself was opened for an inch, and the stomach, seen lying immediately beneath the incision, was seized and drawn out by a pair of forceps. By means of two loops of fine carbolized silk then inserted into the peritoneal covering, about one-third of an inch apart, the stomach was brought and held well forward through the wound, and was stitched by a dozen fine silk sutures passed just into the muscular coat to the divided edges of the parietal peritoneum. The operation was conducted under the carbolic spray, and presented only this difficulty or trouble, that in putting in the last—happily the last—suture, a vessel was wounded, and bled so persistently as to necessitate plugging the wound with a sponge before applying the dressings. In the after history there were few points of special moment. On the evening of the 22nd, the temperature rose to 100° F., but gradually sank thereafter to normal, and continued so until March 11th, with the exception of one day, Feb. 28th, when it rose to the same height in consequence of some slight parotid swelling from cold. The stomach was opened on the fifth day by a small incision with a tenotomy-knife, and great help in this second part of the operation was derived from the silk loops which had been left in the peritoneal coats. The opening in the stomach gave exit for two days to a profuse quantity of dark, greenish, sour fluid, but afterwards the escape of gastric juice was greatly lessened, although for a week the oozing was sufficient to cause a good deal of redness, swelling, and tenderness at the lower margin of the wound. This, however, was relieved by poulticing. He was fed by the fistula as soon as it was made, and from that time forward he was fed without the least

¹ Clinical Lectures on Diseases of the Nervous System, by Thomas Buzzard, M.D., p. 152. Churchill, 1882.

difficulty, and usually, though not always, without any regurgitation. By March 2nd all feeding by enemata, and by Slinger's nutrient suppositories, which had been found of the greatest service, was stopped, and he was so well as to be able to sit up in bed. His hunger was satisfied, he felt stronger every day, felt better in fact than he had done for some time before the operation, and was obviously gaining flesh. The wound was contracting naturally, he had not vomited since the operation, there was no indigestion, and the motions were well formed. By no possibility could he have been doing better, and it was hoped that in a few days he would be out of bed. But on the evening of March 11th his temperature rose to 101° F. without more obvious cause than constipation. It became normal again both night and morning until the evening of March 14th, when it rose to 101° F. He had been somewhat depressed all day, and that night he began to feel sick. He felt sick for several hours, and early on the morning of the 15th he began to vomit. The efforts at vomiting, for he brought up but little, were very violent, and afterwards he had intense pain. The vomiting ceased at 10 A.M., but the pain increased and was limited almost entirely to the region of his stomach, and here also there was un-doubted tenderness. From this time onward he rapidly failed, the pain increased, the temperature rose to 103° F., he passed into collapse and died on the afternoon of the 16th, thirty-six hours after he first began to feel sick, and after the temperature had begun to rise.

From the more extended post-mortem record of Mr. Silcock the following facts are taken:—"Eight and a half inches below the level of the cricoid cartilage was a hard white growth resembling scirrhous cancer, about the size of a chestnut, forming a ring around the œsophagus, and greatly constricting its lumen. The mucous membrane over it was eroded and ulcerated. The lymphatic glands adjacent thereto were enlarged. The edges of the gastrostomy wound, which had been made in the anterior wall of the stomach, appeared healthy; the peritoneal surfaces were in perfect coaptation, and the adhesions were firm and organized. About a pint of yellowish effusion, in consistence like melted butter, was found in the peritoneal cavity. No lymph was to be seen on the surface of the intestines, which were, however, greasy to the touch and injected, their coats being softened and easily lacerable. The only plastic deposits found were a few spots of lymph on the outer surface of the peritoneal coat of the spleen. A large quantity of gelatinous lymph was effused into the meshes of the subperitoneal tissues in the neighborhood of the stomach, especially around the œsophagus as high as the diaphragm, beneath the posterior layer of the small omentum, around the left kidney, and between the layers of the transverse meso-colon. The walls of the stomach were a third of an inch thick, and of an opaque yellowish-white color. This was most marked on the posterior surface in the neighborhood of the greater curvature, where it was in part obviously due to an effusion of lymph beneath the peritoneal coat. The mucous membrane of the stomach appeared to be swollen, and was of an opaque yellowish-white color, with here and there a few patches and streaks of injected venules. The surface was nowhere eroded or ulcerated, except at the margin of the wound, where it appeared to have undergone some slight digestion or softening. The thickening of the walls gradually shaded off towards the pyloric and cardiac ends, where it ceased almost abruptly. The coats of the first portion of the duodenum, however, were in some measure thickened. The cut surfaces of the stomach everywhere

exuded a creamy purulent fluid, which seemed to flow from the submucous and muscular coats, to the swelling and infiltration of which the thickening was mainly due. Except in one enlarged gland near the tumour no secondary deposits were found anywhere, and there was nothing specially noticeable about the other viscera. Microscopy showed that the tumour was a squamous epithelioma, and that one gland had been infected. The epithelial cells of the mucous membrane of the stomach were swollen and granular, were blocking the gland tubes, and had in part become disintegrated. The submucous tissues were infiltrated with inflammatory products, rendering them almost diffuent. The areolar meshes were crammed with leucocytes, and micrococci were abundant in the sections. The muscular coats were also swollen by reason of the inflammatory changes, but there was no lymph on the free surface of the peritoneal covering, although the peritoneum was inflamed and thickened. The mucous membrane at the margin of the wound showed no decided evidence of digestion, and was in much the same condition as the mucous membrane elsewhere, but not so markedly involved. The submucous coat was the seat of an intense inflammatory cell-proliferation, but not broken down, as was the case in other parts examined further from the wound."

Although there can be no doubt that it was from this remarkable purulent inflammation of the stomach that the patient died, it is not by any means so clear what cause gave rise to it. There was no phlegmonous condition or erysipelas about external parts, nor any evidence either from naked-eye or microscopical appearances that the inflammation started from the margins of the wound. The greatest care had been always taken to keep the opening sweet and clean, and although it was impossible after the second part of the operation, when feeding through the fistula began, to continue the Listerian dressings, neither cleanliness nor care had been abandoned. These facts notwithstanding, one cannot help fearing that the inflammation really began from the wound, and that in the absence of that wound the stomach would not have been attacked with this fatal gastritis. Recorded cases it is true lend little or no support to the septic origin of the inflammation, for in the majority of the cases where like appearances have been found, and where there was no evidence of general septicæmia, there had been no wound in the stomach, nor was any more certain cause discovered than excess in alcohol or deprivation of food. A very admirable account of this rare form of inflammation, which he calls "gastritis phlegmonosa," is given by Leube in Ziemssen's *Cyclopædia*,³ and he there describes exactly the same post-mortem appearances as were presented in this case. Scattered here and there in medical literature Leube has found thirty-one cases, twenty-six in men, five in women; but it cannot be said that his consideration of them throws any more light on the clinical features or the pathology of the affection than does the history of this one patient. Auvray records an example after stomach wound,⁴ but the most fully descriptive cases are those of Raynaud in a long paper on "Purulent Infiltration of the Walls of the Stomach."⁵ This form of gastritis is perhaps not so uncommon as the number of recorded cases seems to indicate, for it often happens that the stomach is passed over in post-mortem examinations. Be that as it may, the history of this case and operation deserves to be placed on record,

³ Vol. vii., H. 2, p. 43, Germ. edit.

⁴ Thèse, Paris, 1866.

⁵ Bulletin de la Société Anatomique, tom. vi., série 2, 1861.

pointing to an unforeseen and apparently unpreventable danger which patient and surgeon have to encounter after gastrostomy, even in cases where there is every promise of success, where the operation is undertaken before the recuperative powers have been altogether lost, where the risks of peritonitis have been safely avoided, and there is a hopeful prospect that life may be much prolonged, and death by slow starvation be prevented.

TWO CASES OF MALIGNANT (HÆMORRHAGIC) SCARLATINA TREATED BY CROTALUS.

By JOHN W. HAYWARD, M.D.

CASE 1.—Miss H.—, aged nine years, was apparently quite well on Oct. 5th, 1870; but in the evening she complained of sore-throat, with headache, chilliness, and dizziness. On examination the fauces and tonsils were found dark-red and cedematous. The only exposure that could be traced was that the cook in the house was laid up with diphtheria, and the only cause for that was that scarlatina was in the house of her family, and she had been there on Sunday ten days before. During the night the patient was very restless and feverish, and retched much and frequently, bringing up some dirty-looking mucus. At 8 o'clock next morning she was found to be extremely weak and very tremulous; her pulse was 160, very soft and small; the skin was hot, dry, and burning, with some brownish miliary rash on the chest; the tongue was furred, and the mouth dry; there was great thirst, but she drank only a little at a time, apparently because swallowing was very painful; the fauces and tonsils were mottled with rather bright red, and considerably swollen, as if with serous effusion into their structures, and there was a dark, dirty, sloughy patch on the left one. In consultation at 10 A.M. the case was diagnosed as malignant scarlatina of a very virulent type. During the day she grew steadily worse; the pulse increased in frequency and feebleness; great prostration and torpor supervened, so that she lay apparently unconscious, from which she was occasionally roused by retching of brown slimy mucus; the tonsils enlarged rapidly, making considerable fulness at the angles of the lower jaw, and causing the head to be thrown up and backwards; swallowing was extremely painful and difficult. In the evening of this day (Oct. 6th)—that is, about twenty-four hours after the beginning of the illness—she grew rapidly worse, and continued to grow worse in every way during the night; she was extremely restless, moaning and attempting to turn about, but was apparently too prostrate to do so, and the dirty mucus trickled from the mouth. On the morning of Oct. 7th, all the symptoms were still worse; the throat was nearly closed, and she breathed with difficulty, with an occasional interruption, as if from the swollen condition of the tonsils and fauces, which appeared softened, jelly-like, and as if gangrenous; the head was thrown upwards and backwards as far as possible; there was severe retching when anything was put into the mouth, even a teaspoonful of cold water provoked it, and the matter ejected consisted of dirty brown mucus, apparently colored with disorganized blood oozing from the mucous membrane, or resulting from the gangrenous state of the fauces and tonsils, and there were some bloody streaks as if from blood forced out by the act of retching. After the retching she would fall back on to the pillow, moaning in a very weak low voice, as if dying; and she sank down into the bed in a state of stupid lethargy, like a dying typhus patient. The breathing was irregu-

lar and jerky, sighing and intermittent; and there was loose tickling, almost incessant cough, as though from trickling of the discharges into the larynx; the pulse was scarcely to be felt; the rash was only faintly visible, and was brown and rough. It was now only about thirty-six hours since the beginning of the attack, but the case was apparently hopeless under the ordinary treatment. It was therefore determined to try the power of crotalus, which had been much recommended in the treatment of putrid and hæmorrhagic diseases, when introduced subcutaneously as well as by the mouth. The cuticle was consequently removed from round the throat by a cantharides blister, and to the exposed cutis a wet compress sprinkled with crotalus was applied, and renewed at first after half an hour and then every three hours, also a dose dissolved in a teaspoonful of water was dropped on the tongue every half hour. The effects were watched anxiously. There was no more retching after the first application of the crotalus to the denuded cutis, even when teaspoonfuls of beef-tea were put into the mouth; but the restlessness, pulse, and other symptoms continued much the same all the evening. During the night she gradually grew less distressed and dozed at intervals; towards morning she really slept, and the breathing gradually became less labored and irregular, and on being roused for some medicine, she opened her eyes, and, seeing her father at her bedside, exclaimed, "Oh, pa!" as if only just then realizing his presence. By eight o'clock in the morning of October 8th the pulse could be distinctly felt, and was only 120, the respiration was becoming easy, the head was less thrown back, and the struggle appeared to be turning in her favor. The rash was now freely out on the body and legs, but it was of a purple color. The same medicine was continued internally, but now only every two hours, and the crotalus was no longer sprinkled on the compress. During the day of October 8th the rash gradually brightened in color, and all the distressing symptoms receded rapidly, so that by evening she was able to drink with but little difficulty or pain; the respiration was almost normal and the pulse was 100, and had gained considerably in force and fullness. She slept well during the night, and the next day—that is, October 9th—her appetite began to return, and she looked wonderfully better, the change being really marvellous. From this date her recovery went on rapidly and steadily. The cuticle exfoliated rapidly, so that by the aid of vinegar baths and lard unguents the skin was about natural on October 14th. She was attacked on the 5th, nearly dead on the 7th, crotalus treatment was begun on the morning of the 7th, it rallied her almost immediately, and she recovered so rapidly that a very favorable prognosis was given on the 8th, and she was well on the 14th.

CASE 2.—J. D. H.—, aged thirteen, brother of the above, began to complain on the fifth day after his sister—that is, October 10th. His attack began in the morning and was marked by much the same symptoms as in his sister's case. There were great weakness, much dizziness, trembling, and staggering to falling before evening, and there were headache and nausea; the fauces and tonsils were dark red, and during the day they became tumid, and swallowing became difficult and painful. Pulse 130. He had a restless night, with increase of all the symptoms, especially those of the throat. The prostration was extreme, and on blowing the nose it bled freely. The next morning, Oct. 11th—that is, the morning of the second day of the attack—there was some brown miliary rash on the chest, and all the symptoms were worse. A blister was applied, and crotalus used as in the former case.

During the day there was much hæmorrhage from the nose, and reddish mucus hawked up from the throat. In the evening he appeared much the same and epistaxis returned twice during the night. The next morning, Oct. 12th, the rash was well out, and the throat symptoms were diminished; he improved during the day, and had some sleep during the night. Next morning it was evident that he was to recover. He made a like rapid progress as his sister, and was soon in fair health again. In this case, as in the former, cro-talus arrested the blood-poisoning at once, and turned the scale in favor of the patient within a few hours.

The above notes of these two interesting cases were written at the time, and have been preserved, and withheld from publication in order to test the drug in similar cases before publishing them. This has now been done over and over again, until the writer is thoroughly convinced that the above facts were no mere coincidences, and he now lays them before his colleagues in the hope that the drug will be used in similar cases, for which hitherto there has been no adequate remedy.

Liverpool.

SUBLINGUAL TUMOUR OCCUPYING THE LEFT SIDE OF THE MOUTH; IMMENSE SALIVARY CALCULUS REMOVED BY INCISION INTO THE GLAND.

By GEORGE MACKERN, M.D. Lond.

THE following case of tumour under the tongue is of interest, owing to the large size of the calculus which was found embedded in the substance of the sublingual gland.

James G—, an Irishman, aged fifty-one years, came complaining of a large swelling in the mouth, and of excruciating pain in the left ear and whole left side of the head. For several months he said he had noticed the swelling, but during the last few weeks only had he experienced difficulty in swallowing or speaking. During the last fortnight the pain had become so severe as to prevent his sleeping or resting in any way. On being questioned, he said that as long ago as ten years he had had occasional pricking pains in his mouth, and that off and on ever since he had been troubled with abnormal sensations in his tongue.

On examination, a tumour was seen occupying the space between the left outer border of the tongue and the left alveolar arch of the lower jaw; this tumour appeared to be about two inches long by one inch and a half broad, and extended from the frænum linguae in front outwards and backwards along the mucous membrane of the under surface of the tongue. In consistence it was hard and brawny, and the mucous membrane covering it was thrown into folds and had a peculiar livid look. In front, near the frænum, was a minute opening (the end of the salivary duct), and further back an ulcerated spot which, however, corresponded in position with a prominent molar tooth, from this ulcerated spot a few drops of pus exuded. Pressing the tumour backwards, and it moved easily as a whole, gave rise to great pain in the ear and left side of the head. Just below the jaw in the submaxillary triangle a small hard and painful swelling could be felt, this he said had only shown itself quite recently, and it appeared to be a secondary inflammatory product. The symptoms complained of were—pain and difficulty in speaking or moving the tongue; painful deglutition; dryness and soreness of the left side of the mouth; excessive pain of late in the left ear and left side of the head. I diagnosed an inflamed and

swollen sublingual gland due to obstruction of the duct (in the "remarks" will be found my reasons for this), and at once introduced a small probe into the minute opening near the frænum. The probe passed but a short way and apparently just under the mucous membrane merely; passing a bistoury in I slit the canal up along the probe, some drops of blood and some clear viscid saliva escaping. Carbolic solution was then injected and hot fomentations externally and internally were ordered, and the man told to come back in two days.

On seeing him again the surface of the tumour was less congested than before, and the pain had decreased a little. I now slowly and cautiously enlarged my first opening, going backwards and somewhat downwards into the very substance of the tumour. In a few moments my knife grated against something hard, and the nature of the case became evident. After a good deal of careful dissection a whitish calculus was laid bare at a depth of about half an inch. The anterior portion of the stone was very adherent, and had to be dissected out right round. With dressing forceps the stone was now easily lifted out of its bed, and the resulting cavity well syringed out with carbolic solution. Some blood mixed with salivary secretion escaped during the operation, but a little pressure easily stopped the bleeding. Afterwards some carbolized oil gauze was stuffed into the cavity, which was allowed in this way to heal up from below.

The growth removed is a hard, white, calcareous-looking mass, irregularly egg-shaped; the small end, which *in situ* was anterior, being quite pointed, very hard, and shiny, as if polished. The surface is rough, like morocco leather, but with bosses here and there. The stone measures an inch and one-third in length, two-thirds of an inch in width at its broadest part, and three-eighths of an inch in thickness; it weighs eighty-two grains (five grammes and a half). It can be scraped with a knife, but is not soft or friable. On touching it with strong nitric acid there is no effervescence, hence the surface at any rate does not consist of carbonate of lime; but the addition of the acid, however, brings out a strongly fetid odor. The chemical composition is not yet determined.

Remarks.—The diagnosis of cancer had been made by some other practitioners, but on careful examination it was evident that the tumour could not be cancerous, for these reasons—(1) The utter absence of anything like an infiltration of the surrounding tissues, the mucous membrane up to the very edge of the tumour being perfectly smooth and free; (2) the mobility of the tumour as a whole; (3) the long history of the case; (4) the fact that isolated cancer of the sublingual gland is unknown to occur, or is very rare. From rænula the tumour was easily distinguishable by its hardness, solidity, and general appearance and position. Some use was made of the presence of the swelling in the submaxillary region as an argument in favor of cancer, but from its extreme sensibility and its recent appearance I judged it to be inflammatory merely. On referring to the books at my command I find that the largest salivary calculus on record is figured in Bryant's Surgery, vol. i., p. 518, and that one weighed only forty-eight grains.

Note.—The operation was followed by a continual and troublesome discharge of thick saliva, which ceased on the third day, and was replaced by suppuration; the pus welled from below, and apparently was connected with the tumour in the submaxillary region, which for the next few days continued to be very painful and more swollen than before. On the eighth day the man was well, but in the submaxillary region there still remained

a small hard tumour like a marble; it was not painful, nor did it cause any inconvenience.

Buenos Ayres, South America.

ON A CASE OF MYXEDEMA, WITH REMARKS UPON THE ETIOLOGY OF THE DISEASE.

By J. OSWALD LANE, B.A., M.B. Cantab., etc.
House-Surgeon to the Northampton Infirmary.

M. R.—, aged forty-eight, attended this hospital as one of Dr. Buzzard's out-patients with the following history:—Father and mother died of old age; one brother alive and healthy. There is no evidence of a neuropathic predisposition, neither does she know of any relatives who have been affected with a similar complaint. She has had six children, the last one eight years ago, from which times she dates her present illness. She denies having been laid up with any previous illness, though for some time after each confinement she was accustomed to feel very weak and unable to do her work with her usual vigor. She had a particularly "bad time" at her last confinement, and has ever since suffered from weakness and debility. No syphilitic history; she remembers having been frightened before her last confinement, and has had a good deal of mental anxiety. She complains of having had a feeling of lassitude, weakness, and nervousness since the above mentioned date; at times has noticed giddiness, noises in the head, sparks in front of her eyes, with a feeling of pressure on vertex, disturbance of sleep, and loss of memory. Speech has become slower, with a pause between words. Walking slow and awkward; at times has fallen down. She has noticed the swelling of her face and hands only during the last six months, and she distinctly says that the nervous symptoms I have enumerated all preceded the latter. Has had sickness at times; has not passed much water.

When she first presented herself here her condition was as follows:—Her physiognomy on the first glance was that of a person suffering from renal dropsy; but on closer examination I found the oedema to be of a different character, in that it did not pit on pressure. The parts of the face most affected were the eyelids, lips, cheeks, and nose (the first two especially). The eyelids were pearly, semi-transparent, ridged, with drooping of the lower ones. The cheeks were puffy, so that the features were rounded in contour, with a circumscribed blush on both. The lips were pendulous, thick, and of a purplish tint. The nose was swollen, with dilated nostrils. The expression was stolid and sad, with a lack of mobility. The skin over the whole body was very dry and harsh; the patient said it had been "scaly at times." The hands were markedly swollen, so as to be of a "spade-like" appearance, and were clumsy, with a dilatation of the capillaries on the dorsal surface. The lower extremities were not swollen. The patient had lost much of her hair, while many of the teeth were decayed. She had a train of nervous symptoms, such as slowness of speech, which was deliberate, monotonous, of nasal tone, frequently swallowing before speaking. The patient's movements were slow, and her gait awkward, with a feeling of being about to fall. She complained of headache and giddiness, and her memory was decidedly faulty. There was diminution of tactile sensation, and the conduction of sensory impulses was markedly retarded. The muscles acted very feebly to faradization, and the reflexes were diminished, the patellar almost absent. She frequently feels chilly. There was no change in the thyroid glands. The

heart sounds were normal, and not accentuated; no physical signs of hypertrophy. The lungs were normal. The urine was examined every time she attended, and I was unable to detect even the slightest trace of albumen, though numerous tests were used. The temperature varied between 96° and 98°. The pulse was usually about 54, always slow. The ophthalmoscopic appearances were natural. The only drugs administered were iron, quinine, and strychnia.

I have published this case, first, as the patient seems to present most typically the symptom of myxedema; secondly, on account of the improvement the patient underwent during the four months she was under my observation, since at the end of that time her speech, gait, intelligence, and other nervous symptoms were decidedly improved, while the characteristic swelling had not made further progress; and, thirdly, the case is interesting on account of the absence of even a trace of albuminuria, or the presence of any other sign of nephritic disease.

I would now make a few remarks as to what seems to me to be the probable etiology of the disease. In several cases which I have seen there seems to me to be a striking resemblance in the symptoms of the disease to some of those frequently developed in some forms of lesion of the central nervous system, and my reasons for thinking so are that the characteristic nervous symptoms of the disease are particularly constant, and that they have become distinctly well marked before any signs of oedema has developed itself; in all the cases I have seen many nervous symptoms have been present, such as peculiar gait, slowness of speech, impaired sensation, subnormal reflexes, giddiness, impaired memory; furthermore, in three cases the disease has shown itself after some mental shock or anxiety; to this cause I would attribute the frequency of the disease in multiparae, as a rapid succession of pregnancies combined with mental anxiety would probably lead to exhaustion of the system, and especially the nervous one; in addition, many of the symptoms which present themselves are much allied to some of those observed in disseminated sclerosis and locomotor ataxy. The slowness of pulse and lowness of temperature are additional factors in aid of this hypothesis.

Northampton.

A CASE OF HEMIPARAPLEGIA SPINALIS;

WITH REMARKS ON MUSCULAR SENSE, ETC.

By JAMES MACKENZIE, M.D.

N. P.—, aged thirty-eight, a baker, when examined on Dec. 13th, 1880, complained of loss of power in the left leg, want of feeling in the right leg, and difficulty in evacuating his bladder and rectum.

History of the present attack.—In the month of June, 1880, the patient became conscious of an indefinite numb feeling at times creeping over the right leg. In the following month the sexual power disappeared, and a little later he began to experience a difficulty in voiding urine, till ultimately he could pass but a few drops. Catheterization having been resorted to, a large quantity of urine was drawn off. He himself used the catheter for three weeks, when a partial return of the bladder control caused him to desist. A difficulty in getting the bowels moved manifested itself at the same time, for which castor oil and injections were unavailingly tried. Obtaining no relief, he one day passed his finger into the bowel, and, slowly withdrawing it, the fæces followed. He

says there is a constant bearing-down sensation, as if the bowels required relieving, but without the above device this cannot be done. A month ago the left leg became weak, a symptom which has increased so that during the last ten days he has had to trail it behind him as he walked. His previous health has been good, and nothing of importance was elicited from an inquiry into his social condition and family history.

Present condition.—Patient is 5 ft. 7 in. in height, well built and muscular, and of fair complexion. The skin is moist and warm. Temperature is natural, no detectable elevation in either leg. There are two small cicatrices in the left groin, which he says followed upon a blow on the testicle twelve years ago. With apparent sincerity he denies the possibility of a chancre, though he admits having acquired a gonorrhoea about this period. I cannot detect any cicatrix on the penis. Of possible specific sequelæ there is only a statement of his hair falling off in considerable quantity some years ago. On the outer and upper part of the right leg there is a large red inflamed patch, six inches by three, with a blister the size of a florin in the centre. The patient was unaware of this condition till I called his attention to it. After conjecturing for a time what might be the cause, he remembered that while on a low stool, that morning, he discovered that his bare knee was almost touching the bars of the grate, in which a good fire was burning. From inquiry into the position and posture of the patient I had no doubt that this was the cause.

Nervous system; motor.—The patient as he lies in bed is generally raised to almost a sitting posture, with his legs laid straight out before him. The voluntary movements at all the joints of the left leg are weakly performed, and their extent limited. The voluntary movements on the right leg are strong and good. The patient with difficulty gets out of bed, having to assist the left leg in its progress with his hands. When standing he has to balance himself with the aid of convenient objects. He can walk, but does so trailing the left leg in the manner of an ordinary hemiplegic. Standing with his heels together he sways from side to side and before backwards, and ultimately falls, usually to the left side. During the time he is standing there is observed an ever-changing contraction and relaxation of the tendons of the right foot and leg as he attempts to steady himself. These movements are similar to those in the leg of a man who attempts to stand on that leg alone. There is no action whatever to be seen or felt in the tendons of the left leg. When he recovers himself from the inevitable stumble there follows a series of clonic contractions of the left quadriceps muscle. No motor abnormalities are observable in any other part of the body.

Sensory.—The patient complains of a numbness in the right leg and belly as high as the twelfth rib. On the left side all the cutaneous sensations are natural. Sense of touch on the right leg—he localized with considerable accuracy any spot touched. He is unable to distinguish two points applied at once, thinks there is but one, and indicates its site as some place between the two points. Even when the points are a foot distant, it is only after pressing hard and waiting some time that he becomes aware that there are two points being acted upon. Senses of pain and temperature are almost entirely abolished, as indicated by the above-mentioned burn, still he is vaguely conscious of these sensations when his mind is actively engaged in searching for them. These abnormalities extend all over the right leg, the right side of the abdomen to a short distance above the symphysis pubis, slanting upwards and outwards

to the level of the twelfth dorsal vertebra, but become less marked towards the upper portion. They are also limited to the right side of the scrotum and penis, the mucous membrane of the urethra as well as the skin exhibiting the diminished sensations.

Reflex.—(1) Skin: On tickling the sole of the left foot the movements consequent are exaggerated; right foot natural. (2) Tendinous: The patellar is very much exaggerated. It is not set up by striking the bones in the neighborhood, provided that the tissues connected with the tendon be not stretched by the blow. Slight reflexions also got in tibialis anticus, extensor pollicis, and extensor communis digitorum. Ankle clonus readily set up. The patient knows easily where his legs are placed. Examination of the spine and cranium reveals no abnormality. The special senses are quite normal, and the mental condition perfectly clear.

Genito-urinary system.—Micturates frequently, and with some difficulty. Since he has been able to pass water, and left off catheterizing, he has had to perform the act bending forward and straining hard. After he had evacuated the bladder to his own satisfaction, I detected by percussion that it was not empty, and on passing the catheter drew off several ounces of urine. He has no pain in this region, and the urine betrays no chemical or microscopical abnormality. The sexual functions still in abeyance.

Digestive system.—Tongue clean, and swallows well. Has a good appetite, and no discomfort after food. The bowels cannot be moved save by the afore-mentioned device. Purgatives he has taken in large quantities. On rectal examination with the finger, I found that the sphincter yielded more readily than natural.

Towards the end of January, 1881, the patient became worse. He then exhibited the phenomena of hyperæsthetic bands encircling the abdomen—the hyperæsthetic portion in the left side being broader and a little higher than that of the right. The bands could not be distinctly mapped out owing to the variability of the impressions produced. Thus, having enclosed in ink spaces where the patient declares he feels the pricking of a pin much less than natural, I proceeded to other places. On returning to the first spaces, I find from his starting and exclamations of pain that they have become hyperæsthetic. The dulled impressions are all either in the upper part of the hyperæsthetic area, or slightly above, where they occasionally intermit with the natural, about the level of the ninth rib on the left side, and the tenth on the right. I have been unable to map out the areas on account of the extreme variability of the impressions.

The sense of touch is all but gone, and in the right leg he can only tell that he is being touched provided that the object remains in contact with the skin for some little time. In like manner the other tests exhibit almost total abolition of sensation. The left leg exhibits a slight diminution of the sense of touch, but other sensations are quite natural. He is now unable to tell in what position his legs are placed, and is utterly at fault in discriminating between weights in both legs. The tendon-reflex is much exaggerated in both legs, more especially in the left. He is unable to walk, declaring that when he gets out of bed he does not know where his legs are, and is in constant danger of falling from the sudden uncontrollable jerkings of the left leg. Otherwise the voluntary power over the legs is in much the same condition as in the previous description. Percussion over the spine elicits symptoms of considerable tenderness over the eleventh and twelfth dorsal verte-

bræ and first lumbar vertebræ. Electrical stimulation with both currents reveals no abnormality in the muscular contraction. The sensation to this stimulation is absent in the right leg, but natural in the left. After this he was put upon antisyphilitic remedies, first the iodide of potassium, and afterwards a course of mercurials by inunction, till the physiological symptoms were developed. He gradually improved, and a year later his condition was as follows:—

Examined Feb. 25th, 1882.—His general health is very good, and he has latterly been increasing in weight. Circulatory and respiratory systems are healthy. *Nervous system.*—Motor: Voluntary power of executing movements at the joints of the left leg is small. Passive movements are resisted, more especially at the knee. The right leg is powerful, and under complete control, and passive movements unrestrained. In walking he trails the left leg. Sensory: Right leg always feels cold, and when he himself is cold he feels as if cold water were running down his right leg. The sensibility to simple touch, however lightly applied, is good on both sides, and he localizes accurately the spot touched. Tickling good on left; on the right diminished at the sole, and above the knee for some distance, and is nearly absent over the intermediate part of the leg. Pain natural in left leg; diminished and delayed on right. On both legs he can distinguish pinching from pricking. The sensibility to pain becomes about equal on both sides at the groin, but there is still a marked diminution of the sensibility on the right side of the penis and scrotum. He recognizes separate points to within three inches on the left leg, but they have to be many inches asunder before he can distinguish them on the right. Temperature: He is unable to distinguish cold test tubes from hot on the right leg, and the inability to distinguish extends as high as the level of the pelvic brim on the abdomen. Reflex.—Skin: On tickling left sole sensation is natural; muscular response diminished. Right sole movement natural; sensation diminished. Tendon: this is exaggerated on both sides; the tendons at the ankle are all susceptible, including the tibialis anticus; a few of these (tibialis anticus and extensor longus pollicis) contract on tapping the bones in the neighborhood. Sense of position: Is a little out of his reckoning with left leg, but accurate with the right. Weights: Very accurate with right leg; with the left leg he can discriminate between 1 lb. and 2 lb., and tell their relative weights, but 5 lb. he can scarcely lift, and thinks that there is about 20 lb. resisting him. Galvanism: Cutaneous sensation diminished in the right leg; muscles contract equally and naturally in both legs. There is no diminution in the bulk of the legs on comparing present measurements with those taken a year ago. Genito-urinary: There is considerable difficulty in micturating, and he accomplishes the act by two methods. In the one case he stands supported, stooping slightly forward, with the left leg thrown backwards and outwards. After a time a drop of urine escapes, followed soon by a few drops more, and latterly by a fair stream, but projected with little force. If he should talk during the act the flow stops, and he has to strain to get it to resume. He cannot tell when the stream stops or when it flows save by watching it. A few ounces are left in the bladder after the completion of the act by this method. In the other method he assumes a sitting posture, and passing his finger into the rectum there immediately ensues a full and forcible stream of urine. It generally stops soon after the finger is withdrawn, and is excited by its reintroduction. Neither by this method is he aware from

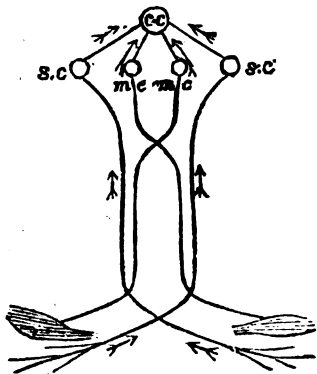
urethral sensations that he voids urine. In this way the bladder can be completely emptied. The power of coitus is still in abeyance. Digestive: Tongue clean; no discomfort after meals and appetite fair. The bowels are very costive, and he has to take castor oil frequently in order to get a liquid motion, otherwise the feces become hard and lodge in the rectum, whence they have to be displaced with the finger. On passing the finger into the rectum the sphincter is found laxer than natural, yet there is no incontinence.

The diagnosis in this case points to a syphilitic gummatous tumour situated either in the substance of, or in the sheath and pressing into, the left half of the spinal cord at the upper part of the lumbar enlargement. Latterly the gumma having in all likelihood been absorbed has left the tissues permanently damaged.

Brown-Séquard may now be considered to have fully established the method of recognizing a one-sided lesion of the cord by the very definite symptoms presented during life. The case I have detailed undoubtedly comes under the class of one-sided lesions, though, as in the matter of increased tendinous reflexions, there is probably some slight affection of the opposite side. I would more particularly direct attention to the muscular sense and the urinary and rectal reflexes, which present some features either at variance with, or not exhibited in, other cases; in part it may be due to the locality of the lesion.

Muscular sense.—Brown-Séquard, inferring from the cases studied by him, places the course of the muscular sense as accompanying the motor nerves. He has been implicitly followed in this statement by recent authors, as Erb, Ross, Gowers, Poincaré, Bramwell, etc. There is, to my mind, but a small portion of the truth contained in this statement, inasmuch as this sense is of a complex nature, and depends not upon afferent nerves alone for its transmission. By experience we learn to exercise a definite amount of muscular force in the accomplishment of any known act. When, therefore, we seek to raise with the hand any given weight, we are cognizant of the amount of nervous discharge employed to stimulate the muscle. The completion of the act or otherwise is made known to us by the afferent nerves, their terminations being affected by the change of position, etc. Thus in a case of hemianæsthesia, the hand of the affected side being held and the patient's eyes closed, if the patient be requested to put that hand to his head he will immediately put in action the required muscles, and be under the impression that the act has been accomplished, although the hand has been retained in its original position. Seeing that all sensation had disappeared on that side, the impression that the patient got was derived from experience, which taught him that the voluntary discharge of so much nervous energy was followed by a known result. So again with my patient. A few ounces on his leg did not obstruct its rising much, and the cutaneous sensation being intact he came to a fairly accurate conclusion. But when five pounds were placed on it, then he had to exercise more energy and strongly will a greater discharge, and the sensory nerves informing him that he failed to lift it he became confused, and attributed to the weight properties that experience had taught him to associate with this amount of nervous discharge. Thus, we have in the constitution of muscular sense two conditions affecting our consciousness—namely, motor feelings proper and sensation proper, as expressed by Professor Bain. The one is associated with energy passing outwards, the other with stimulation passing inwards; the two facts mingle together in the stream of mental life.

but are yet of a widely different nature.¹ This "motor feeling" is a sensation which accompanies muscular movement, "coinciding with the outgoing stream of nervous energy, and does not, as in the case of pure sensation, result from any influence passing inwards by incoming or sensitive nerves."² The parts constituting the muscular sense may be illustrated by the following diagram.



c.c. represents the centre of consciousness, being affected by the discharge, in obedience to the will, taking place at m.c., motor centre, on the one hand, and by peripheral stimulation passing upwards through s.c., sensory centre, on the other. Here, then, as I take it, the due appreciation of the part played by "motor feeling" is a result of experience. When any given act is to be performed, the amount of discharge of nervous energy is regulated according as experience has taught what amount of energy would overcome the resistance. Thus several weights externally similar are placed before me—say, five are of six pounds burden and one of one pound. In lifting each of the five I exert the same amount of force. When I come to the one pound, thinking it is equal in weight to the others, I consciously liberate the same amount of energy as before, and the sensory nerves inform me of the result, and by putting together the knowledge of the amount of the cerebral nervous discharge (motor feeling) and the sensory peripheral impressions, I come to a conclusion regarding the weights of the diverse bodies, the whole process constituting the muscular sense.

While this explanation accounts for the aberration of the muscular sense in the paralyzed limb, why has there not been noticed an interference with the sense in the limb when sensation alone was affected? The assumption of Brown-Séquard, and those who have followed him, that the muscular sense was conducted by motor paths, is militated against by analogy and several established facts. In the matter of analogy, it would require strong proofs to believe that motor paths convey sensory impressions. I will be content with quoting two instances in objection. The first is the case quoted by Sir Charles Bell and given by Brown-Séquard in his lectures, where in a typical spinal hemiplegic the muscular sense was undoubtedly gone on the side retaining muscular power, but profoundly anæsthetic. In a case quoted by Erb, abolition of sensation was accompanied with loss of muscular sense, yet retention of muscular power, when at the autopsy the motor paths were intact in the spinal cord.³ At one time

in my case, when there was profound anæsthesia, there was undoubted absence of muscular sense. Further, in most of the recorded cases anæsthesia has been said to exist when the patient failed to detect separate points within a certain distance; text-books give this as the method of testing the anæsthesia. I have made out clearly in my case that while the patient cannot tell that two points are touching him when from eight to twelve inches apart, thinking there is but one point, and that midway between them, yet the slightest touch with a fringe of cotton he immediately recognizes and accurately locates. I would be inclined to associate the conservation of the muscular sense with the retention of delicate touch and their simultaneous disappearance; and also that when there is retention of muscular sense in the non-paralyzed limb, the lesion does not entirely interfere with the functions, of the one side of the cord.

I would next call attention to the urinary and rectal conditions. I have not come across a parallel condition, and it may in a great measure be due to my patient being a man of resource. In the first described method the patient employs only the purely voluntary muscles in micturition. There is evidently a diminution of the peripheral stimulus reaching the reflex centre in the cord. This case, so far as pathological evidence affords proof for physiological conditions, certainly points in favor of the theory that the detrusor urinae is purely reflex in its function. To me the *rationale* of the process in this case is as follows: The patient feels slightly the call to micturate. He assumes a position which least obstructs the egress of urine. He strains and patiently empties the bladder. The detrusor does not act here, for, observe, the flow is weak and stops whenever he speaks. Now, when he alters his position by sitting on his haunches, opens his legs, passes his finger into the rectum, and thus sets up an additional stimulation (the vesical distension not being sufficiently strong in its stimulation of the reflex centre of the detrusor, owing to one-half of the nerves not reaching the centre), this rectal stimulation is sufficiently powerful to set up the contraction of the detrusor. Note his inability to tell from urethral insensibility that the urine flows. In this case the flow is strong, indicating the contraction of the detrusor. In like manner the rectum cannot naturally be emptied. It, like the detrusor, is only under reflex control. By exercise of the abdominal voluntary muscles substances lodged in the rectum cannot be voided, as found by experiment. So here there is also a diminution of the ordinary stimulation reaching the centre for the rectum. The patient therefore takes a purgative, and the liquid motion thus produced being more irritating, the deficiency in the stimulation is compensated, and the rectum reflexly contracts and expels its contents.

Burnley, Lancashire.

AN INTERESTING MIDWIFERY CASE.

By FRED C. CORY, M.D.

A SHORT record of the following complex case of midwifery may be interesting to the readers of THE LANCET.

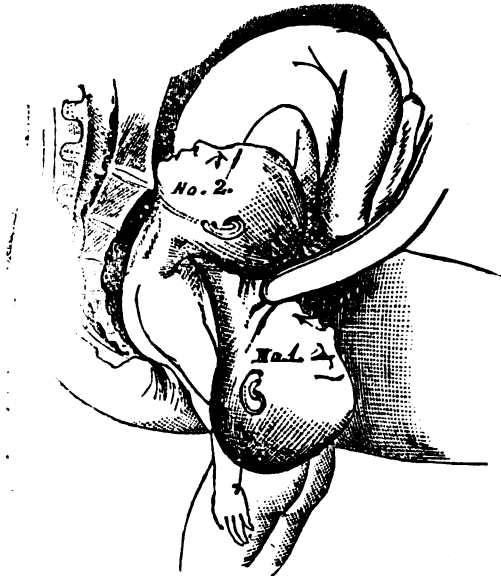
A poor woman (multipara), the wife of a mechanic, was being attended by an uncertificated midwife for two days prior to my seeing the case. I could not get from this woman any clear statement of how such a condition of things had taken place. She was confused in her mind, having a constant craving for stimulating her nerve centres,

¹ Senses and Intellect, 3rd edition, p. 74.

² Lib. cit., p. 77.

³ Ziemsscu's Encyclopædia, vol. xiii., p. 89.

which rendered her incapable of answering any questions, or even taking care of herself, much more of the patient. Of course this votary of Bacchus was very quickly dismissed from her post. The accompanying engraving presents a rough



sketch of the position of each child in and out of the uterus, as far as I could ascertain by their external appearances. These children were in a high state of hæmic congestion, amounting almost to blackness. The child whose head was expelled, and whom I shall for the sake of distinction call No. 1, had the face towards the maternal pubes, the chin resting thereon, with its neck pressed closely under the arch by the back and shoulders of No. 2; the body was above the brim. No. 2 had the body from the arms and shoulders downwards expelled; the chin of this child rested on the brim of the maternal pelvis by the right sacro-iliac synchondrosis, the occiput impinging on the upper edge of the pubis to the right of the symphysis. The greatest difficulty was experienced in getting the index-finger upwards, so that I could make out the different positions of the children. I think their relations to each other will be fairly represented in the rough drawing, although the neck of No. 2 was more elongated than is shown in the sketch. The woman was much exhausted by her long and continued efforts, begging to be helped out of her difficulty. I gave her some brandy with an egg well whipped up, which soon had the effect of improving her pulse, and cheering her with a few encouraging words of speedy help, for her spirits were much depressed by the midwife telling her she could not possibly live or get over it. I had great difficulty in introducing the perforator between the two bodies up to the occiput of No. 2, and perforating the head, when, by drawing down the shoulders during the come of a pain, the head passed into the cavity of the pelvis, and was soon expelled. The body of No. 1 quickly followed. The placenta was easily thrown off, and the uterus contracted well, there being little or no hæmorrhage. The poor woman was thus freed from her peril, and made a good recovery.

Buckhurst Hill.

RUPTURE OF UTERUS CAUSED BY ASCITES OF FŒTUS.

SECONDARY HÆMORRHAGE ON FIFTH DAY; DEATH.

By A. CHEVALLIER PRESTON, M.R.C.S.

On Aug. 13th last I was sent for to attend Mrs. D—, aged thirty-five, a multipara, who was then, her friends said, in strong labour. Her previous confinements (six) had been normal ones, but I was consulted by her when seven months' pregnant with this child, about her unusual size. She complained at that time of entire inability to move about, and of a great sense of weight in the pelvis, far more than she had experienced in her previous pregnancies. I examined her then, and found nothing abnormal by vaginal examination, but the abdomen was stretched to an enormous size, and after careful examination I came to the conclusion that it was probably a case of excess of liquor amnii. I gave her a reassuring prognosis, as she was very nervous about herself, and I did not see her again until her confinement. I then found her in the first stage of labour, with the os dilating but slowly, and the head presenting in the first cranial position. The pains being infrequent, and there being no prospect of the case being over for some hours, I left her to go home for a short time. On my return in an hour and a half (3 p.m.) I found the pains had come on more frequently in my absence, and the os was dilating nicely, and half an hour after this was sufficiently so to admit the passage of the head. After waiting another half hour, during which the pains were very violent, and no progress was being made, I determined to rupture the membranes and apply the long forceps. I had an empty four-gallon pail placed under the nates at the edge of the bed, expecting an excess of liquor amnii, and I think the quantity that was evacuated could not have been short of three gallons, allowing for the soakage in the bedclothes, for the pail was considerably more than half filled. I then applied the long forceps without any difficulty, and commenced steady traction with the pains. I succeeded in delivering the head, and during this operation the woman did not complain of any extraordinary pain. I soon found, however, that on removing the forceps and applying traction to the head itself I could make no further progress, and after a few attempts I tried by grasping the uterus externally to excite contraction to bring the rest of the foetus into the world. After about ten minutes' waiting, during which time the woman had no pain, though I could feel pretty strong uterine contraction from external pressure, I determined to bring down the arms, thinking this might possibly be a case of obstruction from the shoulders, and with that object in view I passed my hand and brought down both arms and again made traction, but with no better success, and I knew then that the obstruction must be higher up. On passing my hand past the chest of the child, and on through the cervix uteri, I found an enormously distended abdomen, which I knew could not pass through the cervix. Finding this so, I passed a small pair of probe-pointed scissors (closed of course), which I happened to carry in my pocket, over my right hand, and perforated the child's abdomen as near to the umbilicus as I thought advisable, and a great quantity of serous fluid followed, similar in appearance to the liquor amnii. The patient meantime had a good pulse, with no complaint of exhaustion. Perceiving, however, that my difficulties were not yet over, and that the woman was becoming tired out, after another five minutes' delay, to see if the uterus would con-

tract strongly enough to terminate the labour, I made steady traction on the shoulders, with my fingers under the axillæ, expecting little if any resistance to the passage of a collapsed abdomen through the os. Such, however, was not the case, for in extracting the trunk I felt that something had "given way," as the woman herself cried out, and after separating the child (dead of course) as soon as possible, I passed my hand again, and found a large rent in the cervix, extending three or four inches towards the fundus. I at once detached the placenta without trouble, and finding the woman collapsed and almost pulseless, and tremendous hæmorrhage occurring, gave her a good dose of brandy and ergot, and grasped the uterus externally, and got pretty good contraction. The patient's pulse was meanwhile scarcely perceptible, and the respiration getting stertorous, extremities cold, and the face markedly cadaveric in expression. By dint of hot bottles to the feet, brandy and beef-tea per rectum, and a good firm binder and frequent hand pressure in the uterus, she managed to rally a little and to recognize those around her. I at once gave full doses of opium and ergot, to be repeated every two hours, and gave full instructions regarding the injections, etc. I left her for a little while, and later on met Dr. Nedwill in consultation, and we agreed to continue the above treatment, but he expressed his opinion that the case was then a hopeless one. This was at 3 A.M. on the 14th. She was not losing much blood, there was fair contraction, and the pulse was decidedly improving. We examined the body of the child there and then and found a markedly ascitic abdomen, which, when distended, must indeed have been enormous for a fetus in utero, and this evidently was the cause of the difficult labour. I saw the patient twice the next day, when reaction had set in. She expressed herself as feeling no pain. Pulse 140, weak; temperature 102.2°. Uterine contraction was good, and she could bear gentle hand pressure, but peritonitis was evidently impending, and in case she should be in much pain I ordered laudanum stupes to the abdomen if required. She was then taking a fair quantity of milk by the mouth, and I discontinued the rectal injections. I passed the catheter morning and evening, and continued the opium and smaller doses of ergot. During the three succeeding days peritonitis supervened, but the woman's general condition did not seem worse. Her pulse was on an average 130, and getting stronger, and she could pass water on the third day. I kept the bowels confined, and continued the opium and ergot. She still took a fair quantity of milk, but none was secreted by the breasts.

On Aug. 19th, five days after her confinement, I visited her in the morning, and found her still gradually improving. Pulse 110; temperature 100.2°. She was cheerful and in no pain, and taking food. Bowels still confined, as I wished to keep her as quiet as possible. I noticed that her aspect had much improved. At 5 P.M. I was hastily sent for and found that she had had a severe flooding in her sleep, and without any apparent exciting cause, for she had been kept perfectly quiet and had not been disturbed in any way. I found her literally saturated in blood, and the case had again assumed an alarming aspect. Collapse had again set in, with pulse almost imperceptible and cold extremities. I gave a dose of turpentine, applied a fresh binder, and stopped the hæmorrhage temporarily. Brandy and beef-tea were given per rectum again, but she died at 9 P.M. No post-mortem allowed.

Remarks.—This case appears to me an interesting one, from the fact of its uncommon occurrence, and from the fact of the patient living for five days

after rupture of the uterus. I am anxious to know if many similar cases have been met with, and what is the pathological connection between excess of liquor amnii and ascites of fetus. The immediate cause of death was, I believe, due to a large vessel in the ruptured cervix becoming unplugged spontaneously, but had not this happened, I see no reason why the woman should not have recovered. Had I eviscerated, the result would, I believe, have been the same, for it is my impression that the cervix gave way during the passage of the abdomen after the ascitic fluid was evacuated.

Lincoln, Canterbury, New Zealand.

A NEW METHOD OF APPLYING PRESSURE TO ENLARGED TESTICLES.

By J. L. CORBETT, M.D.,

Superintendent and Medical Officer, Lucknow Central Prison.

In the treatment of some of the diseases of the testicle accompanied with enlargement, the practice of applying pressure to the gland is undoubtedly a sound one, and is frequently resorted to by surgeons. I have often wondered that some simpler plan than that of strapping with plaster has not been suggested. The objections against the plaster strapping are numerous. First, it is a tedious business to do neatly and properly. Second, it is dirty both for operator and patient. Third, the operation has to be begun by encircling the neck of the gland with a long strip of plaster. This undoubtedly interferes with the free circulation in the vessels of the cord, and tends to prevent the absorption of the material deposited in the gland. It stands to reason that the freer the circulation in the vessels going to or from the testicle, the more rapid will the reduction in size be from the operation of absorption induced by pressure. Fourth, the strapping loosens very rapidly, and, to be of use, must be reapplied frequently. Fifth, in many cases, even when carefully applied, the plaster cuts the skin and leads to sores. Sixth, I have seen nasty troublesome eruptions on the skin of the scrotum following the use of the plaster.

I have, I think, enumerated enough objections to the old plan, and I will now try to explain the means I would recommend for obviating these objections, at the same time applying a steady, equable compressing force, and one which would also admit of easy regulation as regards the amount of compression. I may preface the explanation of my plan by saying that I derived the idea from a homely source, nothing more or less than seeing the means employed for encasing a football; barring, that instead of having the encasing material made of leather, I would have it made of india-rubber—such as one sees in the construction of the balls in spray producers, etc. The cases I recommend should be made of different sizes and thicknesses, oval in shape (same shape as the Rugby football when inflated). The means of tightening the cases and applying the pressure would be identically the same as in the football cover—i.e., by lacing. There should be an opening at the neck of the case to allow the passage of the cord. This opening would be surrounded by a ring (interrupted) of leaden wire, to ensure its patency and to prevent pressure on the structures of the cord. The leaden wire ring being interrupted, its softness would offer no obstacle to its easy adjustment round the neck of the enlarged gland. With a supply of the cases which I have attempted to describe above, the treatment of an enlarged testicle would offer but little difficulty; it would simply

mean the selection of a rubber-case of the right size and thickness, and capable when laced up of exercising a steady equable pressure on the enlarged organs, and applying the case to the testicle and lacing it up. If considered necessary, the testicle could first be enveloped in a thin layer of cotton-wool; this would prevent any possibility of the skin being nipped or chafed by the lacing. As the gland reduces in size a smaller case would be applied, and thus a steady pressure kept up until a cure was effected. The above plan has the advantage of simplicity, neatness, and quickness in its application to recommend it. It involves no elaborate apparatus, and I think does away with many, if not all, of the objections connected with the operation of strapping with plaster. I offer the suggestion in the hope that it may be tried by surgeons at home.

Lucknow.

CYSTOTOMY IN SUBACUTE CYSTITIS.

By GEORGE ELDER, M.D.,

Surgeon to the Hospital for Women, Nottingham.

THE chronicity and intractability to the usual methods of treatment of catarrhal cystitis, especially in the aged, is my excuse for placing on record the undermentioned case, illustrating, as it does, the strikingly successful result obtained by cystotomy and subsequent drainage when all other means, local and general, had been long and fairly tried. The patient was a woman aged seventy-two years, with a rheumatic history, who was admitted under me at the Women's Hospital on Dec. 12th, 1882. For months previously she had been under medical attendance at home, suffering similarly to what she complained of on admission. There was incontinence of urine, accompanied with frequent desire to micturate, vesical tenesmus, dysuria, and constant burning hypogastric and vulvar pain. The calls to urinate were so frequent that it was impossible to obtain a night's rest. The vulva and contiguous skin were excoriated, and the seat of intense pruritus. There was considerable constitutional disturbance and declension in health. The urine was rather scanty; specific gravity 1018; offensively ammoniacal, and depositing abundantly pus andropy mucus. Microscopic examination in addition showed the presence of pavement and cylindrical epithelium, a few fibrinous casts and phosphates.

Between December 12th and February 23rd all the ordinary medication, local and general, was tried, embracing rest in bed, hip baths, plain and medicated vesical injections, emptying the bladder at short intervals, alkalies, acids with and without sedatives, with the effect of relieving her distressed condition, but productive of no permanent improvement in the condition of the urine. Her general health also did not mend; so under either a vesico-vaginal fistula was produced on the latter-mentioned date, and a winged catheter attached to a long piece of rubber tubing inserted. The rest given to the inflamed viscus by drainage combined with injections, first of a solution of hyposulphite of soda, and afterwards dilute nitric acid combined with quinine internally, and acidulated drink *ad lib.*, soon effected a change for the better in her local condition. Speedy relief was given to the tenesmus, weight and local pains, and on April 28th it was noted that for three days the drainage-tube had not been in place, and the urine which could be retained from two to three hours was passed per urethram without discomfort. No urine came through the fistulous opening, and it was clear, faintly acid, and depositing only a slight

cloud of mucus. On May 9th she left the hospital entirely cured of her bladder troubles, passing painlessly perfectly healthy urine. The fistulous opening required no application beyond nitrate of silver. On May 31st the patient came to see me, and reported herself as able to retain her urine between three and four hours. The urine is normal and the fistulous opening closed.

Nottingham.

ACUTE RHEUMATISM AS A PREMONITORY SYMPTOM OF PHTHISIS.

By JOHN ALFRED AUSTIN, M.D.

RHEUMATIC fever has never been, as far as I am aware, put forward by any writer or observer as a premonitory symptom of phthisis. I have not even seen it mentioned, that an attack simulating acute rheumatism, and preceding the pulmonary symptoms, is occasionally observed as a phenomenon in the clinical history of that disease. Within the last few years, however, I have had under my observation no less than four cases of phthisis, in which the more decided pulmonary symptoms had been immediately preceded by the ordinary symptoms of acute rheumatism, where the lung disease seemed to have lain dormant, and to have been suddenly ushered into life and activity on the outbreak of the rheumatic attack. The swelling and redness of the joints and other symptoms, though not very severe, were sufficiently characteristic of rheumatic fever to prevent any error in diagnosis, and duly abated under the alkaline and opium or salicine treatment. The occurrence of four such cases in my practice within the space of three years entitles me, it must be allowed to a reasonable suspicion that there might be something more than chance in bringing about such a coincidence, that a rational explanation might yet be found for the curious fact, and that this might be classed among the many strange and capricious symptoms of phthisis, which often foreshadow with terrible certainty the advent of the dread disease. To understand and rightly interpret these omens is worth something to the practitioner, who has not only to anticipate the contingencies of each individual case that comes under his care, but has a reputation to maintain among his patients for far-sightedness and correct prognosis.

I will now briefly sketch the history of the cases referred to.

CASE 1.—L. M.—, a young girl, seventeen years of age, complained from time to time of severe rheumatic pains in the joints of the lower limbs. This is the only case in which redness and swelling of the affected joints were absent. After the pain had lasted a day or two, a copious eruption usually broke out all over the limbs, from the knees downwards, which had the effect of immediately relieving the pain. The eruption was a species of purpura—*peliosis rheumatica*. The attacks recurred from time to time, followed by more or less of the eruption, the relief from these attacks being always in proportion to the copiousness of the eruption. More than a year elapsed, and the girl was not thriving. The rheumatism to which she had been subject being hardly sufficient to account for the fact, I made repeated and careful examination of the chest, and eventually detected a small area of partially solidified lung in the left side. I expressed an opinion that one of the lungs was affected, and recommended the parents to give her cod-liver oil and iodide of iron. The idea of the lung being affected was such an unwelcome surprise to these people that they consulted another practitioner at once, who attributed matters

to delayed menstruation, and predicted a speedy return to health. Within eighteen months this poor girl died of phthisis.

CASE 2.—M. S.—, a tall strong-looking young woman, twenty years of age, general servant, consulted me for pain in her back. Suspecting it might have a uterine origin I made special investigation, but elicited nothing to confirm my suspicions, and came to the conclusion, somewhat reluctantly, that it was due to lumbago. A few days afterwards, however, this patient was prostrated on her bed with all the ordinary signs and symptoms of rheumatic fever—knees swollen, red, and painful, ankles and wrists also affected, and temperature increased. Under the administration of salicine these symptoms gradually subsided, and I discontinued my attendance. I had not thought of examining the chest. I heard nothing more of this patient for nearly two years, when I was informed that she was brought home from the South in the last stage of consumption. She died a few months after reaching home.

CASE 3.—C. M. L.—, a shepherd's daughter, aged twenty-one, was said to be ill with rheumatic fever. On arriving at the bedside of this patient I was on the alert to discover something more than rheumatism, and naturally directed a good deal of attention to the state of the lungs; and, as I feared, these organs showed signs of tubercular deposit. Under these circumstances I gave a guarded prognosis, informing the parents that the lungs, and not the joints, were the parts really affected, and that there was some cause for anxiety. It was a difficult matter for the parents, seeing the red and swollen state of the joints, to realize that they were not the sole cause of her trouble. But a few weeks after the abatement of the rheumatism the pulmonary symptoms showed themselves—when the racking cough, the purulent expectoration, and the rapid emaciation made it apparent to all that the poor creature was the subject of advanced phthisis.

CASE 4.—This case, also that of a young woman about twenty-four or twenty-five years of age, came under my notice only a few days ago. I was asked to see her, as she was said to be suffering from rheumatic fever. Her knees were much swollen and very painful. Temperature 101°. I directed special inquiries, with the view of eliciting any symptoms referable to lung disease. She said she had slight cough, but it was from cold contracted a day or two previously, and both she and the attendants repudiated the idea of lung disease, and manifested some impatience at my stethoscopic examination and questions about family history. Respiration was very weak, almost suppressed in parts, rough in others; creaking crepitation heard over both lungs. I prescribed for the rheumatic symptoms, and recommended the friends to administer cod-liver oil, expressing an opinion that her chest was weak. I left the house, wondering that with such a state of the lungs there had not been more decided symptoms. On calling, however, at the next house in that neighborhood, I was informed that this patient had recently had several severe attacks of hæmoptysis, which weakened her so much that her friends despaired of her life; a fact which they carefully concealed from me.

It will be noticed that all the subjects mentioned here were young females, whose ages ranged from seventeen to twenty-four. Another point worthy of note is the fatal nature of the cases in which this peculiarity was observed. Cases 1 and 2 proved fatal, Case 3 is utterly hopeless, and the prognosis in Case 4 is certainly not favorable; so that this premonitory symptom, if it be a premonitory symptom, must be looked upon

as one of grave significance. As for the *rationale* of these cases, I do not think we need go very far to find an explanation of the phenomenon. I venture to suggest that the synovial membranes may be affected to a certain degree by tubercular deposit sufficient to induce a passing inflammation of the joints, in the same manner as other serous and mucous membranes, and that acute rheumatism occurring coincidentally with phthisis must be regarded in the same class of complications as meningitis, peritonitis, and enteritis, occurring under the same conditions.

Tongue, Sutherlandshire, N.B.

ORCHITIS, WITH SLOUGH OF A PORTION OF THE TESTICLE, FOLLOWING TYPHOID FEVER.

By C. E. HARRISON, M.B. Lond., F.R.C.S.,

Surgeon, 2nd Battalion, Grenadier Guards.

Mr. X—, having passed through the fatigues and exposure of the recent campaign in Egypt, arrived at Cairo with his battalion on September 17th. On the 27th, having felt unwell for some days previously, he was seized with intense headache, high temperature, and other febrile symptoms, which, after running a somewhat irregular course, developed the characteristic features of typhoid fever. The rose-spots, the character of the dejections, condition of the tongue, enlargement of the spleen, and pulmonary congestion were all marked. On October 27th he was considered sufficiently convalescent, although still weak, to leave Cairo by river steamer for Alexandria, travelling thence to England in a hospital ship. There was some return of diarrhoea during the voyage home, and on his arrival in England on November 14th he was exposed to the cold east wind then prevailing. On the following day his temperature was 99.2°, and there was some looseness of the bowels. On the afternoon of the 16th he was suddenly seized with pain in the right testicle, which became very acute during the night. On the 17th I found the testicle considerably enlarged, with redness and œdema of the scrotum. The epididymis was but little affected. There was no gleet or history of urethral discharge, and no local injury could account for the acute orchitis. Considering his weak state of health, it was deemed inadvisable to abstract blood. Fomentations with poultices and extract of belladonna were applied, and a saline mixture, with an opiate at night, was ordered. On Nov. 18th the patient experienced considerable pain in the testicle, which came on in paroxysms. There was some fulness and tenderness in the line of the spermatic cord. Temperature 102.8°. On the 21st the temperature was 101.4°; pulse 96; slight shivering. On the 27th indistinct fluctuation was felt. Sir James Paget, who had seen the patient on the 21st, approved of an exploration being made with the needle of an hypodermic syringe, but the presence of pus was not detected. This is probably accounted for by the needle having passed into a portion of dead tissue which was subsequently thrown off as a slough. On Dec. 13th the fluctuation was distinct. Two incisions were made, but little pus was evacuated. On the 14th the temperature was 99°. A small portion of slough presented between the edges of the upper wound, and this continued to increase in size, being gradually extruded. Having reached the size of an almond, the slough finally came away at the end of the month, and the wounds completely healed. At the present time the testicle is considerably diminished in size, but no further trouble has resulted.

To those interested in this rare sequela of typhoid fever, an interesting paper by M. Vidal, and a discussion on the subject will be found in the "Bulletin de la Société Clin. de Paris," 1877-78, p. 142. M. Dieulafoy here mentions that he has seen a case of suppuration, and that M. Chedevergue has reported another. Various causes to account for the complication are here suggested. M. Vallin suggests catarrhal inflammation of the seminiferous ducts; M. Vidal, thrombosis of the spermatic veins; M. Hallopeau, parenchymatous lesion rendering the organ susceptible of injury. In the same volume, p. 229, M. Sabourin reports a case. In the "Archives Générales de Médecine," 1878, vol. ii., p. 595, M. Hanot reports several cases, one case being almost identical with the subject of the present report. M. Paul Larquier published a thesis in 1882, entitled "L'Orchite dans la Fièvre Typhoïde." Dr. Marston in his excellent paper on the fevers of Malta and the Mediterranean in the reports of the Army Medical Department, 1861, speaks of rheumatic orchitis as occurring after the Mediterranean remittent fever. He mentions one case of suppuration. Dr. Duffey's paper (in the *Dublin Journal*, 1872, vol. i., p. 97) was referred to in a recent issue of THE LANCET. Prof. A. Liebermeister, in Ziemssen's *Cyclopædia*, vol. i., p. 181, speaks of the complication, but observes, "All the cases that I ever saw ran a very slight course." As to the cause, may not orchitis be closely allied to parotitis, which is also a sequela of typhoid, and may not both be described as an expression of blood-poisoning?

Wellington Barracks.

A NOTE ON THE PRACTICE OF SURGERY.

By WILLIAM S. SAVORY, F.R.S.,
Surgeon to St. Bartholomew's Hospital.

THE observation that doctors are too prone to act upon insufficient evidence is a very old and familiar one, and from time immemorial it has been the occasion of much wit and satire. The attempts which so often have been, and still are, made to establish some principle of treatment or mode of practice on inadequate grounds is, of course, to some extent natural and perhaps inevitable. The enthusiasm of inquiry, the force of impressive facts recently witnessed, go far to explain it; but withal, when carried, as perhaps it too frequently is, to an extreme point, it is apt to produce much mischief, to say nothing of discredit. Single cases, for instance, are not unfrequently quoted in this way, as if they could prove or show that the result which they illustrate is the usual or probable one. A consultation is held on the treatment of some obscure case; an important measure, such as an operation of very doubtful prospect, is proposed; an objection is taken to it on the score that it will probably fail or prove fatal; then immediately some one tells of some single case in which he was concerned when it turned out to be successful. Now if such a single instance be only used to show that the operation in question is practicable, that it may be successful, that it is possible for it to answer the desired end, well and good; or if it be used in illustration of the argument, no reasonable objection can be raised against it. But what further use ought to be made of it? If it be the sole instance in which such an operation has been performed, then of course it stands alone, and must be taken for what it is worth. But if it be only one case out of many, or even of a few similar ones, it is clear that its value in the question can be adequately measured only

when it is taken in conjunction with the rest. A and B are considering the question of an operation on C. A urges it because he has had one or two or three successful cases of the kind. But supposing A or B knows of twice or thrice as many others which have proved fatal or otherwise disastrous, how then does the evidence in reference to the operation before them stand? Surely we sin too often against reason in this way. Who cannot recall too many instances? It is, of course, clear that mistakes from this cause may arise in either direction, in the way of action or inaction; but who that has had much experience can doubt in which direction the greatest danger lies.

Closely connected with this carelessness of thought is a certain looseness of expression with regard to the result of particular operations. When an operation is said to be successful, what is to be understood? Surely it should mean that the end for which the operation has been performed has been accomplished. There must be a purpose in every operation, and unless it has been reached the operation must have failed. But how often is the term "success" applied to recovery only from the injury inflicted by the operation itself without reference to the object for which it was undertaken or knowledge of the result. If an operation be performed solely for the purpose of saving life which, but for such timely help, would have been forthwith sacrificed, then, indeed, recovery from the operation itself is fairly entitled to be called success; but if an operation be performed for the repair of some defect or the correction of some deformity, or with the object of removing some hindrance to the action of a part or of increasing its usefulness, then, although the person may recover rapidly from the operation itself, unless such end be gained it must be pronounced a failure; nay, even if an evil be removed, and another equally grave be established in its place, the term "successful" cannot fairly be applied to the operation. In some cases many weeks or months must necessarily elapse before it can be seen whether the purpose of the operation has been attained, and yet how many cases have been recorded as successful long before the period has arrived at which the question could be fairly answered. For example, an operation is performed for the removal of some hindrance to the strength or activity of a limb. As soon as the patient has recovered from the operation the case is published, or at all events from that date no further information is given or perhaps obtained of the result; yet clearly the chief fact which requires to be ascertained is the condition of the limb at a remote period. If the operation be really successful, by the omission of such knowledge an injustice is done to it. If it be not successful, then by such silence an injustice is done to surgery.

Again, I cannot help thinking that the practice is, in some instances, too common of throwing the responsibility of an operation upon the patient. Surgeons perhaps are sometimes too prone, as the result of deliberation, to declare, Well, I will put the matter before the patient and leave him to decide. Now it strikes me that this can hardly ever be quite right. As Sir James Paget has said, "As to the amount of good which is to follow an operation the surgeon alone can in most cases estimate it. In most cases therefore we must take the whole responsibility of operation, for it is only on our statements that patients can rely in judging whether they should submit or not; and most of them, even when they have our statements before them, are quite incapable of clearly and soundly judging." And not only so, but too often it is in proportion to the degree of doubt in

the surgeon's own mind that he becomes anxious to shift the responsibility. When the case is clear to him he expresses a positive opinion, but when the advantages and objections are more equally balanced he attempts to place them before the patient and to leave the issue to him. It is therefore in cases in which decision is most difficult that the patient is called on to decide. This ought not to be. Sir James Paget would make an exception in cases of what he wittily calls "decorative surgery." But I confess it seems to me that even this exception should be admitted only with considerable qualification. For when a man or woman is promised a better appearance as the result of an operation, how can either judge of its degree? When, for example, a surgeon proposes to make a new nose, can the patient picture at all adequately the new feature? And yet this is a point of the highest importance in coming to a decision between a new organ of flesh and an artificial one. I think that whenever the surgeon places the whole case fully and fairly before the patient he should at least never withhold his own opinion; and the instances ought surely to be very exceptional indeed in which he should act in opposition to it.

STEWED FRUIT FOR THE GOUTY AND THE DYSPEPTIC.

By J. MILNER FOTHERGILL, M.D.,

Physician to the City of London Hospital for Diseases of the Chest, Victoria Park.

PROBABLY the impression first created by scanning the title of this paper will be as follows:—"Why, what have either the gouty or the dyspeptic to do with stewed fruit at all?" That sugar is apt to disagree with sundry stomachs, causing great acidity, is a clinical fact not to be disputed. But because such is the case with a limited number of persons it does not seem, to me at least, that therefore a sweeping prohibitory law is to be laid down for a large section of the community. Gout poison, all admit, is a product derived from the albuminous constituents of our food, as nitrogen is a marked element in its composition. It is, then, the albuminous element in our food which has to be avoided in lithiasis. How sugar, fruits, and even vegetables came to be banned my researches have not enabled me to ascertain. From the time of Magendie's path-breaking essay writers on gout have advised the restriction of the nitrogenized, or azotized, constituents of our food in cases of lithiasis. But that the objection to sugar in gouty cases exists may not be denied. In speaking of stewed fruit for the gouty and the dyspeptic my views will be heterodox in the eyes of many. But neither the light of chemistry nor the lessons of practice conflict with my views. I am quite prepared to undergo any criticism these views may elicit or provoke. Indeed, the subject would be all the better for being thoroughly ventilated.

At the outset, I admit that for many persons—gouty, dyspeptic, and glycosuric—ordinary stewed fruit is objectionable from the amount of added sugar it contains. Where the acidity of fruit is masked or hidden by an excess of sugar, then the resultant product is cloying to many palates, and offensive to many stomachs. Probably in this all readers will agree with me. But it is by no means necessary to render stewed fruit objectionable by adding much sugar to it. Deprived of this excess of added sugar, stewed fruit can not only be rendered unobjectionable, but be converted into an

actual prophylactic measure, especially in cases of lithiasis. In order to attain this end all that need be done is to neutralize the excessive acidity by an alkali, and then little or no sugar is required. Thrifty housewives have long been familiar with the fact that the addition of a small quantity of the bicarbonate of soda to stewed fruit reduced the acidity, so as to save the necessity for much sugar. This was done simply for economy. The principle has a far wider application. Last June I was requested to visit a lunatic in the Midlands who was also gouty; and when the gout was acutely present she was more excitable and violent than usual. No medicine would she take, but she was very fond of stewed fruit. To add potash to her stewed fruit was very easy, yet very effectual. After this I gave my cook instructions to perform a series of experiments for me with all our ordinary native fruits. The result of this was that the amount of bicarbonate of potash required for each pound of fruit was found to be about as much as would lie upon a shilling. And this is a much better guide for a cook than to put so many grains. With all fairly ripe fruit this was just sufficient to neutralize the acidity, and bring out the natural sweetness; indeed the resultant product was quite sweet enough for most adult palates. Such stewed fruit could be eaten alone, or with milk puddings, or with cream, or the Swiss milk in bottles. Gooseberries, currants of all kinds, apples, and plums, all alike were excellent when so prepared. There are some points, however, to be attended to in practice, which are of more or less importance. The first matter is this: with dark fruits, as the black plum for instance, the color is impaired by the alkali, and the fruit is less attractive to the eye than is that of the ordinary stewed fruit, which is of a deep clear crimson. This matter is easily got over: a little cochineal will give the desired color. Another is this: where there is no natural sweetness to neutralize the acid completely by an alkali leaves nothing, simply a cold mass, to which the palate is absolutely indifferent. Such is the case with rhubarb. Here it is well to use half or all the amount of alkali with some sugar. The same is the case with early gooseberries before they have any natural sweetness; no sugar formed in them. Here the full quantity of alkali should be used, and the remaining acidity met by sugar. When three-quarters of a pound of sugar is required to sweeten one pound of fruit, only one-quarter of a pound of sugar is necessary after the alkali has been added. The sour-sweet taste is thus secured, which is toothsome. Now, in these two instances the stewed fruit is only rendered less objectionable to the stomach plagued with acidity, not made quite inoffensive. But for ordinary gouty individuals not troubled with acidity of the stomach, such stewed fruit is quite admissible, and forms a pleasant method of taking potash. The whole subject is one which deserves attention from invalids as well as their medical attendants, as it opens up to many a new field of diet altogether. Fruits *au naturel*—as the strawberry, for instance—are good in gout from the salts they contain, and are unobjectionable stewed, if it were not for the acetous fermentation of the added sugar. Here soda may be used. But where there is lithiasis the alkali ought to be potash. The gouty and the bilious alike are troubled with the products of the metamorphosis of albuminoids. Neither the lithates of the gouty nor the bile acids of the bilious are derived from the saccharine or farinaceous elements of the food. It was possible to make bricks without straw, but it is impossible to make bricks without clay! No liver can make these nitrogenized substances from simple hydro-carbons; it is physically impossible! The dietary for each is

the same—a non-nitrogenized dietary, in which vegetables and farinaceous matters are indicated, and saccharine matters, too, unless acidity in the stomach is produced by them. Milk puddings and stewed fruit are excellent for the dyspeptic, the bilious, and the gouty, as my experience tells me; and for one of those who suffers from taking sugar nineteen would be all the better for stewed fruit. But for those who dislike sweets, and for those who suffer from acidity, it is well to prepare the stewed fruit with alkalies, completely and solely or partially, as the case may be. This may sound very heterodox to some readers; but just let the incredulous test the matter for themselves.

Now, there are two other matters remaining to be alluded to, on which it is impossible to speak dogmatically, or *ex cathedra*; they are, rather, matters of personal belief, and they are these:—1. It does not seem a matter of indifference in lithiasis what forms of albuminoids are taken. The flesh of animals is rather converted into peptones by pepsin in an acid medium—that is, by gastric digestion—than by trypsin in an alkaline medium. And such peptones seem specially liable to form lithates. Caseine is more specially digested by trypsin in the intestine, and such caseine peptones seem less readily converted into lithates; the clinical fact being that a milk dietary or a pulse dietary is good for the subjects of lithiasis. Caseine is the form of albuminoid it seems to me, best suited to the gouty. Milk or milk puddings (made without eggs) are capital food for the cholæmic or the lithæmic. These fibrin-albuminoids, digested by pepsin, are laxative, while caseine is binding or constipating.

Milk puddings, then, go well with stewed fruit, which is a laxative. Many thoughtful physicians agree with me in the above matter. Now I am approaching what some may hold very disputable ground, yet nevertheless I venture to say here what I am beginning to think. Both for the classical diabetic and the glycosuric, cane sugar—the sugar of commerce—is bad, producing the unpleasant symptoms of sugar in the blood very readily. Yet many glycosuric individuals can take farinaceous matter with comparative immunity from discomfort. Starch in its way to grape-sugar is much less troublesome than is cane-sugar passing into grape-sugar, why I do not know, but the fact remains. Now, with many glycosuric individuals fruit stewed in the manner advocated here is quite permissible, while ordinary stewed fruit is very objectionable. For the dyspeptic, the gouty, the bilious, and the glycosuric individual (as well as the truly rheumatic, a small class), fruit stewed with an alkali in the proportion of as much bicarbonate of soda as will lie upon a shilling to the pound of fruit, when put in the oven, will be found both palatable and permissible. It saves the gastric acidity from the acetous fermentation of the sugar in the dyspeptic, or with the glycosuric relieves him from the excess of cane-sugar which disagrees with him. Where there is distinct gout not only is fruit stewed with an alkali good and unobjectionable; but if it be prepared with the bicarbonate of potash, it is converted into a therapeutic agent of no mean value; while the resultant product is quite sweet enough for a palate which has outlived the “sweet-tooth” period. The whole matter is a simple one, yet it seems to contain much promise for many persons.

Park-street, W.

— At a recent meeting of the Society of Physicians of Vienna, Dr. Felix Schwarz exhibited a man the subject of wandering liver. Needless to say, the case excited great interest.

A Mirror

OF

HOSPITAL PRACTICE,

BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendia, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

UNIVERSITY COLLEGE HOSPITAL.

CASES OF PSEUDO-MEMBRANOUS (DIPHTHERITIC) OPHTHALMIA IN NEWLY BORN INFANTS, SIMULATING ORDINARY PURULENT OPHTHALMIA.

(Under the care of Mr. TWEEDY.)

DURING the last two years about a dozen cases have been presented at Mr. Tweedy's *clinique*, which on casual inspection seemed to be ordinary purulent ophthalmia of infants, but which on closer investigation proved to be allied to genuine diphtheritic ophthalmia. In several of these the first peculiarity to attract notice was the disproportion between the degree of corneal complication and the amount of conjunctival inflammation. Inquiry usually elicited the fact that the affection of lids did not begin till a week or more after birth, and that for the first few days the inflammation was apparently not severe nor accompanied with much discharge. An examination of the conjunctiva lining the lids disclosed the presence of more or less adherent and semi-infiltrated pseudo-membranes.

The following case, for the notes of which we are indebted to Mr. W. D. Halliburton, M.B.C.S., ophthalmic assistant, is given as a mild but typical specimen.

Diphtheritic Conjunctivitis in an Infant four weeks old; Quinine Lotion; Recovery.—John G—, aged four weeks, was brought to the ophthalmic outpatient department on February 12th last, affected with great swelling of the right eyelids accompanied with purulent discharge. On Feb. 9th (three days before the visit) the swelling of the lids first appeared, and continued to increase. At the time of admission both lids were very much swollen, tense, and oedematous. The palpebral conjunctiva was smooth, rather pale, and covered with a thin semi-adherent pseudo-membrane. This was detached with a little difficulty, and exposed a smooth and pallid mucous membrane. The cornea was clear and the left eye was unaffected. The case was looked upon as one of diphtheritic ophthalmia, though no history of diphtheria could be made out either as existing in the family or in the neighborhood. A lotion containing three grains of sulphate of quinine to an ounce of distilled water, and dissolved with a minimum of dilute sulphuric acid, was ordered to be used every hour as a wash for the conjunctival sac, and to be kept constantly applied as a compress to the lids.

Next day the oedema had much diminished, and by the 15th it had entirely disappeared. The conjunctiva on this day was more vascular and more swollen, but there was a suspicion of membrane on the inner part of the upper lid; there was not much discharge, and the cornea was still clear. The lotion was ordered to be continued, but to be used only every four hours. On the 19th, when the child was next seen, the conjunctiva had a healthier color, and was more granular; there was no membrane to be seen; the lotion was ordered to

be used three times a day. On the 26th there was again a small amount of membrane, this time on the lower lid, the conjunctiva covering the mucous surface of the upper lid was still granular, and no membrane could be seen there. The lids were again somewhat oedematous. The appearance of the conjunctiva, where the pseudo-membrane existed, was very like that which would be caused by painting the surface with white paint. When next seen—namely, on March 1st, both oedema and membrane had disappeared. During these three days the lotion had again been used every four hours.

From this time until March 15th the same lotion was continued, and applied three times a day. Notwithstanding the absence of any visible morbid exudation, the oedema and swelling of the lids disappeared; and on the 15th it was noted that there was slight cicatrization on the upper lid. The quinine lotion was then discontinued, and a mild lotion of boracic acid (two grains to the ounce) was substituted for it. This was used for a fortnight, when the patient was discharged as cured.

Remarks.—Mr. Tweedy observed that what he regarded as the success of the treatment of this case might not unreasonably foster the belief that the diagnosis was erroneous, and that the disease was not diphtheritic conjunctivitis at all, but rather an anomalous form of purulent ophthalmia. In anticipation of this objection, he called attention to the time at which the disease began, to its one-sided character, to the tense and brawny oedema of the lids, to the smoothness and pallor of the conjunctiva, to the reappearance of the peculiar phenomena when the applications of quinine lotion were prematurely reduced in frequency, and lastly to the sequential cicatrization. True, it would be easy to overlook the real nature of such a case if it were a unique instance. But this and similar cases could only be recognized and understood by reference to the behavior of typical examples of the disease. In the most pronounced form the characteristics of diphtheritic conjunctivitis are sufficiently conspicuous to arrest the attention of any moderately observant practitioner. The risk lay in overlooking the milder degrees, which at any time might be aroused into such activity as to lead to the rapid destruction of the cornea. The application of a solution of nitrate of silver, which is almost of essential service in the treatment of ordinary purulent ophthalmia in infants, is almost invariably disastrous when the conjunctivitis partakes of the genuine pseudo-membranous character. Mr. Tweedy referred to a case that had occurred in his own practice a few months before as an illustration of this. Arthur E. H., aged three weeks, was taken to the hospital for severe inflammation of both eyes on Oct. 9th, 1882. The right eye began to be inflamed when the child was a week old, and a few days later the left became affected. When first seen at the hospital (a fortnight after the beginning of the disease), the right palpebral conjunctiva was covered with thin, sticky, dirty-looking adherent pseudo-membrane; the cornea had sloughed and the iris was prolapsed. The left palpebral conjunctiva had a similar pseudo-membrane upon it, and was but very slightly vascular; the cornea was hazy throughout its whole extent, and had a well-marked abscess at the outer and lower part. Quinine lotion was ordered to be used every hour. Three days later the lids were apparently free from pseudo-membrane and presented the usual spongy, bright-red appearance of ordinary purulent ophthalmia. The cornea was rather cleared and the abscess more circumscribed. The discharge was likewise more purulent. Thinking that the special interest he had taken in the in-

vestigation of diphtheritic conjunctivitis might have induced him to exaggerate the gravity of this particular case, Mr. Tweedy adopted the actual indications of purulent ophthalmia and applied a ten-grain solution of nitrate of silver to the everted lids. Though the quinine lotion was continued every hour as heretofore, when the patient was taken to the hospital a few days later the left cornea had sloughed and perforated, and the iris was prolapsed. Had vascularity and swelling of the conjunctiva and the purulent discharge observed at the second visit been taken as an indication of the second or purulent stage of diphtheritic conjunctivitis, rather than as controverting the original diagnosis, the cornea, damaged as it was, might, Mr. Tweedy believed, have been eventually saved by persistent employment of the quinine lotion and by abstention from the nitrate of silver. In further support of the specific character of this pseudo-membranous conjunctivitis, he referred to a case seen in consultation with Dr. John Williams about eighteen months ago. An infant, about a week old, presented the signs of mild simple conjunctivitis, which was treated with weak alum lotion. In about ten days the inflammation had apparently passed off, and the child opened the eyes without difficulty. Suddenly the right lid swelled, and within twelve hours the cornea assumed the appearance of ground glass and became infiltrated at the lower part. Dense infiltrated pseudo-membranes soon appeared on the palpebral conjunctivæ of both eyes. Quinine-lotion was used every hour, day and night, and both corneæ were ultimately saved, though at one time during the treatment the child had suffocative attacks, and it seemed doubtful whether it could survive.

LEEDS GENERAL INFIRMARY.

ABDOMINAL TUMOUR; ASPIRATED THREE TIMES; FLUID CONSISTING APPARENTLY OF ALTERED BLOOD; SUBSEQUENT DISAPPEARANCE OF THE TUMOUR AFTER AN ATTACK OF DIARRHŒA AND COLIC.

(Under the care of Dr. CLIFFORD ALLBUTT.)

For the following report we are indebted to Mr. J. F. W. Silk, house-physician.

J. H. M., aged thirty, a tailor, was admitted on Sept. 7th, 1882, complaining of pain in the abdomen and constant sickness. He gave the following account of himself. About four years ago he first began to suffer from pain in the abdomen, coming on mostly after food, and associated with flatulence and acid eructations. This was put down to ordinary indigestion, and the attack passing off in the course of a couple of months he remained tolerably free from pain up to about five months before admission, when it recurred, and was accompanied by vomiting. At the same time he noticed a hard lump, the size of a closed fist, in the epigastric region, which, he says, disappeared a few days after the other symptoms had subsided. The whole duration of this second illness, including the disappearance of the tumour, was not more than ten days. Subsequently he had three precisely similar attacks, in a of which he noticed the tumour, and in all, except the last, this tumour disappeared in the intervals of comparative good health. The fifth and last attack commenced on June 18th, 1882, and although he was only confined to his bed a fortnight, he never recovered completely, as on former occasions, and the tumour, instead of disappearing as usual, increased in size. The pain and vomiting became more marked about a fortnight before admission, and he lost flesh. The first attack, four years ago, was ascribed to mental anxiety; the subsequent attacks

are all associated by the patient with excess either in eating or drinking—e.g., “a heavy supper,” “a copious draught of ginger-beer,” etc., but beyond that no definite exciting cause can be made out. Both the family and personal history are good. He denied all venereal affections, and, as far as one could make out, there were no signs of syphilis about his person; he has been very temperate, and on the whole has lived a remarkably regular life, free from any serious illness.

On admission he was found to be a highly intelligent man, with an anxious worn expression. The pain obliged him to sit up in bed, and he was constantly vomiting. He retained nothing but fluids, and of those preferred lemonade and other cool watery drinks; he was most free from pain when his stomach was distended with large quantities of such fluids. There were no signs of any excessive emaciation. The layer of adipose tissue was well developed, especially in the abdominal walls, but the whole muscular system was flabby and ill-nourished. On palpating the abdomen, a distinct rounded tumour could be felt occupying the whole of the epigastric region, extending downwards to the level of the umbilicus, and laterally beneath the ribs, inclining rather to the left of the median line. It was elastic and freely movable from side to side; but its connections, partly on account of the thickness of the abdominal walls, could not be made out with anything like certainty. It did not, however, seem to be attached to either the liver or spleen, which, as far as could be judged from the areas of dulness, did not appear to be enlarged. The deepest inspirations only caused a very slight downward displacement of the mass, and nothing like an hydatid “thrill” could at any time be detected. There was no ascites or cutaneous oedema, and no cardiac or pulmonary lesion. The urine was highly colored, and contained much mucus. The temperature was quite normal. He remained in hospital for nearly three weeks, and with careful dieting and complete rest, the urgent symptoms above-mentioned abated, the tumour became less apparent, the urine regained its natural appearance, and the mucus disappeared. He went out at his own request on September 23rd to attend once a week as an out-patient. He was readmitted on Nov. 15th, 1882. Although the vomiting had not returned, and the pain was much less, the tumour had increased in size and had extended a couple of inches below the umbilicus. Its connections were still a mystery, and even under ether nothing further was made out. While under the influence of the anæsthetic the long fine needle of a small syringe was plunged to a depth of about three inches into the tumour, and about a drachm of dark-brownish viscid fluid withdrawn. This fluid was highly albuminous, but gave no reactions with any of the usual tests for bile; microscopically it showed large numbers of broken-down blood-cells, granules of coloring matter, and some larger and more perfect nucleated cells of an epithelial type, but the most careful search failed to reveal anything in the shape of a hooklet.

On November 30th the tumour was aspirated at a point about three inches above the umbilicus, and thirty-two ounces of a fluid exactly similar to that described above were withdrawn; viewed *en masse*, it had a greenish tinge. Great relief followed the operation, and the tumour became less prominent and tense, although it by no means entirely disappeared.

On December 13th, as the tumour had nearly regained its former dimensions, it was again aspirated an inch below the seat of the former operation, and fifty-one ounces of the same dark-colored

fluid were withdrawn. After this second operation it was noticed that the right side of the tumour had diminished to a much greater extent than the left; so on the 18th another aspiration was performed, the point selected being about an inch and a half to the left of the second puncture. Thirty-two ounces of fluid were withdrawn, resembling in all respects that previously obtained. Immediately after the third aspiration the tumour collapsed, and could only be made out as an indefinite feeling of resistance on deep pressure in the epigastric region, as it did not subsequently increase in size, and the patient's general health was greatly improved. He was discharged on Dec. 26th, 1882.

After his discharge he was seen at irregular intervals as an out-patient, and up to the beginning of March of the present year remained free from pain and vomiting, the tumour gradually reappearing. About the 14th of that month he had a sudden and severe attack of abdominal pain and vomiting; this was followed by diarrhoea, the motions being quite black and loose. From that date, the patient said, the tumour has entirely disappeared, and when seen on May 11th there were certainly no signs of anything like a tumour to be made out in any part of the abdomen; and, except for an occasional feeling of “biliousness,” he says that he has been perfectly well ever since March.

Remarks.—The cyst in this case seems to have been composed of at least two cavities, probably communicating, but not freely. The sudden disappearance of the tumour, as if by communication with the bowel is remarkable; and although one can hardly expect that this disappearance will be permanent, still, from the fact that the tumour is now, after the lapse of two months, quite imperceptible, one is almost led to hope that such may be the case. In every other respect it resembles closely the first of the cases cited by Dr. Bristowe in his “Clinical Remarks on Abdominal Sanguineous Cysts,” reported in *THE LANCET* for August, 1885. The case cannot be said to be complete; and the subsequent history of the patient will, as far as possible, be carefully watched; but even in its present incomplete form it presents so many points of interest that it is not, perhaps, unworthy of record.

KING'S COLLEGE HOSPITAL.

PARALYSIS OF THE PALATE AND PHARYNX, COMPLICATED WITH PNEUMONIA, BOTH PROBABLY DIPHTHERITIC; RAPID RECOVERY; REMARKS.

(Under the care of Dr. FERRIER.)

For the following notes we are indebted to Mr. St. Clair Thomson, M.R.C.S., house-physician.

David C—, aged thirty-four, a strong, healthy-looking Covent-garden porter, came to the out-patient department on April 12th, 1883, complaining of difficulty in swallowing. He then had complete paralysis of the palate. It did not rise either in inspiration or phonation, and gave no reflex action. There was no affection of the tongue or lips. He could pronounce all the vowels, but could not pronounce the explosives; the voice was nasal in tone. He could whistle if the nostrils were closed, but not otherwise. Liquids, on swallowing, came back through the nose, but if that was held he swallowed fairly well. On being questioned, he stated that he had had a sore-throat fourteen days previously, and that soon afterwards he noticed some difficulty in swallowing, owing to the tendency of fluids to return through the nose. No further history of diphtheria could be obtained. Late on th

following evening, April 13th, he was admitted to the hospital, complaining of cough, feverishness, and inability to swallow. His temperature was 101.6°. The following morning he was found not to have slept at all, owing to the cough. He had swallowed nothing through the night. He was able to take milk into his mouth, but was quite unable to swallow it, even with the nostrils closed; the attempts to do so produced violent coughing and hawking. The voice was so nasal in tone that it was almost unintelligible; the condition of the palate remained as on the previous day. The temperature was 103°; the respiration 64, shallow, and chiefly thoracic; the cough was frequent, of a high-pitched, ringing character; the sputum, which was expelled with difficulty, was yellow and purulent. The front of the chest was resonant with scattered rhonchi and mucous râles; there was the same condition over the back of the right lung, and over the left base there was complete dullness below the fourth rib, with fine inspiratory râles and marked bronchial breathing. The pulse was 136, fair quality, and regular; the cardiac area and sounds normal. The urine was acid, sp. gr. 1028, turbid with urates, but free from albumen. He was fed by the stomach-pump twice a day, being given half a pint of beef-tea, half a pint of milk, one egg, and two ounces of brandy on each occasion. For his thirst, which was intense, he was allowed ice to suck. On the 15th the temperature was 102.6°, the pulse 134, and the respiration still 60. He had slept very little. On the 16th, the third day of admission, he coughed less, and slept well and quietly. He swallowed several ounces of milk with no choking and little coughing; the voice, though still nasal, was much clearer. The temperature fell to 101.2° and 100.6°; the respiration to 44 and 36, the pulse to 108 and 100 (taken morning and evening). On the 18th, the fifth day in hospital, he was able to swallow quite naturally, without choking or regurgitation through the nose. The palate moved both on inspiration, phonation, and on being touched. He could whistle and the voice was quite natural, having lost all nasal quality. The temperature had fallen to normal, the pulse to 80, and the respiration to 32. The dullness of the left base was less intense, the breathing was still tubular round the angle of the scapula, with some bronchophony. Feeding by the stomach-pump was from this date abandoned, and he fed himself by the mouth, but still with fluid diet. On the 31st, his eighth day in hospital, he was placed on full diet. The pneumonia and bronchitis cleared up and he was discharged, quite recovered, on April 30th.

Beyond the rest in bed and general treatment above indicated, he received no special treatment. As soon as he was able to swallow at all, he was given a sedative for his distressing cough, later on an expectorant, and afterwards a tonic of quinine.

Remarks by Dr. FERRIER.—Though in this case there was no clear history of diphtheria, yet we are justified in considering the sore-throat to have been of a diphtheritic nature by the course and termination of the paralytic symptoms exhibited by the patient. A local paralysis of the palate appearing within a fortnight after a sore-throat, rapidly involving most of the muscles innervated by the pharyngeal plexus, and terminating in complete recovery within ten days is typical of diphtheritic paralysis. The other symptoms exhibited by the patient—viz., the severe broncho-pneumonia—are also well known in connection with diphtheritic infection, and probably are of the same nature as the pathological changes in the lungs which result from paralysis of the vagi. In great measure the pneumonia is of a traumatic

nature from the entry of foreign bodies—food, drink, etc.—into the air-passages. Why the diphtheritic poison should specially affect the regions innervated more especially by the medulla oblongata has not yet been cleared up. There is no distinct relation between the severity of the throat affection and the subsequent occurrence of paralysis of the palate; and paralysis of the palate may occur as a local affection when the diphtheritic poison has entered the system at any part, as by the finger. The actual morbid changes characteristic of diphtheritic paralysis have been the subject of much recent investigation, the researches of Déjerine apparently establishing the existence of a parenchymatous neuritis secondary to a slight degree of myelitis of the anterior horns.

NEWCASTLE INFIRMARY.

STRICTURE OF OESOPHAGUS; GASTROSTOMY A DEUX TEMPS; DEATH ON THE EIGHTH DAY.

(Under care of Mr. PAGE.)

For the following notes we are indebted to Mr. Ernest Hudson, house-surgeon:—

C. S—, male, aged fifty-nine years, was admitted on April 9th, 1883. For fourteen years he had been a county court bailiff, and before that "boots" in an Edinburgh hotel. In early life he was a postilion. He stated that in May, 1882, he was eating hurriedly in a restaurant, when a portion of meat was arrested in its progress through the gullet at a point which he referred to the angle of Ludovious, and was immediately rejected. He had never before noticed any difficulty in swallowing. For six months the difficulty in swallowing solid food gradually increased; for five months before admission he had lived entirely upon liquid food. For the last ten days he had been unable to swallow even fluids. He had suffered pain of a gnawing character in the epigastrium. He was treated at first by a druggist, and subsequently by a medical man, for indigestion. Four months before admission a bougie was passed, and he was told that he had a small cancer of the gullet. No assignable cause of the stricture could be made out. There was no history of syphilis, and he had never swallowed any irritating substance. There had never been hæmatemesis. During his career as hotel "boots" he drank very freely, sometimes as much as half a bottle of whiskey a day. There was no family history of tumour of any kind. He had lost 3st. in weight since his illness began. Pulse 120, small, irregularly intermittent; respiration shallow, chiefly thoracic; tongue dry and brownish; abdomen much shrunken and fallen in. Mr. Page passed a full-sized oesophagus bougie, which was arrested eleven inches and a half from the teeth. He was given a teaspoonful of milk, which, though apparently swallowed, was returned after about half a minute into the mouth. Ordered enema containing one ounce of brandy and three ounces of beef-tea thrice daily. It was eventually decided to perform gastrostomy.

April 15th: Chloroform having been administered, Mr. Page made a superficial incision, commencing at a point on the left of, and an inch and a quarter from the lip of the ensiform appendix, extending downwards for two inches and a quarter, parallel with, and an inch and a quarter from the lower thoracic margin. The fascia transversalis was exposed by a series of careful incisions. Two small vessels were ligatured and two more torsioned. All oozing having ceased, the fascia, and subsequently the peritoneum, were divided upon a hernia director. Through the opening thus made Mr. Page withdrew, with the finger and

thumb of the left hand, first a portion of the colon, which he returned, then a portion of the omentum which led up to the great curvature of the stomach, the anterior surface of which was attached to the edges of the incision through the fascia transversalis and the parietal layer of the peritoneum by interrupted sutures of silkworm gut, four on either side and one at the inner extremity. The surfaces of the outer extremity of the wound were brought into, and retained in, apposition by two superficial interrupted catgut sutures. A small portion of sponge was placed between the surfaces of the wound. Protective and carbolic gauze, Listerian dressing. The carbolic spray was used throughout the operation, which lasted fifty-nine minutes.—15th: No vomiting; no pain. Has been fed every four hours with enemata of beef-tea and brandy. At 11.30 p.m., restless; three minims of solution of morphia injected hypodermically; slept quietly until 3 a.m. Micturated voluntarily. Evening temperature 100°. 16th: No pain. Fed by enemata, last two of which have not been retained. At 9 p.m. (sixty hours after operation) Mr. Page made with a bistoury a small opening into the stomach, a No. 8 indiarubber catheter was introduced, though which fluid food was injected, and by which he was fed until his death. Temperature 100°; pulse 130; respiration 36.—17th: Complaints of slight uneasiness over right lateral thoracic region. Temperature 100°; pulse 120; respiration 26.—18th: No pain. Morning temperature 99°; evening temperature 101.2°; pulse 120; respiration 26.—19th and 20th: The temperature has varied between 100° and 102°; pulse 120; respiration 28.—On the 19th he commenced to ramble, and continued to do so until his death.—On the 22nd he died, 160 hours after operation.

The necropsy was made thirty-four hours after death. The surface exposed in the wound was greenish in color, and emitted a slight putrefactive odor. No effort of repair had been made in the wound in the abdominal wall, or of union between the apposed surfaces of the parietal and visceral portions of the peritoneum in this region. On opening the abdomen no serous or plastic peritonitis was found. The stitches uniting the stomach to the abdominal parietes were quite firm, and the tissues in the neighborhood presented no appearance of ulceration or inflammation. The opening into the stomach was situate an inch and a quarter from the great curvature, and four inches from the pylorus. The stomach contained a small quantity of clotted milk; the mucous membrane was pale and somewhat opaque, and coated with a tenacious mucus. In the oesophagus was situated an ulcer, two inches long, its upper part being five inches from the upper border of the cricoid cartilage, occupying almost the entire circumference; its edges were irregular, overhanging, but not indurated; its base flocculent and pale, and soft to the touch. Heart weighed eight ounces, was encased in much fat, its substance pale and easily broken down under the thumb, and valves healthy. No pleuritic adhesions existed. Both lungs were very oedematous. The upper lobe of the right lung was consolidated, crepitation was absent, and it broke down readily on pressure. The right lung weighed thirty-six ounces, and the left lung twenty-three ounces and a half. The right kidney weighed five ounces and a half. The capsule was slightly adherent. Projecting from the surface were two cysts, one about the size of a marble, the other slightly smaller; both contained a yellowish serous fluid; the substance was pale and somewhat tough. The left lung weighed five ounces, and contained one similar but smaller cyst.

GUY'S HOSPITAL.

CASES OF DISEASE OF THE UPPER JAW.

(Under care of Mr. BRYANT.)

CASE 1. *Periosteal (?) Sarcoma of Anterior Surface of Upper Jaw; Removal; Recovery.* (Reported by Mr. Franklyn Brown.)—Edith C—, aged nine years, was admitted into Lydia ward on June 30th, 1881. The patient's father, aged thirty, was healthy, but her mother, aged thirty-two, had suffered from rheumatism. Six months before admission the patient received a blow on the right cheek, and soon afterwards noticed a small swelling, which for a time remained stationary, but for the last three weeks it had increased. About two months before admission it was punctured, but with no result.

On admission, there was a slight swelling on the right cheek over the malar bone, deeply placed and movable over the bone "with an elastic feel." The superficial structures were freely movable over the tumour. The finger could be placed between the tumour and the teeth. Size about .75 in. by .5 in. Nostril free, lacrymal duct free. On the right side she had permanent incisors and the six-year old molar, also the temporary canine and temporary second molar. The first molar had been shed. On July 1st the tumour was removed from inside by scissors. It was easily separated from the bone. Iodine water was applied and a sponge inserted. The tumour was solid and a good deal of muscle was removed. On section it had a uniform translucent aspect and a firm close texture. It measured about 1.5 in. long by .75 in. broad. On July 12th the patient left the hospital well.

CASE 2. *Anal Abscess of twenty years' standing; Sinus on Palate; Incision and Extraction of the Root of the Right Lateral Incisor; Recovery.* (Reported by Mr. Tresidder.)—Charlotte M—, aged thirty-two, a glovemaking, was admitted on May 13th, 1881, into Lydia ward. Her parents are living. Mother, brothers, and sisters healthy. Her father suffered from urinary trouble. Twenty years ago the patient had a blow on the upper lip; the teeth became very tender, and two or three years later she noticed a swelling on the superior maxillary bone. This swelling increased for about five years, and had since remained pretty stationary. This swelling was lanced, and she derived much relief. It was afterwards lanced from time to time, but no cure had been effected.

On admission, the patient looked a healthy young woman. Her right upper jaw was much swollen, pushing forward the skin and dilating the right nostril. There had been no discharge from the nostril. The swelling hedged into the mouth, forming an enlargement about the size of a large walnut situated in the anterior part of the roof. All the teeth had erupted. The eyeball on the affected side was not displaced. The mucous membrane of the right nostril was abundantly red, and there was a foul odor like ozæna. The nostril was quite free. Pressure on the teeth and alveolar process caused no pain, and gave no sensation to the fingers of crackling. The patient stated that when she was about fourteen or fifteen, and when her face was a little swollen owing to toothache, she had her right upper bicuspid tooth extracted. She had also lost her left upper bicuspid tooth, and all her four second molars had decayed and broken away, the stumps only remaining. The stumps of the bicuspid teeth were also in the patient's head.

On May 24th the palate opening was enlarged, when the finger easily entered into a large cavity, evidently the antrum. The upper part was full of

soft material, and some foul-smelling dark fluid escaped. On hooking the finger forwards towards the alveolus a sharp fang of a tooth was discovered projecting into the cavity. This proved to be the fang of the right second lateral incisor. This tooth was now extracted. The cavity was cleared out, and a sponge inserted. The tooth was dark above the crown, and opaque and light. The extremity of the fang was bare and discolored. The rest of the fang was covered with a number of small, irregular, brownish excrescences resembling tartar. There was no membrane covering the tooth at all, and the fang had evidently been bathed in pus for some time.

On June 5th the patient had learnt to wash out the cavity with solution of permanganate of potash. The discharge was almost nil. The naso-lateral fold reappeared. The patient being almost well was discharged.

GENERAL HOSPITAL, BIRMINGHAM.

TWO CASES OF TUBERCULOSIS OF THE MALE GENITOURINARY ORGANS; REMARKS.

For the following notes we are indebted to Mr. J. W. Bond, resident medical officer, and Mr. B. C. A. Windle, pathologist.

CASE 1. (Under the care of Dr. Wade.)—G. C—, aged forty-three, a cooper, was admitted on Oct. 12th, 1882, when the following notes were taken. There was no history of tuberculosis in his family. For the past twelve months he has had a cough and a little hæmoptysis. Nine months ago he complained of increasing weakness, pain in the right chest, and a cough accompanied with greenish sputum. Four months ago the patient noticed scalding during micturition, the urine passed being normal in appearance. For the last three months, after a good deal of straining, he passed urine containing pus and sometimes blood. He has had for the same time a constant aching pain in the left groin, with incessant desire to micturate. Micturition did not afford any relief to this, but was accompanied by pain shooting down the urethra.

On admission he stated he had chills daily, after which he turned very hot, and he had pain under his left ribs. During and after micturition he has pain which shoots from the left groin along the penis. Has a bad cough, spits up a little blood, and feels very ill. The patient was strong enough to walk into the ward; his expression was anxious, and face flushed; he was very thin, and skin dry: temperature 102°. There are traces of old suppuration over the lower end of the sternum. He had micturated forty times in the last twenty-four hours, the stream being about the size of No. 3 catheter (English). It is not forked or twisted. Pressure over the left renal region causes pain which shoots to the end of the penis. There is no stricture. The urine is acid, with a sp. gr. of 1020, and contains much albumen and pus. Respiration 26; *alæ nasi* working; an occasional short cough; voice husky. He coughs up about two ounces of sputum per diem, streaked with blood and muco-purulent; ulceration about vocal cords; extensive consolidation of both lungs; no diarrhoea; no vomiting. From this time the patient rapidly got worse, becoming more emaciated, suffering from profuse night sweats, daily losing strength, and, in fine, presenting all the characteristic symptoms of a case of acute phthisis. During the whole period of his stay he had a constant desire to micturate, only passing a small amount each time. He suffered from pain above the pubes, and, for a few days, from retention, which had to be relieved by catheterization. On the first occasion on which

this was attempted a small instrument was used. This could not be passed into the bladder, but appeared to be caught in a stricture. A large instrument was, however, readily introduced.

The patient died on November 2nd. The necropsy was made next day, when the following condition of the urinary organs was found:—Kidneys: Right was normal, as was its ureter; left, there was a circle of caseous substance around the pelvis, and there were a few tubercular nodules in the ureter. Bladder: The walls of this organ were extremely ulcerated, and in parts very thin, notably so at the superior aspect; masses of breaking-down tubercular deposit hung from the walls; the prostate was slightly enlarged and tubercular; at the vesical end of the urethra there were three masses of deposit, extremely firm in substance, which met to form a tricuspid valve, which closed the orifice; one of these was placed below, the others on each side; in the urethral aspect of the lowest was a small pouch about a quarter of an inch deep. The bladder contained a small amount of dark-brown intensely fetid urine, with flakes of deposit from the walls floating in it. Both vesiculæ seminales were enlarged and contained caseous matter. The larynx, lungs, and intestines showed advanced tubercular disease; the other organs were normal.

CASE 2. (Under the care of Dr. Rickards.)—A. B—, aged thirty, fireman, was admitted on March 12th, 1883. His father died of phthisis. He himself had suffered from a previous attack of congestion of the lungs. About twelve months ago, the patient for about half an hour was unable to micturate, though strongly desirous of so doing. After this time he experienced pain at the end of the penis preceding micturition, whilst during that act he had a scalding sensation. The urine itself, he noticed, became thick, and especially after much exercise or standing deposited "matter." Occasionally it contained blood. This state of affairs continued up to admission. He has made water very frequently, sometimes every five minutes. The quantity per diem has been considerable, and its smell offensive. Occasionally he has had an aching pain in the belly, especially to the right of the navel. He has had no pain in the back, no shooting pains from loins to penis, or down the thigh. Three weeks ago he had a rigor, and since he has had slight cough, and has lost much flesh. Has passed no calculi per urethram.

On admission, the patient was a thin man with flushed cheeks, bright eyes, *alæ nasi* working, and an anxious expression. He lay on his back, breathing quietly, respiration 26 per minute. Temperature 101°F. His voice was feeble and husky; there was extensive consolidation of the right lung; the other thoracic organs were normal. There was pain on pressure in the region of the right kidney. The patient micturated about every fifteen minutes, the urine being of a neutral reaction, sp. gr. 1015, and containing much pus. Nothing was found on examining the rectum and testes, except extreme tenderness on pressing the prostate. The man's great complaint was his constant desire to micturate. After admission, the patient rapidly became worse, the lungs breaking down, the temperature high at night, and the frequent micturition continued. The urine varied in quantity from forty-six to eighty ounces, in sp. gr. from 1014 to 1020, and always contained much pus. Tubercle bacilli were present in the sputum. On March 23rd, the patient was examined by Mr. Barling, who favored us with the following report:—"No stricture. On sounding surface of bladder behind prostate feels hard and rough, but no distinct calculus can be detected. Per rectum: Prostate and part of bladder adjacent appear to be considerably thickened." On March 28th, the pa-

tient, after sitting up, suddenly fell back and died. For five days previous to his death the amount of urine had steadily decreased.

Autopsy.—Heart contained a large amount of firm yellow clot, otherwise normal. Lungs: Right, cavity at apex; lower part of upper lobe and middle lobe full of tubercles and small cavities; lower lobe contained a number of miliary tubercles. Left, miliary tubercles scattered throughout organs, a few small cavities in apex. Kidneys: Right, pelvis contained pus, and was surrounded with tubercular deposit, which extended into the ureter. Several pyramids were broken down and formed cavities full of pus. Ureter contained some tubercles. Left: A number of small caseous deposits occupied pyramids at centre of kidney. Pelvis contained a considerable amount of lithates. There were a few tubercles and tubercular ulcers in ureter. Bladder: Full of pus, and on removal apparently consisted of two equal sized cavities, communicating by a small hole. A more extended examination showed that the anterior cavity was the prostate completely hollowed out and forming a cyst of the same size as the posterior cavity, which was the somewhat diminutive bladder. The walls of both these cavities, but especially the prostatic, were much ulcerated and covered with large masses of deposit. Both vesiculæ seminales were enlarged and full of caseous matter. Testes: Right, contained a cavity full of pus, and some caseous masses; left, contained some very soft caseous masses. There were a few tubercular ulcers in the colon near the ileo-cæcal valve. The other organs were normal.

Remarks by Drs. BOND and WINDLE.—The chief clinical interest of the first case lies in the anomalous symptoms produced by the deposits at the neck of the bladder. Examination post mortem showed that when a small silver catheter was introduced it was almost certain to catch in the pouch already described as existing in the lowest segment of the valvular apparatus. The cavity being too small to admit the point of a larger instrument, explains the ease with which a No. 9 catheter surmounted the obstacle which a No. 3 had failed to pass. In the second case, it seems strange that a catheter should have passed across so large a cavity as was formed by the excavated prostate, and entered with such ease into the bladder. That this was the case, there is no doubt, as Mr. Barling felt the instrument, per rectum, in the bladder behind the prostate. Pathologically, these cases are interesting from the very unusual amount of tubercular destruction present—in the first in the bladder, and in the second in the prostate. The former case is an exception to the rule that tubercular disease of the urinary tract commences in the kidneys and subsequently appears in the ureters and bladder. Here the bladder was extremely affected, whilst in only one ureter and kidney were there signs of disease, and in those but small evidence. The latter case would appear to be of the same nature, though in it the kidney mischief was more advanced than in the former. At the same time it was considerably behind the condition of the other parts of the tract, notably the prostate.

EAST SUFFOLK AND IPSWICH HOSPITAL.

THE ENTIRE SCALP COMPLETELY TORN OFF.

(Under the care of Mr. HETHERINGTON.)

M. W—, a girl, aged fourteen, a stay maker, on February 19th, while working in the factory where she was employed at her sewing machine, which, in common with others, was driven by an unprotected shaft passing under the table, she

stooped down to find something she had dropped, when her hair, which, contrary to the rules of the establishment, was loose and very long, fell over the shaft as it was revolving, and so was wound round and round on it until the scalp was completely torn from her head and the poor girl then set free. She was immediately sent to the hospital, when it was found that in front the entire scalp and forehead, just below the right eyebrow, across the root of the nose, through the left brow, behind to the nape of the neck, on the right side, including half the ear, and on the left just escaping the ear, was completely gone. The greater part was torn off, leaving the edges as if cut with a knife; on the right side the skin, however, was more or less lacerated where the ear was severed, and behind the skin hung down away from the neck. The patient was perfectly conscious and able to describe the accident, and apparently not suffering from shock; while considering the best means of dressing such a large surface, the scalp which had been detached from the machinery was brought, and it was decided to replace it, although small hope of its union was entertained. The hair having been cut off and the scalp washed in warm carbolic solution, it was replaced, the retracted skin of the face and neck being drawn up and secured to it by silver wire sutures, the whole being completely covered with cotton-wool and moderate pressure applied. The temperature rose the next day to 103° 8', and the pulse to 140, but from this time gradually fell to normal; there was no sickness. For the first six days milk only was given.

February 23rd: Part of the scalp behind was removed to enable the neck to be dressed, the discharge here being very profuse. There was also considerable hæmorrhage from one spot.—25th: The dead scalp was removed, the surface beneath was found healthy and granulating, with bare bone in one or two spots; a few small sloughs removed. The dressing which was then used, and has ever since been continued, was vaseline spread on strips of lint, the whole covered with cotton-wool.

May 31st: The large granulating surface is slowly diminishing in size; skin-grafting is being successfully adopted, although it must necessarily take a long time before it is completely healed. No cerebral symptoms have at any time been present.

Remarks.—That the entire scalp can be detached with so little shock or other injury is remarkable. Dr. Samuel Gross, in his "System of Surgery," narrates a very similar case of a young woman whose scalp was in the same way torn off by machinery. Eighteen months elapsed before the surface completely cicatrized; the woman, moreover, was at the time of the accident three months advanced in pregnancy and carried the child to full term. Such accidents point to the necessity of carefully guarding and protecting exposed driving shafts and gear in factories, etc., especially where females are employed.

LEEDS FEVER HOSPITAL.

A CASE OF SCARLET FEVER WITH COMPLETE RELAPSE.

(Under the care of Dr. BARRS.)

FOR the notes of the following case we are indebted to Dr. Crooke, resident medical officer.

Ada S—, aged twenty, a domestic servant, was admitted into the hospital on February 17th, 1883, when she presented the following evidences of an all but terminated attack of scarlet fever. The face was flushed; there was slight febrile disturbance, and the tongue was furred and moist, with some redness of the tip. The throat was considerably injected with much swelling of the tonsils,

but no ulceration of the surface. There were the remains of a rash upon the chest. The urine was not albuminous. She said that the attack had commenced on the 14th (three days before admission), with sore-throat and feverishness, headache, a rigor and vomiting, and that a well-marked rash was visible on the morning of the 15th. She was sent to the hospital by her medical attendant as a case of scarlet fever. The temperature curve, though on and after admission more or less unsteady, never showed any marked rise, and may be said to have been of normal mean almost from the first.

On March 7th, the patient was allowed to leave her bed, though still confined to her small ward. Previous to this date the temperature was noted as normal or subnormal on five or six days. On the 16th, between which date and the 7th we may assume the temperature to have been normal, though no actual observations were made, she shivered, and was noticed by Dr. Crooke to be looking unwell; and, in addition to the general appearance of a febrile attack, she complained of sore-throat. The tonsils were found to be swollen. On the evening of the 17th, a well-marked scarlatinal rash was seen on the neck, trunk, and extremities. The temperature was 104°. On the 18th, the rash was still more marked, the temperature 100° to 102°, and the tongue presented a typical appearance with enlarged papillae. On the 23rd, desquamation appeared about the neck. The temperature was normal on the 20th. On the 27th, desquamation was general. She desquamated freely after the first attack from Feb. 24th to March 7th. The urine was free from albumen throughout both attacks, and also on April 27th, when she left the hospital.

Remarks by Dr. BARRS.—Cases of true relapse in scarlet fever—that is, where all the characteristic phenomena of the disease are developed within a very short time of a previously complete manifestation of infection—are rare. That the case was one of scarlet fever, with true relapse, there can be little doubt, though we had not an opportunity of seeing the primary attack in its complete development. The only and the great source of error in such a case is the almost unlimited uncertainty of the diagnosis in this disease. The occurrence of a red rash of, at the best, very ill defined character, with sore-throat and pyrexia, will by no means warrant us in making a dogmatic statement, always, that any case is one of scarlet fever. That the second attack was one of scarlet fever there could be little doubt, and that the first was of the same nature is almost certain by the fact, which was afterwards learnt, of there having been cases of scarlet fever in the house in which she had lived. Beyond the bare facts of the case, showing, that one or the other can occur, there is nothing to lead us to determine whether relapse was due to the "recrudescence" of the primary infection, or to the failure of the first attack to protect. The possibilities of either, whatever the first may mean, can scarcely be discussed here.

SHEFFIELD PUBLIC HOSPITAL AND DISPENSARY.

MIXED-CELLED SARCOMA OF THE LOWER END OF THE FEMUR; AMPUTATION THROUGH THE MIDDLE OF THE THIGH; RECURRENCE IN THE LUNGS; DEATH; NECROPSY; REMARKS.

(Under the care of Mr. PYE-SMITH.)

For the following notes we are indebted to Dr. Sinclair White, house-surgeon.

Alfred H—, aged nineteen, a delicate-looking

youth with a family history of phthisis, was admitted, on Jan. 8th, 1883, suffering from a tumour in the lower part of the right thigh. He stated that he had had "growing pains" about the right knee for three or four months, and that these were followed six weeks ago by enlargement, which had increased rapidly; he had, however, kept at work as a moulder until admission. Afterwards, he remembered that two years previously he had had a blow from a cricket-ball, which caused a severe bruise of the knee.

Examination revealed an oval swelling situate over the internal condyle and a portion of the shaft of the femur immediately above. Manipulation showed the growth to be connected with the subjacent bone. The skin over it was normal. The swelling felt firm, smooth, and slightly elastic. The inguinal glands were not enlarged. An exploratory incision having been made into the growth and its malignant character ascertained, amputation through the middle of the thigh was performed on Jan. 10th. The wound was treated antiseptically, and healed without suppuration. The boy was discharged apparently well on Feb. 21st.

Microscopical examination of the growth showed it to be a mixed-celled sarcoma, with a few bony spicules. It originated from the periosteum, and involved the internal condyle and an inch or so of the inner side of the shaft of the femur.

The boy continued well up till April 10th, when he began to suffer from cough and shortness of breath which he attributed to catching cold. He was readmitted on April 21st when both lungs were found to have irregular patches of dulness; crepitation and pleuritic friction sounds could be heard over the greater part of both lungs. Temperature rose to 103° F., and the boy suffered greatly from dyspnoea and inability to lie down. He got rapidly worse, and died on April 28th.

Necropsy.—The right lung was infiltrated with new growths, and a number grew from its pleural covering. The growths were of various sizes, from that of a pea to that of a hen's egg. They were also variable in color and consistence. Some were as firm as liver, and of a whitish color, not unlike hardened brain. Others, with the same color and consistence, cut with a "sandy" feel, as if they were infiltrated with fine sand. Other growths, again, were of a darker color and softer consistence, while some were even diffuent and fluctuating. The growths were but slightly attached to the lung or pleura, and could be readily isolated. The right pleural cavity contained a large amount of reddish-colored serous fluid. The left lung had similar growths, only not so numerous. Growths were also found behind the sternum and in front of the dorsal vertebrae in the mediastinal spaces. The heart presented suspicious-looking patches in the inter-ventricular groove. The kidneys appeared normal, except for a little puriform deposit in the neighborhood of the pelves. The liver, spleen, and intestines were healthy. The brain was not examined. Sections from the growth showed them to be composed of round and ovate cells, closely packed together, the new growths infiltrating the lung tissue and distending the alveoli, the outlines of which were still visible. The stump of the femur was free from a recurrence of the growth.

Remarks by Mr. PYE-SMITH.—This case proved to be, unfortunately, typical and complete. Malignant sarcoma being diagnosed amputation in the thigh, well above the growth, was chosen rather than amputation at the hip, because on the one hand the risk of the operation would be less, and the stump (in case of success) would be more useful; whilst, on the other hand the danger of re-

currence seemed to concern remote parts quite as much as the neighborhood (infection in sarcomata of bone being by the blood rather than by the lymph stream or by continuity of tissue), and as it seemed just possible before operation that the case might turn out to be one of myeloid, it would have been a pity to remove, in that case unnecessarily, the whole of the femur. The important question is, Did the removal of the original tumour either retard or accelerate the development of secondary growths? or had it no effect in either direction? The operation had a decided effect in removing anxiety and bringing hopefulness to the patient, and the fatal internal ailment was probably less distressing to him, both physically and mentally, than if it had been complicated by the presence of a visible tumour.

ST. VINCENT'S HOSPITAL, DUBLIN.

A FATAL CASE OF UNCOMPLICATED ACUTE RHEUMATISM; REMARKS.

(Under the care of Dr. QUINLAN.)

For the following notes we are indebted to Mr. Kenna, house-surgeon:—

Kate C—, aged twenty-two, single, of delicate appearance, was admitted on Friday, May 11th, suffering from acute articular rheumatism. She had been ailing for seven days; no previous attack. Both wrists, both elbows, and the left knee were swollen and immovable, and very painful; tongue yellowish white; copious acid perspiration; no cardiac lesion; no subcutaneous nodules. Temperature 103.8° F.; pulse 120. Ordered fifty-grain doses of salicin in milk, commencing at noon; also a quarter of a grain of morphia, hypodermically. At 6.30 P.M. she had taken six doses; the pain of joints was not so severe; temperature 100.8°; pulse 112. Ordered the salicin every second hour if not asleep.

May 12th, 9.30 A.M.: Articular pain completely gone; slept a few hours during the day; temperature 100.5°; pulse 120. Ordered sixty grains of salicin every second hour until evening. 6.30 P.M.: A little articular pain; temperature 101°; pulse 120; the patient restless. Ordered a sleeping draught containing chloral and bromide of potassium. To continue the salicin every second hour.—13th, 9.30 A.M.: Slept well during the night; articular pain gone; heart normal; temperature 100.6°; pulse 128. To continue salicin.—14th, 9.30 A.M.: Slept without a draught; free from pain; heart normal; she is, however, feverish and uncomfortable; intellect quite clear; temperature 100°; pulse 116. To continue salicin. 6.30 P.M.: Temperature 102.8°; pulse 112. At 11.30 P.M. the patient suddenly became delirious and violent. The temperature rose very much; but as she had to be kept in her bed by the efforts of three persons, it could not be exactly ascertained. She died about a minute before midnight.

Remarks by Dr. QUINLAN.—Having recently put forth some very successful cases of acute rheumatism treated by large and frequent doses of salicin, I feel it incumbent to publish this, the first of a large number of them in which the result was unfavorable. The very high admission temperature, and the frequent temperature exacerbations, marked this case from the beginning as one of those virulent ones that used to be the dread of physicians and an opprobrium to medicine. I am almost inclined to regret that, with this knowledge before me, I did not begin with sixty-grain hourly doses, and adhere to them until the temperature was decisively lowered and the disease evidently subdued. Probably, however, in so virulent a

case the result might have been the same. It is remarkable that, although the temperature heightened again and again, the influence of the drug in relieving the articular pain was immediate and complete. Something also might have been done by blistering the epigastrium, a procedure which often does good in severe cases, and that quite irrespective of cardiac complication. The fatal issue does not in the least shake my confidence in salicin. It shows, however, that we have something yet to learn about the exact method of using it, and that we do not yet always administer it with sufficient boldness.

ST. BARTHOLOMEW'S HOSPITAL, CHATHAM.

ACUTE TRAUMATIC TETANUS, COMPLICATED WITH FACIAL PARALYSIS; DEATH; REMARKS.

(Under the care of Mr. NANKIVELL.)

J. G. L—, aged thirty-three, a working man, attended the out-patient department on March 12th, 1883, suffering from a slight attack of facial erysipelas, caused by a wound of the bridge of the nose, received two days previously whilst at work. He was treated as an out-patient till March 17th, when, feeling quite well, he at his own request was discharged.

On March 19th, he again presented himself, stating that on the afternoon of the 17th he noticed he could not open his mouth or close his right eye. He was made an in-patient.

State on admission.—The lines and markings on the right side of the face are obliterated, and the eye is wide open and cannot be closed. The mouth and tip of the nose are drawn over to the left side, and his lower jaw can only be opened so as to admit of the introduction of the handle of a spoon. The man has no ear symptoms. Ordered some calomel and jalap and a mixture containing ten grains of iodide of potassium three times a day.—20th: The paralysis of the face can be completely neutralized by a mild galvanic current applied over the seventh nerve. Patient's breathing is considerably affected, being whistling in character. Trismus much the same.—21st: Complaints of pain at epigastrium. The muscles of the neck and back feel hardened. Ordered belladonna and chloral.—23rd: Early this morning the patient had a very severe spasm of the muscles of respiration, being nearly asphyxiated. There was also opisthotonos. The paralysis of the face still exists, and the trismus is as complete as ever.—24th: Has had several general spasms since yesterday. He died this afternoon.

Remarks by Mr. NANKIVELL.—Acute tetanus, conjoined with paralysis of the seventh nerve, must be a rare affection. I have seen a tolerably large number of cases of tetanus, but have never met with this complication. The muscles of the face are usually in a state of tetanic contraction, producing the "tetanic grin," which was entirely absent in the case now under consideration. Mr. Poland, in his article on Tetanus in Holmes's System, states that in two cases of tetanus at Guy's the orbicularis palpebrarum was involved, inducing closure of the lids. In my patient the eye was wide open and could not be closed. The text-books I have been able to consult do not mention tetanus complicated with facial paralysis. I have, therefore, thought it desirable to place this case on record. I would add, in conclusion, that March 17th, the day on which the man last came to the hospital as an out-patient, was cold and wet. It has occurred to me that he might have caught cold on his way home, and so induced inflammation of the nerve within the aqueductus Fallopii, which would account for the paralysis.

WEST LONDON HOSPITAL.

PARAPLEGIA IN A CHILD CURED BY PURGATIVES;
REMARKS.

(Under the care of Dr. THOROWGOOD.)

For the following notes we are indebted to Dr. Schacht, house physician:—

Jessie P—, aged ten years, was sent into the hospital as a case of infantile paralysis on Feb. 2nd, 1883, when the following notes were taken:—The mother says that for over three months her child has not been able to walk; she has seemed to fail gradually, and now is quite unable to stand. When placed on her feet she falls unless caught by a bystander. The legs are not notably wasted, but the mother says she has lost flesh decidedly of late. The patellar reflex movement well displayed and critically tested. The general surface of the back is rather tender, but no special pain over the spinal column, and no pain or other symptom when the head is pressed down on the spine. No "tache cérébrale." Urine is healthy and free from albumen and sugar; pupils of eyes dilated notably. Pulse quiet; tongue not clean. In reply to inquiry the mother reported that her daughter was sorely troubled with worms—ascarides. In the belief, therefore, that irritation of the intestines might have something to do with the paraplegia, the following medicine as a non-irritating antacid aperient was prescribed on Feb. 2nd, containing half an ounce of compound decoction of aloes, to be taken twice a day. On the 6th the child was able to run and walk about the ward as well as could be desired. The medicine had acted efficiently on the bowels, and brought away many worms. She continued it a few days longer, and on Feb. 10th, as she seemed perfectly well, she was given a tonic with iron and allowed to go home, with orders to return if any symptoms of illness showed themselves.

Remarks by Dr. THOROWGOOD.—Cases of paraplegia, and sometimes of contraction of the knee, of apparently obstinate kind, have been met with, where the cure has been missed from a want of attention to the condition of the intestinal canal. The late Dr. Graves, of Dublin, gives a case where a youth who had fed freely on nuts had a distinct attack of paraplegia only cured by the effectual purgation of his intestine from the crude mass formed by undigested nuts. The presence of intestinal worms in the case of Jessie P— clearly indicated the line of treatment to be first put in force.

Medical Societies.

EPIDEMIOLOGICAL SOCIETY.

Outbreak of Cholera in Egypt.

At a meeting of the above Society on July 4th, Dr. J. M. Cunningham, Sanitary Commissioner with the Government of India, read a paper on the "Sanitary Lessons of Indian Epidemics." The President of the Society, Dr. George Buchanan, F.R.S., introduced the subject by the following memoranda concerning cholera:—

1. *Narrative.*—Cholera reached Europe by way of Egypt for the first time in 1865. Before that date, its course from Asia had been through the Russian Empire. At the first appearance of cholera in Europe, over forty years ago, it began in Great Britain fifteen months after its introduction to Europe. At its second appearance, it began with

us in England after about the same interval. Its third appearance does not admit of comparison with the others. At the fourth appearance of cholera in Europe; when it came by way of Egypt, it was epidemic in the Hedjaz in May; it appeared at Alexandria on June 2nd; was at Malta, Smyrna, and Constantinople before the end of that month; and appeared in Spain and Italy and at Marseilles during July. Spreading somewhat widely in Europe during the next two months, it was at Southampton on September 17th, and on Nov. 3rd it was witnessed at New York. In the spring of 1866, cholera acquired an increased diffusiveness; and by June had attacked many places in the United Kingdom, but hardly any cases occurred in London until July. [The Suez Canal was opened in November, 1869.] Extension of cholera from Northern Arabia was next threatened in 1871; and the disease prevailed to a small extent in Europe during 1872 and 1873. Since that date, it has occurred several times among the pilgrims to the Holy places, but has not established itself in Egypt, nor has it prevailed in Europe. Cholera is now at Damietta, a place with some 30,000 inhabitants, about six miles from the mouth of one of the branches of the Nile. The way of its arrival thither cannot be stated. Damietta is not on any high road from Asia; and the towns above Damietta on the Nile are not known to have been affected before this town. No cholera is known of at Suez, nor in the course of the Canal, though from Port Said an occasional death is now being reported. In the ten days ending June 30th, about 500 deaths from cholera occurred at Damietta; on July 1st there were 140; on the 2nd, 130; and on the 3rd, there were 110 deaths. The disease now exists at Mansourah, higher up the same branch of the Nile, and cases are appearing in other towns situated on the railways of the Delta.

2. *Expectations.*—When, I have been asked, may cholera be expected to travel through Europe to England? how long after its present manifestations in Egypt? Evidently no medical data exist for an answer to the question. We do not understand all the conditions for the diffusion of the disease. But we in England do firmly believe, what many of our Indian friends would deny, that cholera is influenced in its spread by human intercourse. We do not affirm that it passes from person to person as small-pox or typhus does; but we believe that it extends much after the fashion with which we are familiar in the case of enteric fever, by means of the discharges from the sick, particularly if those discharges are received into foul cess-pools and drains, or if they obtain admission into drinking water; and human intercourse is one of the conditions for the spread of cholera in such fashion as this. If we now, for the sake of hypothesis, suppose other conditions for diffusion of cholera to be to-day what they were in 1865, we may inquire how far the conditions of human intercourse have altered in such wise as to affect the probable dissemination and rate of transmission of cholera in and about Europe. In reply, let it be remembered that, though Egypt has doubtless incurred repeated risk from her communications with the Hedjaz, there is no evidence that even Egypt has been subjected to danger from cholera, at any time, through her direct maritime communications with more Eastern countries; let it be remembered that the Suez Canal has now been open for more than thirteen years; and let it further be noted that the present outbreak of cholera in Egypt is not on the line of traffic between Asia and Europe; and it will appear improbable, I think, that the use of the new highway will affect the course of cholera towards France and England. Still, it is not to be supposed that 1883 will find

us in every respect under the same conditions of human intercourse as 1865; and it is possible that some of the changed conditions may be such as to affect the opportunities for the migration of cholera. But, plainly, they are not worth speculating about, in view of our complete uncertainty whether those conditions for the diffusion of cholera which are independent of human intercourse are or are not to be the same in 1883 as in 1865.

3. *Precautions.*—"Quarantine," meaning by the word a system which professes to prevent the entry into a country of persons coming from another country until assurance is attained that no infection can be introduced by those persons, is not now regarded as capable of fulfilling its pretensions; and its least failure to exclude infection is seen to make the whole system irrational; its cost and its vexations unjustifiable. Accordingly, England, which long ago abandoned the system as of any avail against cholera, has now the consent of most European nations (as expressed by their delegates to the Vienna Conference of 1874) in preferring for the defence of her ports another system which, under the name of "medical inspection," aims at obtaining the seclusion of actually infected persons, and the disinfection of ships and of articles that may have received infection from the sick. The details of this system, as formulated for practical application in the ports and waters of England, are set forth in an Order of the Local Government Board of July 17th, 1873. Provision is there made for the detention of ships at appointed places; for the visiting and medical examination of ships and passengers; for the removal to hospital of persons suffering from cholera or suspected cholera, and for their detention there; for the speedy burial of the dead; for the disinfection or destruction of clothing and bedding; and for the purification of the ship and of articles therein. This order is at present operative. From a statement by Earl Granville, recently, I learn that it is proposed to reissue the order, though without change in essentials. It represents the system upon which we rely, in preference to quarantine, for the protection of our shores. For the last ten years the country has been thus prepared for the invasion of cholera, and the fact of this preparedness should be known. We have reason to hope that if cholera should enter England it will find fewer opportunities for doing mischief than at previous invasions. We are generally better provided with defences against a disease which spreads as cholera can spread. Some further precautions for use at the moment will doubtless be requisite; but it will be on our permanent sanitary works and procedure that we shall with most confidence rely.

The Sanitary Lessons of Indian Epidemics.

At a meeting of the Society on July 4th, 1883, Dr. Buchanan, F.R.S., President, Surgeon-General J. M. Cunningham, Sanitary Commissioner with the Government of India, read a paper on the above subject. He began by referring to the views he had expressed regarding cholera and other Indian diseases at a meeting held by the Society ten years ago, and proposed to inquire how far those views had been altered or confirmed by further experience. The field of observation in India is very large, and especially fitted, by its extent, the variations of race, and local conditions, for the study of epidemics. The large bodies of troops and prisoners scattered over this enormous area give exact data, which are supplemented by the statistics obtained regarding the general populations. These data deserve much more attention than they have hitherto received. India has contributed

largely to our knowledge in other fields, both of peace and war and in sanitary matters, also much may be learned from Indian experience; but in order to benefit by this experience it is essential that the history of disease should be considered not only from a local, but also from a general point of view. The facts must be most carefully collected; opinions must not be confounded with facts; all the facts must be collected, and not only those on one side; and solitary cases of epidemic disease must be studied with as much care as the many cases of the epidemic itself. Mere relation of time, a mere coincidence, must not be regarded as proof that the two events concerned stand to each other in the relation of cause and effect. It is essential that all evidence should be carefully weighed, and that undue value should not be attached to one class of facts on the plea that they embody positive evidence, to the entire exclusion of another set of facts which are considered as embodying only negative evidence. The theory which attributes epidemic or other diseases to importation is no explanation, but merely refers the question back to an anterior state of things—in other words, to the place from which the disease is said to have been imported. On inquiring into the causation of disease nothing must be assumed, neither the existence of germs nor anything else, but each step must be taken as the result of strict logical induction based on well-ascertained facts. These general principles are of vast importance in dealing with the difficult questions concerning disease, and especially concerning epidemic disease in India. The propositions that cholera is due to a germ originated in the delta of the Ganges, and that it is thence carried by human beings, rest on no such evidence; they are, on the contrary, opposed to the great facts now known regarding the disease in India: the general direction taken by cholera epidemics, the proved immunity of attendants on the sick, the small proportion of villages attacked even within the epidemic area, and others that might be mentioned. The only means of prevention of cholera is to be found in sanitary improvements and in removal from the locality where attacked, for its localization is one of the most peculiar characteristics of the disease. Experience tells much the same general truths regarding enteric fever, though this in India is in the main a disease of young Europeans new to the country; the importation and germ theory will not account for it. Enteric fever in India is the result of climate telling on constitutions unaccustomed to the strain, and favored as all diseases are by insanitary local conditions. It is to be classed with other forms of what is known as malarial fever. It is not necessary to find an entity to account for disease. The most powerful forces we know in the world, such as the wind, electricity, and steam, do not owe their powers to any entity that can be seen under the highest magnifying power. These are not mere theoretical views, they have a very practical bearing; they lie at the root of all sanitary progress. The commonly and too hastily accepted theories of germs and contagia have had the most disastrous consequences, causing much domestic misery by needlessly separating members of the same family at a time when their duty clearly lay in attending on their sick relatives and friends; they have also engendered needless alarm, which is most favorable to disease; they have caused the imposition of quarantines, which are but the natural outcome, and which are most harassing and annoying, and can be productive of no benefit; and they have caused the neglect of sanitary improvements, which are the only real preventives of disease. All this is very forcibly illustrated by what is going on in Egypt, where soldiers with

fixed bayonets are attempting to stay cholera; they might just as well attempt, with fixed bayonets, to stay the wind, the rain-cloud, or the thunderstorm. Dr. Cuninghame concluded by saying now was the time to see that our own house was in order, and that our sanitary condition was good.

In the discussion which followed, the President, Surgeon-General Murray, Mr. Edwin Chadwick, C.B., Brigade Surgeon J. B. Scriven, Surgeon-General De Renzy, and Sir Joseph Fayrer, K.C.S.I., M.D., took part.

OBSTETRICAL SOCIETY OF LONDON.

A MEETING of this Society was held on July 4th, Dr. Gervis, President, in the chair.

Hæmorrhage into Ovarian Cyst.—Dr. Robert Barnes exhibited a specimen of hæmorrhagic effusion into an Ovarian Cyst and the corresponding Fallopian tube.

Modes of Separation and Expulsion of Placenta.—Dr. Champneys showed two experimental demonstrations which he had used in lecturing since 1882, to illustrate: (1) The mode of separation of placenta (a) by contraction of placental site, as in ordinary labour, and (b) by expansion of placental site, as in placenta prævia; and (2) to illustrate the mechanical advantage of the edgewise presentation of the placenta.

Ovarian and Uterine Tumours.—Dr. Meadows showed a large Ovarian Tumour, together with the other ovary, the uterus, and a fibroid weighing six pounds and a half, which he had removed from a patient aged sixty-five.

Sloughing Uterine Fibroid.—The President showed a large Submucous Fibroid, which had sloughed suddenly and completely without any obvious cause or premonitory symptoms. There was also double pyo-salpinx, and one tube had ruptured, causing fatal peritonitis.

Pseudo-Hermaphroditism.—Dr. Chalmers exhibited the Genito-urinary Organs of a female child whose sex during life had been matter of doubt. The child had been shown at a former meeting of the Society.

Hydatiform Mole.—Dr. W. A. Duncan exhibited a Hydatiform Mole which he had removed from a patient aged fifty-one. The patient had suffered from hæmorrhage for three months previously, but had had no symptoms of pregnancy. The specimen was referred to a committee for further examination and report.

Ovarian and Uterine Tumours.—Mr. Knowsley Thornton showed a Soft Uterine Growth and an Ovarian Tumour removed from a patient aged fifty-six. The nature of the growth he hoped to report on at a subsequent meeting. He also showed an Ovarian Cyst highly Congested from Twisting of the Pedicle, which had been removed during acute peritonitis. He thought that in the specimen shown by Dr. Robert Barnes the hæmorrhage was probably the effect of twisting of the pedicle.—Mr. Lawson Tait agreed with Mr. Thornton as to Dr. Barnes's specimen. Such twisting mostly occurred in tumours growing from the right side, and depended on the action of the rectum.

Fibrinous Polypus.—Mr. W. S. A. Griffith showed a Uterus containing a Fibrinous Polypus, four inches long, formed of organized adherent blood-clot. There was no reason to think that recent pregnancy had occurred. The patient died from the bursting of a perinephritic abscess.

Hypertrophied Nympha.—Dr. Fancourt Barnes showed a Hypertrophied Nympha which he had removed.

The Obstetrics of the Kyphotic Pelvis.—This paper,

by Dr. Champneys, was then read. An analysis was given of thirty-two labours in twenty women, including three labours in a patient of the author's, the last labour having been carefully observed. An analysis and a table were given stating the presentation, change during labour, measurements of fetal skull and pelvis, operative measures, moulding of fetal skull, result to child and mother. The general remarks of other writers on the subject were summarized. The general conclusions at which the author arrived were the following:—That vertex presentations, and especially right occipito-iliac positions, are unusually frequent; deep transverse position is common, posterior rotation not uncommon. The comparative frequency of occipito-posterior positions is probably due (as explained by Hoening) to the obstacle to forward rotation in third positions, which are very common. The head sometimes emerges from the ligamentous pelvis transversely or nearly so, and entirely posterior to the tubera ischii. The analogy to the "extra-median" position was pointed out. The well-known looseness of the pelvic joints in this pelvis, probably assisted this by the nutation of the sacrum. Spontaneous premature labour is not uncommon. The immediate fetal mortality in the published cases was 40·6 per cent., the maternal 28·1 per cent.; but the author thought this estimate probably too high, as slight cases were not recorded. The conclusions as to treatment and prognosis were:—1. In a first labour, if the head present, wait and act according to circumstances. This implies forceps craniotomy, or Cæsarian section, which should always be considered in the above order. 2. If the head present, never turn. 3. In subsequent labours, where the history of the first labour seems to indicate it, premature labour may be induced with good hope. 4. No known measurements give us any sure indication for forceps, turning, Cæsarian section, or the date for induction of premature labour. 5. The mobility of the pelvic joints implies a prognosis always more favorable than measurements would lead us to suppose. 6. Probably in many cases the head entirely neglects the anterior half of the pelvic outlet, and emerges from it transversely, or at most obliquely, antero-posterior emergence being the exception. 7. Each succeeding difficult labour increases the liability of the uterus to rupture, as in other forms of pelvic distortion.—Dr. Roper remarked that the mechanism described by Dr. Champneys resembled that of labour in the lower animals, in which there was no pubic arch, and the fetus always passed behind the ischial tuberosities. This diminution of curve in the pelvic axis somewhat lessened the difficulty of labour. In cases of kyphosis the vertical capacity of the abdomen was diminished; hence the uterus was thrust forward, and pendulous belly was common, and led to difficulty in the entry of the fetus into the brim. He described a case which he had seen. In these cases the deformity of the outlet obstructed delivery more than that at the brim.—Dr. Herman agreed with the author that the published cases probably contained an undue proportion of difficult labours.—Dr. Champneys thought that pendulous belly was produced by anything which shortened the abdominal cavity.

A Note on Uterine Myoma; its Pathology and Treatment.—This paper, by Mr. Lawson Tait, was then read. The author thought that the word "myoma" should entirely supersede the incorrect term "uterine fibroid." The growth of ordinary myoma was limited to the period of sexual activity, was influenced by the menstrual function, and probably its ultimate cause would be found in some disturbance of the nervous body which gov-

erned that function. The presence of a myoma indefinitely delayed the menopause. Menstruation and ovulation he thought were completely independent functions, having perhaps a community of purpose. Removal of the ovaries often did not affect menstruation, but removal of the tubes nearly always did so. But in one case in which he had removed both ovaries, tubes, and part of the fundus uteri, menstruation continued for more than a year. He deprecated the triple subdivision of myomata into submucous, intramural and subperitoneal. For pathological and surgical purposes he proposed a new subdivision into the nodular and the concentric. The latter consisted of a uniform hypertrophy of the muscular tissue of the uterus, in the midst of which the canal lay centrally; the tissue of this form was loose, and usually very oedematous. Of the nodular myoma he proposed two subvarieties, the simple and the multinodular. He believed that each nodule was seated on a central arterial twig, and that its growth was endogenous, the older tissue being on the outside. The dependence of such growth on menstruation was proved by the fact that arrest of menstruation stopped the growth, or even caused the complete disappearance of such tumours. This had been in several cases brought about by the removal of the tubes only. He had treated fifty-four cases of uterine myoma by removal of the uterine appendages, with three deaths, a mortality of 5.5 per cent., a striking contrast to the results of hysterectomy. Of these fifty-one, in thirty-eight the results had been carefully followed, and were everything that was to be desired. In three the tumours were or became malignant. In three others the tumours continued to grow, although menstruation had been arrested. The author suspected that these were either fibro-cystic or myoma of the concentric variety, in neither of which forms was the removal of the uterine appendages useful.—The President was hardly prepared to accept Mr. Tait's classification; but it was not necessarily antagonistic to the one in common use. He agreed with Mr. Tait as to the delay in the menopause in these cases. He would like further evidence as to the sole or even large influence of the tubes in the phenomena of menstruation.—Dr. Herman had published a case in which the symptoms of a fibroid polypus first appeared sixteen years after the menopause. The history of patients after operations like those of Mr. Tait was of great importance, for patients not benefited often did not return to the operator, and he therefore was apt to get a too favorable impression of the results.—Dr. Dewar asked if Mr. Tait was careful to tie the uterine artery, and whether removal of the tubes, leaving behind the ovaries, was not dangerous. He had seen one case in which the uterine appendages had been removed, and hysterectomy was subsequently required on account of hæmorrhage.—Dr. Meadows preferred the present classification of fibroid growths to that suggested by Mr. Tait, as being founded on clinical characters and of great practical value for diagnosis and treatment. He believed that the ovaries, and not the tubes, were the prime movers in menstruation. In one case he had removed the ovaries and left the tubes, and menstruation ceased. He thought there were many exceptions to the rule that uterine fibromata ceased to grow after the menopause. Notwithstanding the high rate of mortality which attended hysterectomy, he preferred it to removal of the ovaries.—Mr. Lawson Tait said that cases of growth of apparent uterine myomata after the menopause needed most careful examination. Occasionally removal of the ovaries arrested menstruation, but this was the exception. He had

never, knowingly, tied the uterine artery; and it would be very difficult to do so.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Annual General Meeting.—Sympathetic Ophthalmia.—Hemiachromatopsia.—Foreign Body embedded in the Fundus Oculi.—Anomalous Distribution of Retinal Arteries.—Congenital Ptosis.—Nævus.

The annual general meeting of this Society was held July 6th, Mr. W. Bowman, F.R.S., President, in the chair. The Treasurer, Mr. Streetfield, made his annual statement. An alteration in the bye-law relating to subscriptions was proposed from the chair and carried. The ballot for officers and Council was taken.

The President briefly addressed the meeting, and said that the Society had passed through its third session in a satisfactory state. Twenty-two new members had been elected, fourteen of these being metropolitan, three from the colonies or dependencies, and five non-metropolitan, but within the kingdom. Two members had died—viz., Mr. Critchett and Mr. R. W. Lyell. The Society had already expressed its sense of the great loss it sustained in the demise last autumn of their eminent and esteemed colleague, Mr. Critchett; and in Mr. Lyell the Society had been deprived of a member whom they had hoped would have added much to the value of its records. The total number of ordinary members is now 176. There had been eight meetings, one being an extra meeting for the adjourned discussion on Eye Symptoms in Spinal Disease. The total number of communications read this session was sixty-six, including several papers of much scientific value. The special subject opened by Dr. Gowers at the June meeting gave rise to a fair discussion and to the contribution of a considerable mass of facts. The discussion was of much value as it stood, but its greatest use would doubtless lie in the stimulus it would give to more exact clinical and pathological research in regard to certain specified points and problems.

Mr. Simeon Snell (Sheffield) read notes of a case of Sympathetic Ophthalmia, operation on the Exciting Organ, with recovery of practically perfect Vision in both Eyes. The patient, a man aged thirty-six, on Oct. 6th, 1882, ran a packing needle into his left eye. He came first under observation on Oct. 20th; then he had prolapse of iris, wound in lower and inner sclero-corneal junction, encroaching on ciliary region.—Nov. 3rd: "A mistiness" complained of two or three days since in front of right eye; to-day plastic iritis; pupil hardly acted upon by atropine.—5th: Condition worse, and next day still more aggravated.—6th: Prolapse incised, and as much iris as possible excised. Very little was removed, and that only by piecemeal, as it was incorporated in tissues. The incision was prolonged on either side in the sclerotic, just behind the corneal junction (sclerotomy). Next day there was an improvement; the pupil soon dilated and the iritis subsided. The prolapse in the left eye has disappeared.—19th: There appeared a little iritis, and perchloride of mercury was ordered internally, recovery soon taking place. In a few weeks he resumed work.—April 13th, 1883: In either eye V = 20-20; and he is able to follow his employment as well as formerly. Mr. Snell remarked on the satisfactory result obtained in both eyes; on the anxious nature of cases in which in the exciting eye vision still remains good; and on the scant reference generally

made to means for preserving the injured as well as the sympathizing eye in such cases. He thought the case he related instructive and encouraging.

Mr. Swanzy (Dublin) read notes of a case of Hemichromatopsia in a gentleman, aged seventy-seven, who in November last had a slight attack of cerebral apoplexy, which rendered him unconscious for about twelve hours, and from which he completely recovered in the course of a few days, except for some defect in vision and a confusion of ideas when he made any unusual mental effort. He had not even for a short time any hemiplegia, affection of speech, or other paralysis. Five months later Mr. Swanzy was consulted, the patient's chief complaint being a difficulty in recognizing his friends even when near to them. In each eye H. 1.5 D. V=6-12. In the left eye a slight peripheral opacity of the lens, but in all other respects the eyes were organically sound. The defect in vision could only be accounted for by senile changes in the media and retina, but this comparatively slight defect was insufficient to explain his difficulty in recognizing people, which Mr. Swanzy was inclined to regard as a disturbance of a cerebral function. Examination with the perimeter displayed a slight homonymous defect in the right upper quadrant of each field. The patient complained that his color vision had not been so acute since the attack in November, but yet he was able to perform Holmgren's tests with accuracy. When the fields were examined with colored wools, Mr. Swanzy found that the left side in the field in each eye was totally color blind, while with the right side colors could be distinguished, although in an area very much and concentrically contrasted. (Charts exhibited.) This, and those similar cases (Landolt's, Samelsohn's, and Bjerrum's) clearly show that the nervous elements in which the power of perception of color resides are situated in the brain, and not in the peripheral visual apparatus, and that the color centre in the brain is distinct from that for the form sense and for ordinary light perception.—Mr. B. Carter observed that there were cases on record which hardly confirmed the author's view. He had lately seen a gentleman who complained of lowered vision, and found that it was 8-40 in the right eye and 8-50 in the left. In the latter there was a color-scotoma in the lower part of the field, reaching ten degrees on both sides of the fixing point. There were no ophthalmoscopic changes, and he attributed the defect to tobacco.—Mr. McHardy mentioned the case of a man who became suddenly color-blind, complaining one day that he was disgusted with the color of the meat he saw in butchers' shops. He was the subject of albuminuria, and died suddenly from apoplexy.—The President said the case was interesting, because it is known that loss of half the field is due to brain disease, and here there was defective color sense in one-half; so it might be concluded that it depended on a cerebral lesion.—Mr. Swanzy, in reply to a question by Mr. Nettleship, said he had taken great care to test the centre of the field, because of the fact that in ordinary hemianopia the dividing line usually passed a few degrees to one side of the point of fixation. In this case the color-scotoma, however, seemed to pass precisely through the centre.

Mr. J. E. Adams related a case of Foreign Body (a piece of steel) embedded in the Fundus near the Macula, with almost perfect vision. The patient, a smith, aged twenty, was struck in the left eye in November, 1881, by a chip from an anvil. It wounded the sclera, choroid and retina on the outer side, penetrating the vitreous and lodging in the fundus above and to the outer side of the macula. The body was covered by remains of lymph and pigment, and some striae denoted the

remains of hyalitis. An attempt was made to extract the piece of metal by introducing the pointed electro-magnet, though the large instrument was held close to the eye for some minutes without result. For some hours after the injury he could not distinguish light from dark, but since then vision has steadily improved, and is now normal. A similar case is recorded by Mr. Snell in the Royal London Ophthalmic Hospital Reports, Vol. IX.—Mr. Snell said that in his case the foreign body entered a little beyond the sclero-corneal junction. Vision shortly after the accident was 20-50, and subsequently the patient could read Jaeger No. 1. Since then he had seen a similar case with less good result. The particles passed through the cornea and lens and lay below the disc. At the end of two years the lens became opaque. Knapp has collected twelve recorded cases, and mentions the possibility of applying the electro-magnet, but he should not advise its use.—Mr. Adams Frost saw a case with Mr. Waren Tay. The lens escaped injury and the media were clear. A glistening body could be seen just at the macula. Vision was fairly good, and there was no inflammatory symptoms. The electro-magnet was not used.

Mr. J. E. Adams exhibited an Ophthalmoscope for artists, in which the mirror is worn in a band on the forehead, so that the hands are left free for drawing.—Mr. McHardy alluded to the liability to fatigue, with tenderness over the median nerve, to which ophthalmoscopic artists were subject, and thought that artists would appreciate the instrument.

Mr. J. B. Story (Dublin) communicated notes of a case of Anomalous Distribution of the Retinal Arteries, and exhibited a drawing of the condition. In the fundus of the right eye the superior nasal artery divided at once into two branches, the lower of which ran horizontally inwards for a short distance, and then gave off a branch which ran downwards showing several curves, and finally ended in the descending division of the artery near the disc without undergoing much change in calibre. Careful search failed to detect any direct communication between this arterial system and the central artery. It was suggested that the superior nasal artery of the retina had been occluded by an embolus or thrombus in very early life, and that a collateral circulation was established by the dilatation of capillary vessels connected with the inferior retinal artery.—Mr. McHardy said the case was very analogous to one which he had seen a year ago in a young American. The appearance suggested aneurismal varix. The case was seen also by Mr. Bowman, Mr. Carter, and Mr. Nettleship.

Mr. Gunn exhibited a girl, fifteen years of age, who was the subject of congenital drooping of the left upper eyelid with contracted pupil on the corresponding side, but in whom the drooping lid was raised whenever and only when the corresponding external pterygoid acts on the jaw.—Dr. Cholmeley pointed out that the eyelid was not materially lifted unless the chin was turned to the right.—The President suggested that if it was deemed necessary to improve the girl's appearance, it might be well to close a little the outer palpebral canthus of the opposite eye. The following gentlemen were nominated to serve on a committee to report on the case: Dr. Gowers, Dr. S. Mackenzie, Dr. Abercrombie, and Mr. Lang.

Mr. Mark J. Symons showed for Mr. Lawson a case and drawing of Disseminated Choroidoretinitis, with very peculiar white raised patches near the disc, in a man twenty-three years of age, who contracted syphilis thirty months ago.

Mr. Power exhibited a young woman twenty-

three years of age, with a patch of morphaea on the left upper eyelid.—Dr. Mackenzie remarked that if left alone the patch would eventually disappear.

Mr. Hulke exhibited a drawing from a case of Cysticercus in the Vitreous Humour. The child was afterwards in St. Bartholomew's Hospital, under Mr. Bowater Vernon.

Mr. A. H. Benson (Dublin) showed a drawing of numerous Aneurisms on the Retinal Vessels, both veins and arteries. There was no increase of tension.

Dr. Horrocks exhibited a case of Facial, Conjunctival, and Retinal Nævus. The patient was a girl, aged nine, who had been subject to fits since birth, and she was hemiplegic on the left side. The right side of the face, including the skin of the eyelids and forehead, was covered with a nævus giving a port-wine stain appearance; the conjunctiva was also affected. On ophthalmoscopic examination the retinal veins of the right eye were seen to be very tortuous, those on the left being normal. Owing to her defective intellect, nothing satisfactory could be elicited as to vision, but as far as could be made out she saw equally and well. Dr. Horrocks pointed out that the tissues in which the vascular dilatations occurred were epiblastic structures, suggesting the possibility that the vessels of the pia mater on the right side were similarly affected, thereby having something to do with the left-sided fits.—Dr. S. Mackenzie said that a few years ago Dr. Allen Sturge showed at the Clinical Society a case in which there was a nævus on one side of the face and paralytic symptoms on the opposite side of the body; and he argued the possibility of there being the same condition in the brain as in the skin. Dr. Horrocks' case lent some support to that view. At the same time the condition of retinal vessels described had been met with on both sides, without any particular symptom.—Mr. Nettleship said that in Dr. Sturge's case there was nævus of the sclerotic also, and the affected eye was larger than the other.—Dr. Horrocks suggested that in cases of marked tortuosity of the retinal veins the condition might be due to similar foetal disturbance as that which sets up cutaneous nævus.

Mr. Story (Dublin) showed a portable arrangement for ophthalmic ointments.

This closed the business of the evening, and Mr. Brudenell Carter proposed a vote of thanks to Mr. Bowman for the services he had rendered to the Society during his three years' tenure of office as President. The fostering care and devotion to the interests of the Society shown by Mr. Bowman would be remembered whenever the time or occasion offered to review his honorable career. He trusted that Mr. Bowman would still be enabled to attend their meetings; and in leaving the chair he would take with him their grateful sense of the dignity and impartiality with which he had discharged the duties of his office. The vote was carried by acclamation.

Mr. Bowman said the very kind words which Mr. Carter had addressed to him were most unexpected, and their reception by the meeting most gratifying. His mind was led back by them to the condition of things which prevailed when he first began to study in those fields that now interested them all so much. How comparatively imperfect and elementary was our knowledge then of the structure and physiology of the eye and of its diseases, and how very inadequate in general were the methods of treatment. For the subject had hardly emerged from that early stage when it was dealt with either on the most general lines or on those of a narrow specialty. How different was the case now. No department of the medical art

has shown such splendid progress, at so rapid a rate, and with such admirable results. It had been a great pleasure to him during a great many past years to follow these advances, and perhaps to bear some very small part in promoting them, and particularly to have been lately permitted as their first President to share with others in the happily conceived design of bringing together in one Society all or most of those engaged in ophthalmic practice and the kindred side of the medical art throughout the United Kingdom and its great colonies and dependencies; of thus uniting them for the pursuit of their profession with greater zeal and higher aims, and, by encouraging the production, discussion, and record of all that pertains to ophthalmology, to make permanent additions to the common stock of knowledge. He thought the result had been very successful, and that they were to be congratulated on the stage at which ophthalmic practice had arrived in this kingdom. For himself he could claim but a very slight share in the work of the Society; the credit belonged rather to those who first initiated it, and they were particularly indebted herein to the first two secretaries, Dr. S. Mackenzie and Mr. Nettleship, and to Dr. Brailey, as well as to all those gentlemen, especially on the medical side, who had co-operated with them. For it was one of the great advantages of the Society that it had brought into practical union those who study eye disease from the medical side and those concerned in the special practice of ophthalmology. It represented the inherent unity of the ocular organ with the whole organism of which it was a part; and the necessity of studying it always in the light of this relationship as well as in view of that wider relationship which it bears to all the organic life upon the globe. To have brought physicians and surgeons together on this common ground was already a great and manifest gain. He trusted they would always continue to hold up ophthalmology in the interest of medicine at large as that department of the medical art in which exact knowledge was most attainable, and the application of it for the prevention and alleviation of disease best exemplified. Mr. Bowman concluded by stating that he should be most pleased to continue to attend the meetings of the Society whenever possible.

ACADEMY OF MEDICINE IN IRELAND.

Spontaneous Dislocation of the Hip.—Spinal Injury and Muscular Atrophy.

At a meeting of the Surgical Section held on March 9th, Mr. Kendall Franks read a communication on Spontaneous Dislocation of the Hip, illustrated by two cases which he had himself observed, and of which casts were exhibited. A child, aged five, was admitted into the Adelaide Hospital in January last. She had been confined to bed since the summer of 1882, suffering from "acute disease of the left hip-joint." The acetabulum had chiefly suffered, and the head of the femur had probably passed partially through it, and in that position ankylosis had taken place. An abscess which had formed burst into the vagina, and healed up. The limb remained permanently fixed in a semi-flexed position, abducted and rotated outwards. The child had been chiefly lying on this side, the right leg flexed, adducted, and rotated outwards, so that the knee lay behind the knee of the diseased limb. In August last, as she was being turned in bed by the nurse, a remarkable protuberance was seen behind the right anterior superior spine of the ilium. The child was questioned about it, but could not give any account

of how it occurred. It gave rise to no pain. This protuberance was caused by the great trochanter, the head of the right femur having slipped out of its socket, and being easily felt on the dorsum of the ilium. No alteration in the parts has since taken place. The second case illustrated a dislocation of the hip, taking place during an attack of acute rheumatism. A girl, aged fifteen, was admitted into the Adelaide Hospital on Oct. 10th last, suffering from necrosis of the left tibia. She presented a well-marked dislocation of the right femur on to the dorsum of the ilium, the limb being shortened to the extent of $3\frac{1}{4}$ in. In May, 1879, she had an attack of acute rheumatism, from which she completely recovered. In the following February—that is, two years ago—she was attacked again with the same disease, which kept her in bed for ten weeks. The right hip-joint and the right shoulder were the parts chiefly affected. To alleviate the pain pillows were placed under the hip and knees. When she tried to get out of bed after the disease had subsided, she found the right limb considerably shortened, so that she could only reach the ground with the ball of the foot. The right hip was deformed, and she now presents all the characteristic signs of a well-marked dislocation. The head and neck of the bone can be easily identified in their new position, and feel quite smooth and healthy.—Mr. Stokes instanced a remarkable case formerly under his care in the Richmond Hospital, in which a fall was apparently the exciting cause. The patient fell down stairs, sustaining a very severe injury, but he did not apply for advice till a fortnight had elapsed, when it was found he had sustained a dislocation on the dorsum of the ilium, which was, with very little difficulty, reduced by manipulation. Next day, dislocation again occurred, and was reduced; but luxation recurred three or four days in succession. He suggested in explanation that the fracture of the rim of the acetabulum had taken place originally, and a portion of the bone was driven away from its normal situation at the time the luxation recurred.—Mr. Bennett thought that too much importance was attached to the term “spontaneous.” All pathological dislocations were spontaneous. A more important division would be as to whether the dislocations were complete or incomplete. The term “spontaneous” was a mistake for want of observation. In the deformity in question he would not be surprised if the bones were still intact, but altered in shape.—Mr. Franks, in reference to Mr. Bennett’s criticism of nomenclature, confessed he had had difficulty in choosing a title for his paper. Perhaps it would have been better had he described the dislocations as simple spontaneous dislocations to distinguish them from disease of the articular surface. He agreed, however, with Malgaigne, that the best line of distinction to draw was between dislocations due to simple relaxation of the ligaments without any disease of the ends of the bone, and cases in which there was caries or some other disease on the head of the bone. Dislocations that occurred from distension of the ligaments formed a distinct group.

Dr. R. McDonnell brought before the section notes of three cases of Injury of the Spine, followed by Progressive Muscular Atrophy. In all three cases there was little, if any, loss of sensibility. The patient was sensitive to tactile and thermic impressions. The wasting of the muscles was rapid and set in early after the injuries. The character and appearance, as well as the marked degree in which individual muscles were attacked, showed, in the author’s opinion, that muscular atrophy in these cases depended upon the same causes which produce individual muscular

atrophy in infantile paralysis and paralysis of the Duchenne-Arun type—viz., myelitis affecting the large motor nerve cells in the anterior cornua of the spinal cord.—The President inquired what were the conditions present in the case that recovered.—Dr. Swan, referring to the same case, asked the author if he believed that there was generation of the cells in the anterior horns.—Mr. Wheeler mentioned a well-known case that was in the City of Dublin Hospital, under the care of Professor Purser, suffering from Cruveilhier’s palsy. The patient was a tall, gaunt man, who used to stand at Baggot-street Bridge, and had been driver of the Wicklow coach. His upper extremities were only held to his trunk by the levator anguli scapulae muscles, so that the posterior superior angles of his scapulae were pulled up close to his ears. He stood with his body thrown forwards, to prevent his abdominal viscera from falling forwards, as all the abdominal muscles had disappeared. The palsy apparently originated from injury. He fell and hurt the back of his neck and spine. From the cast shown by Dr. McDonnell it seemed that the flexor brevis abductor and opponens pollicis muscles were very much wasted. He asked, could Dr. McDonnell assign any reason why the flexor ulnaris muscle and other muscles were not wasted in the same proportion, and if he had made observations in similar cases of the condition of the nerves down the forearm whether their motor fibres were altered. With regard to Dr. McDonnell’s second case, it appeared to him (Mr. Wheeler) that the trophic cells were not engaged, but only the connective tissue elements, and when it returned to its normal condition the temporary influence it exercised on the cells ceased.—Dr. McDonnell, answering Mr. Wheeler, first as to how the particular muscles atrophied, said in all of those that belonged to the group he was speaking of it commenced in the spinal cord. If a group of those cells disappeared, it might be laid down as certain that the muscle corresponding with that group of cells would also disappear, and the nerves leading to that would wither away. In those cases which he had examined the nerve-fibres in the roots were found to be atrophied. The question was naturally asked, “Might it not begin in the muscle?” or, as Cruveilhier put it, in the nerve-root, or in the trophic cells? Years ago he had himself asked Lockhart Clarke if he had had opportunity of examining cases in which, long after amputations, those cells had not been called into use, and whether for want of use they had become atrophied. It appeared that in fifty or sixty cases which he had examined in Greenwich Hospital the cells in the spinal cord were found to be right. Evidence had been accumulated to show that the disease really began in the nerve-cells and spinal cord.

Hæmophilia.—Muscular Spasms.

A meeting of the Medical Section was held on March 16th, Dr. Wm. Moore, President of the Section, in the chair.

Dr. McDonnell exhibited a case of Hammer-cramp, and Dr. Storey a case of Hæmatrophia Facialis.

Dr. Fraser read a paper mentioning some instances of Serious Bleeding following trifling injuries, and then described two cases of Sudden Death from Sanguineous Apoplexy occurring in individuals who had previously suffered from bleedings of the nose, lungs, etc.—Dr. Henry Kennedy related a fatal case of purpura in which the post-mortem examination revealed an extensive effusion of blood over the surface of the brain; and he referred to Latour’s observations on hæmorrhage.—

Dr. Cox referred to a gentleman the subject of hæmorrhagic diathesis, in which a chill appeared to be invariably the exciting cause of the hæmorrhage. In this case there was a well-marked family history of the diathesis.—The President mentioned a case of an old lady who suffered from severe epistaxis, and shortly afterwards became completely demented.—Dr. Fraser, in reply, said he introduced the first two cases merely to show that he was not overlooking the subject of hæmorrhagic diathesis. In such cases the blood was almost water; but in the cases of the gentleman pointedly alluded to, he never saw better clotting blood. The hæmorrhage in his case was not produced by a chill, but he appeared to form more blood than was required, and this was eliminated by nose, lungs, or kidney.

Dr. R. McDonnell showed to the Section a patient, a young man, twenty-two years of age, whose right arm was subject to muscular spasms. The patient was a nailer by trade, and had been since he was eleven years old more or less hard at work at this occupation. The spasmodic jerkings of the muscles, which interfered with his occupation, began about seventeen months ago, and after the first three months became so violent that he had to give up work altogether. The case was one of functional spasms unaccompanied by pain, and is an affection very similar to writer's or scrivener's cramp, although all the muscles supplied by the brachial plexus seemed to be affected, and those around the shoulder-joint, especially the great pectoral, seemed to be most so. The treatment consists in regular, orderly, rhythmical movements of the limbs, as was so successful in a very similar case reported by Dr. G. V. Poore in the *Practitioner*, Sept., 1872.—Dr. Foot said this man had been under his care for a considerable period, during which time there was a marked improvement in his symptoms. He did not consider it at all a wonderful case. He thought it was analogous to other cases, such as telegraphists, milkers, violin and pianoforte players. He was not aware that it differed from several cases recorded by Dr. Frank Smith, of Birmingham, which was a centre of nail-making. He never thought there was any approach to chorea, as when in bed the muscles were perfectly quiet.—Dr. Henry Kennedy remarked that Dr. Harley had succeeded in curing similar cases by huge doses of succus conii, two ounces at a single dose.—The President and Dr. F. C. Moore having also taken part in the discussion, Dr. McDonnell replied. He said that there were two points raised by Dr. Foot in reference to the case. First, there was no difference of opinion as to the nature of the case, which belonged to the category of scrivener's palsy, but differed from the tremor in piano players, etc. His case also differed from those of Dr. Frank Smith in not having general paralysis. Dr. Smith's cases bore no relation whatever to scrivener's cramp or hammer cramp. The second point was that Dr. Foot did not seem to think that the case belonged to chorea, because the patient was quiet at night. But so far as his (Dr. McDonnell's) experience went, in any except the most exaggerated case of chorea the movements were entirely stopped during sleep.

The Third Stage of Labour.

At the meeting of the Obstetrical Section, on March 30th, 1883, Dr. R. Henry read a paper on the Importance of the Third Stage of Labour. He commenced by pointing out the various risks, immediate and remote, to which the improper performance of the third stage of labour exposed a

woman. These risks would be minimized by a suitable conduction of this most important period of labour. To arrive at any just conclusion on this subject, it was necessary, in the first place, to study nature's methods in effecting the separation and delivery of the placenta and membranes, by the conjoint action of tonic and clonic contractions moulding the placenta, as had been described by Dr. Matthews Duncan, or in the different way described by Schultze. In the author's experience both these methods had been observed, a lateral attachment of the placenta being Duncan's, while a fundal or nearly fundal one would give Schultze's. The former was the more common method. Dr. Henry quoted Denman, Smellie, Collins, and others on the question of manual interference in the third stage. In 1786 Dr. Joseph Clarke had advised the practice of "pursuing with a hand on the abdomen the fundus uteri in its contractions until the foetus be entirely expelled, and afterwards continuing for some time this pressure, to keep the uterus, if possible, in a contracted state." This practice had been largely adopted in Dublin. Dr. Henry adhered to it, believing that in modern practice undue haste to press off the placenta was constantly exhibited. He kept his hand over the uterus during delivery and subsequently, but forbore pressing or actively supporting the uterus until it had itself commenced to contract clonically. Assistance should only be given with the clonic contractions. A safe and permanent contraction following the expulsion of the secondaries might in this way be usually secured in from ten to twenty minutes. The chief error at present consisted in mistaking constant irritation for support of the uterus.—The President said the paper raised several questions of deep interest—viz., as to the time at which the placenta should be removed; as to the danger on the one hand of being too precipitate, and on the other of leaving in the placenta too long; as to how far hæmorrhage was sometimes induced by a too speedy removal, and at other times by leaving the placenta too long in the uterus; and also as to the danger of leaving in portions of the membranes.—Dr. Harley objected altogether to premature pressure over the fundus of the uterus for the purpose of pressing off the placenta. He also objected to exercising pressure on the cord at any period.—Dr. W. J. Smyly stated that in the Strassbourg Hospital, where the patients were, as a rule, left to nature during the third stage of labour, it had been observed that the placenta was most frequently expelled in the manner described by Schultze. He believed that Credé's method of exciting the uterus to contraction had been confounded with the hasty expulsion of the placenta. Credé himself never advocated the immediate expression of the placenta, but rather the immediate excitation of the uterus by irritation and friction through the abdominal walls, and then usually with the third or fourth contraction the expression of the after-birth. The immediate expression of the placenta was very liable to be followed by the retention of the membranes and post-partum hæmorrhage.—Dr. Macan said that since the time of Hippocrates there had been ebbs and flows of opinion as to whether expulsion of the placenta should be left entirely to nature, or should be immediately effected by the accoucheur either by passing the hand into the uterus, as the older authorities recommend, or by the more modern treatment of expression. Hence he thought that a happy mean between these two methods was probably the best way, for if the uterus was well contracted, there need be no fear of hæmorrhage, and therefore no cause for hurry; while if the uterus was relaxed with hæmorrhage, the removal of the placenta tended certainly to increase the hæmor-

rhage by removing all pressure from the mouths of the uterine sinuses, unless the means used to remove it at the same time caused the uterus to contract. The great advantage claimed at the present day by the adherents of the plan of leaving the whole process to nature, was that a much larger proportion of the decidua came away with the placenta than when the placenta was immediately removed. When two such authorities as Dr. Matthews Duncan and Professor Schultze differed as to the mechanism of the separation and expulsion of the placenta, it was pretty certain that there was more than one way, and that both their views were probably right. If they adopted the expression plan, which might, he thought, be called "the Dublin method," they should be careful not to allow the placenta to be suddenly expelled on to the bed; for a sudden strain was thus put on the membranes, and a portion might readily be torn off and left behind in the uterus. This had been looked on as a very serious accident. But he was inclined to think that the mere presence of a portion of the membranes in the uterus for some days after delivery could not be looked on as dangerous unless air had been allowed to enter and set up decomposition. He also thought that it was very often during the efforts made to remove a piece of retained membrane that the air was caused to enter the uterus. He had often seen a piece of the membrane expelled some days after delivery without being accompanied with the slightest fetor or giving rise to the least fever. Indeed, it seemed to him probable that, in hospital practice at least, the danger from retention of a portion of the membrane was less than the danger of infection from the hands of the operator in his efforts to remove it. He always waited a quarter of an hour before attempting to press off the placenta, and considered that light friction over the fundus with the tips of the fingers was a much more powerful method of inducing contraction than merely holding the fundus in the hands.

CAMBRIDGE MEDICAL SOCIETY.

Hysteria.—Genu Vulgum.—Tetanus.

At a meeting held on June 1st, 1883 (Mr. James Hough, Vice-President, in the chair), Dr. Ingle read the notes of a case of Hysteria in a Boy. The patient, aged ten, well developed, but rather strumous looking, the eldest of five robust children, was first seen on May 1st, 1881. He had been complaining of headache and sickness and was restless and irritable. He kept in bed with the room darkened and his eyes shaded from the light by his arm; his lids were closed but trembled suspiciously. The thighs were flexed over the belly and the legs on the thighs. He took no notice of what was said to him and would scarcely answer a question. He had taken nothing but water for some days and now refused that. His temperature was over 100°; the tongue coated; bowels obstinate; and the urine loaded with phosphates. The bowels acted freely after an aperient was given, there was no trace of worms, but his condition was not improved and he showed extreme sensibility to sound as well as light. He remained in the same state for a fortnight, when he was seen in consultation with Dr. Latham. He continued to get worse, refused to sit up, and at night disturbed the household with screaming and incoherent talking. His bowels were said to act only once a week. Till now he had been nursed by his mother; her attendance ceased on July 6th, and he somewhat improved, but he became worse when she returned, and was re-

moved to the hospital. On returning home in October he resumed his old condition, and his mother asserted that he now had no relief from the bowels, passed no water, and positively refused nourishment of any kind, to all of which she seemed to give credence. The father, however, determined to clear up the mystery, and for this purpose concealed himself under the bed whilst the boy was asleep. It appeared that the boy got out of bed and went into an adjoining room, where, after loosening a plank in the floor, he removed it, and made use of the hole as a urinal. The ceiling below was found to be discolored, and there was evidence that this trick had been continued for some while. It was also discovered that the boy managed to conceal biscuits in his pillowcase, to satisfy his hunger. Soon afterwards the boy recovered. Dr. Ingle thought the case of interest from its occurring in a boy quite young, and of retiring disposition. There was no apparent cause, nor was there anything to gain by assuming illness or anything unpleasant to escape. At the commencement it had been mistaken for a case of incipient disease of the brain, but after a time there was no doubt that it was mainly hysteria.—Dr. Latham remembered the case. At first the symptoms were rather like those of early tubercular meningitis, but after some weeks the nervous systems were exaggerated. The boy was under his care in the hospital, and was occasionally fed with the stomach pump and his urine drawn off with the catheter. He improved under galvanism.—Dr. Bradbury related a case of a somewhat similar nature in a boy, aged sixteen, who had been overworked. Peculiar nervous symptoms came on simulating spastic paraplegia; the urine had to be drawn off with the catheter, and there was almost complete insensibility. Recovery took place after a time.

Mr. Wherry read a paper on the Treatment of Genu Vulgum, and showed his frame, in which the patient stood upright with his back against a door or wall; when the knees were slightly bent a disc of cushioned cork could be placed between, so that the upright position being resumed the knees were forced apart and so kept. The disc was useless without the frame which kept the toes and heels together. The sitting cross-legged tailor-fashion was also useful. A growing boy could do his lessons in this position sitting on a large cushion on the floor like a Turk for hours daily without discomfort. For the treatment of genu vulgum in young children home-made splints were exhibited, constructed on the same principle as described by Mr. Bernard Roth. The limb from the groin to the ankle is first swathed in cotton-wool, then firmly bandaged with the usual plaster-saturated crinoline bandage, an outer straight wooden splint placed between the layers of the bandage, and the limb thus kept in position; a layer of strong gum is now applied, and the whole covered with bed ticking cut to pattern. The next day the hard case is to be cut up along the front of the splint with vine-dresser's shears, and the cotton-wool carefully cut with scissors. When lined inside with wash-leather and hooks placed along the outside of the edges for lacing, it forms a capital case, and was well borne by a child who had resented other apparatus. It is both cheap and successful.

Dr. Ransom related a case of Tetanus terminating in recovery. J. B., aged sixteen, strong and well grown, on March 24th, 1883, ran a garden fork prong through his left great toe. His mother applied common salt first, and afterwards bread-poultice. On April 5th, the toe being healed, symptoms of tetanus began in the neck and jaws. On April 8th there was tetanus, the pectoral and

abdominal muscles were characteristically rigid, and clonic spasms occurred about every ten or fifteen minutes. There was no difficulty in deglutition. Temperature 99°; skin sweating. He was ordered to be kept quiet in a darkened room; to take freely of light nourishment, and five grains of chloral hydrate with ten grains of bromide of potassium were to be taken every four hours. He got worse for a week, but took food freely. He then began to improve, and on May 11th was quite well. When the patient was convalescent, but the pectoral and abdominal muscles still rigid, the plantar reflex was tried, the leg muscles being flaccid, and was found normal. No other superficial reflex could be obtained. The patellar tendon-reflex, tried under the same conditions, was greatly exaggerated and ankle clonus was easily obtained. Tache cérébrale was readily produced. After the patient was well the patellar reflex was normal, and neither ankle clonus nor the tache cérébrale could be obtained.—Dr. Ransom had not been able to find any previous record of the condition of the reflexes in tetanus.—Mr. Shield related the case of a man admitted into Addenbrooke's Hospital with an extensive scalp wound, in whom symptoms of trismus supervened without spasm of any other muscles. He recovered after a month. He considered the favorable issue of Dr. Ransom's case most likely due to the fact that the man was able to swallow.

Editorial.

EXTREMES IN THERAPEUTICS.

If anything were wanted to quicken in medical men their intense desire to perfect their knowledge of Disease and its Remedies, it might be found in the fact that so much is being done in the press and in the daily newspapers to enlighten the public on this subject. Medical men have not only to discuss questions of disease and its treatment with each other, but with intelligent laymen who avail themselves of all means of gaining information on the fundamental principles of medicine. It is quite true that for years to come the intelligent laymen will not be able to make much of this study, and will be apt to arrive at conclusions not at first sight very complimentary to his intelligence. We are all humbled now and again to hear how this noble lord and that man of literature have adopted a belief in homœopathy or in a quack medicine, as the result of the attention which they have been able to give to medical subjects. But a little reflection on the complicated nature of medical problems and on the limitations of the best medical faculty will suffice to make practitioners very indulgent to those who reach crude or absurd conclusions.

In the current number of the *Quarterly Review* and the *British Quarterly Review*, respectively, there are two articles which are in point. The article in the *Quarterly* is "On the Progress of Medicine." It will repay perusal, from the sense of strict scientific justice and precision which the writer shows, and from his abstention from strong and extreme propositions. The article in the *British Quarterly*

is entitled "The Relation of Drugs to Medicine," and is signed "Baptist Crofts, B.A." Mr. Crofts' paper is also well worth reading. His main contention is that, both in medical practice and in popular habit, there is a marked tendency to abate the use of drugs; that, in fact, we are drifting, not slowly, to a system of drugless therapeutics, or to a time when therapeutics will be superseded by a perfect hygiene—when there will be nothing "to hurt nor to destroy." Mr. Crofts finds the chief explanation of this great change in the fact that medicine, in its studies and its objects, is becoming growingly more scientific, and especially more biological; that, indeed, medicine in its true sense has only lately come into existence, and is the child of biology. The writers of both the articles we have referred to see in disease only an awkward form of health, and in pathological processes only a modification or disturbance of physiological ones, with a marked tendency to right themselves and to revert to healthy conditions. There is nothing, as Mr. Crofts says, in this view really new. It was shared by Hippocrates and by Sydenham, and has always been most strongly held by sound medical minds. But it has grown stronger and stronger of late, and, according to Mr. Crofts, threatens the very use of drugs as factors in the removal of disease. Mr. Crofts himself admits that at present we are quite unable to dispense with the use of drugs. "It must," he says, "be at once admitted that for the immediate future certain drugs appear to be quite indispensable; that the offices they perform cannot otherwise be supplied. But," he goes on to say, "it is clear that a more scientific, because a more fundamental, principle of treatment is coming into play, in which drugs will take a very subordinate and adventitious part." Though there is considerable truth in this representation, we think the rôle of drugs is understated by Mr. Crofts, and that we are not within any measurable distance of the time in which physicians will be able to dispense with them.

It may be said with safety and literal truth that drugs never played a more important part than they do now, that they never did so much good and so little harm as in the present practice of medicine. Let one month be imagined in London without chloroform, opium, atropine, quinine, iron, salicin, and its compounds, carbolic acid, iodide of potassium, ammonia, without common laxatives or cod-liver oil, and suffering and death would be immensely increased. A few recent discoveries of the power of drugs over physiological and pathological processes are of the very highest scientific and practical interest: witness the influence of salicin over rheumatic pyrexia and pain, and of pilocarpine over the sweat and salivary glands. We can foresee no immediate millennium in which it would be possible to minister to disease and suffering without these helps.

We cannot close this article without directing

attention to the marked contrast between Mr. Croft's estimate of drugs and that which constitutes the basis of the system of Hahnemann, who has been, with wretched taste and judgment, called by his credulous disciples the Messiah of Medicine. The huge error of Hahnemann was in the supposition that nature played no part in the cure of disease, and that his petty medicines worked miracles. There was a moral element of vanity in this conception, as well as a scientific error of the first magnitude, which will for ever exclude him and his followers from the respect of scientific men. To teach that all disease is to be absolutely cured by medicine, and will for all time be incurable in any other way, and that for the cure of each disease there was one specific drug, with disease producing qualities, is a captivating doctrine for the ignorant and the credulous, but one which can have no place in the mind of scientific men. Hahnemann abandoned himself to his doctrine of specifics, and ridiculed that which Mr. Crofts and all sensible men see to be the fundamental rule in the treatment of disease—*tolle causam*. If we think that Mr. Crofts goes too far in under-estimating drugs, his error only shows more clearly the fundamental folly of that system in which they are all in all.

DISPLACEMENTS OF THE UTERUS AND DYSMENORRHOEA.

THE mechanical theory of uterine pathology, although the subject of very divergent opinions among gynecologists, has nevertheless met with a very large measure of acceptance at the hands of the profession. Whatever may be the reason for this—whether it be the generally acknowledged and indisputable fact that dysmenorrhœa and flexions are frequently met with together, or whether it be, as is maintained by its advocates, that a causal relation exists between the flexion and the suffering, or the charming simplicity of the theory itself—true it is that the evidence upon which the theory is based has been obtained from observations made in women suffering from uterine troubles, and from such only. It is therefore of a very one-sided character, and far from conclusive. During the last two years the theory has been the subject of a very critical examination; the evidence in its favor has been carefully sifted, while new inquiries based on scientific principles have been carried out, which throw a new light on so-called displacements, and which are calculated to settle finally the much-discussed question—the part played by flexions in the pathology of the uterus. These inquiries have been made to determine the position of the uterus (1) in women generally who sought advice for other than uterine troubles, (2) in those who did not, and (3) in those who did, suffer from dysmenorrhœa.

These researches have been conducted by Herman in London, and by Vedeler in Christiania.

We have on previous occasions directed attention to some of the results obtained by these observers. Additional observations by Vedeler are published in a late number of the *Archiv. für Gynecologie*. Herman examined 111 unmarried nulliparous women, who sought advice not for uterine troubles but for local contagious disease. In these he found the uterus anteфлекed in 67, or 60·3 per cent.; straight in 43, or 39 per cent.; and retroфлекed in 1. Vedeler examined 749 nulliparous women, and found the uterus anteфлекed in 66 per cent., straight in 31 per cent., and retroфлекed in 3 per cent. In virgins he found anteфлекion present in 71 per cent. In these calculations cases of uterine disease were not excluded, so that the great frequency of flexions of the uterus shown may be due to that circumstance. To obviate this source of error Vedeler examined 414 virgins and 506 nulliparous women in whom the uterus was healthy. In the former he found the organ in a state of anteфлекion in 296, or 71 per cent.; straight in 105, or 26 per cent.; and retroфлекed in 13, or 3 per cent. In the nulliparæ he found the uterus anteфлекed in 361, or 71 per cent.; straight in 128, or 25 per cent.; and retroфлекed in 17, or 3 per cent. So that, according to these observers, the prevailing position of the uterus is one of anteфлекion, and this prevalence extends to nearly three-fourths of all nulliparous women.

The second part of the inquiry had for its object the determination of the position of the uterus, not in women generally, but in women who suffered *no pain during menstruation*. Herman examined 42 nulliparous women who came under this division. In these, the uterus was anteфлекed in 26, or 62 per cent.; straight in 16, or 38 per cent. Vedeler examined 59 virgins and 101 nulliparous women who suffered no menstrual pain, and found the uterus anteфлекed in 68 per cent., straight in 30 per cent., and retroфлекed in 3 per cent.

The third object of the inquiry was to determine the frequency of so-called displacements in the subjects of dysmenorrhœa. Under this head, Herman gives the number of those who suffered slightly, as well as of those who suffered severely; while Vedeler gives the latter only. In 35 women who suffered slight pain during the period, Herman found the uterus straight in 15, or 43 per cent., and anteфлекed in 20, or 57 per cent.; in 35 who suffered severely he found the uterus straight in 12, or 34 per cent., and anteфлекed in 23, or 66 per cent. Vedeler examined 82 virgins and nulliparous women who suffered from severe dysmenorrhœa, and found anteфлекion present in 71 per cent, retroфлекion in 4 per cent., and the uterus straight in 24 per cent.

It will be noticed that there is a remarkable similarity in the results obtained by the two observers who apparently carried on their researches quite independently of each other, and probably about the same time. Herman finds throughout a larger proportion of straight and a smaller propor-

tion of anteфлекed uteri than Vedeler; but the difference is not great. They are agreed as to the enormous pervallence of anteфлекion of the uterus in the three classes of patients examined.

These figures show, further, that anteфлекion of the uterus is met with in about the same proportion in nulliparous women, from whatever class they are taken—whether from the ordinary run of women who seek advice for ailments other than uterine, or from those who suffer from dysmenorrhœa, or from those who menstruate without pain. In the three classes the proportions of straight and of bent uteri are almost precisely the same. According to Vedeler's statistics, the same is true of retroфлекion as of anteфлекion, except that the former is much rarer than the latter in nulliparæ; but the presence or absence of dysmenorrhœa seems to have no effect whatever on the percentage of retroфлекion any more than it has on the percentage of anteфлекion.

In addition to the preceding facts Herman found that of 57 women in whom the uterus was slightly or not at all flexed, 40, or 70 per cent., menstruated without pain, and 17, or 29 per cent., with severe pain; of 53 women with pronounced anteфлекion, 37, or 69 per cent., had no menstrual pain, while 13, or 30 per cent., had severe pain. He found, moreover, that of 23 cases of acute anteфлекion, 16, or 69·5 per cent., suffered no menstrual pain, while 7, or 30·4 per cent. only, had severe pain. In 87 others with slight anteфлекion there was little or no menstrual pain in 61, or 70 per cent., and there was severe pain in 26, or 29·8 per cent. These figures show that the same proportion of women suffer from dysmenorrhœa, be the uterus straight, slightly flexed, or acutely flexed. It appears, then, that from whatever point these observations are examined they lead to the same result—a result which entirely removes the ground from under the feet of the advocates of the mechanical theory of uterine pathology. These facts have been sought for, not in states of disease simply, but also in states of health, and unless the accuracy of the observations can be impugned and the error pointed out, the pathology based upon the mechanical theory must be discarded and replaced by another more consonant with the anatomy and physiology of the organs concerned.

BRAIN-WORK AND FOOD.

THE *Spectator* demurs to our doctrine that brain-work creates a demand for more and better food than ordinary muscular activity requires. "When THE LANCET insists on the necessity for a higher and better kind of food for brain-work than is needful for physical labor, it must mean a better food for persons liable to that extreme tension of the brain which really puts the mental powers on their mettle, and demands continuous and close attention of an anxious kind." No, that is not our meaning. We mean what we say: namely, that brain-work—which, by the way, is as much "phy-

sical" as any other description of work can be—is the function of a part of the organism which is specially eclectic in its relations to food. Brain and nerve tissue are of comparatively high organization, and the part they play in the economy of the organism is one of primary activity. They constitute the centres of its energy. They generate its force. They do not live simply for themselves, but for the whole body, and they require—to speak popularly—a specially nutritious form of food rich in nitrogen. In the article to which the *Spectator* takes exception, we were discussing particularly the case and condition of children, in which connection it was necessary to recognize an important fact which our contemporary seems to have overlooked—namely, that the brain is not only active but growing or *developing*. There is, in fact, as it were, a double claim upon the supplies: one to replace the daily use by exercise, the other to meet the demand of growth. We do not hypothecate any special "tension" as the cause of the need for higher and better food for brain-work. We say that an organism which is doing brain-work as well as muscular work requires higher and better food than an organism in which the brain is comparatively idle and only the lower centres and the muscles do much work. Undoubtedly the effect of brain-work is to strengthen the brain and to render it less likely to become abnormal in its structure or disorderly in its activity than if it were idle. Such exercise as the brain receives in education properly so called—that is, development of the faculties—stimulates nutrition, and in so doing increases the need for food. Excessive activity with anxiety, such as the *Spectator* contemplates, is not good at all, and ought to have no place in the educational process. Worry is fatal to good work, and to worry the growing brain of a child with work is to maim and cripple its organization, doing irreparable, because structural, mischief, the effects of which must be life-long. "Tension" in work is not a proof of strength, but of weakness. A well-developed and healthy-grown brain works without tension of any kind. The knit brow, straining eyes, and fixed attention of the scholar are not tokens of power, but of effort. The true athlete does not strain and pant when he puts forth his strength. The intellectual man with a strong mind does his brain-work easily. Tension is friction, and the moment the toil of a *growing* brain becomes laborious it should cease. We are, unfortunately, so accustomed to see brain-work done with effort that we have come to associate effort with work, and to regard "tension" as something tolerable, if not natural. As a matter of fact, no man should ever knit his brow as he thinks, or in any way evince effort as he works. The best brain-work is done easily, with a calm spirit, an equable temper, and in jaunty mood. All else is the toil of a weak or ill-developed brain straining to accomplish a task which is relatively too great for it.

FEMALE MEDICAL EDUCATION IN INDIA.

A most important step has just been taken by the Lieutenant-Governor of Bengal in connection with the education of females as medical practitioners in that Presidency. Last year Mr. Croft, Director of Public Instruction in Bengal, brought under the consideration of the Principal and Council of the Medical College in Calcutta the propriety of throwing open the medical classes to female students, with a view to their qualifying themselves for the license to practice medicine and surgery. The grounds upon which this recommendation was made were twofold: (1) Because a body of qualified practitioners would be thus formed where services would be available in the zenanas, where male practitioners cannot under any circumstances be admitted; and (2) it would open a career of usefulness to the native ladies who are now passing the University examinations. On that occasion, the Council, by a majority of four to one, passed resolutions unfavorable to the admission of ladies to the medical classes, and recommended the establishment of a separate college, if female medical education were deemed necessary. At the same time, they expressed an opinion that this was not requisite, but that an extension of the existing training in midwifery would be sufficient to meet the requirements of the case. Mr. Croft had also recommended that, if his suggestion were adopted, the qualification for entrance to the College should in the case of the ladies be lowered. The Council was unanimous in its opposition to this recommendation. The question was again brought forward this year by Mr. Croft, who forwarded to the Lieutenant-Governor the papers connected with his previous application to the Council of the College, supplemented by a letter from Dr. Coates, the Principal, reviewing the objections to the admission of ladies, and stating his opinion that there would be no difficulty in lecturing to mixed classes, and that no injurious consequences would result from their introduction. The Lieutenant-Governor, in a memorandum dated June 29th, has gone into a consideration of the whole question, and being of opinion that there is "an overwhelming weight of argument in favor of the admission of females to medical education, has overruled the decision of the Council of the College. He has at the same time negatived Mr. Croft's proposal to lower the educational standard of admission in favor of females, observing that "he knows of no profession in which a preliminary education, training the faculties of observation and thought, is more needed than in the profession of medicine. He therefore thinks that it would be conferring a fatal gift on the cause of female medical education to expose it to the risk of practical failure by withdrawing the necessity for that solid foundation of general knowledge on which the superstructure of technical information can alone be safely built."

He also throws upon Dr. Coates, as Principal of the College, the duty of making all the necessary arrangements as regards separate seats, screens, and waiting-rooms which may be necessary for the efficient and satisfactory working of the new system. The official documents, including Dr. Coates's letter, on which the Lieutenant-Governor formed his opinion, have not been published in the paper which has reached us, but even without these we have come to the conclusion that he has exercised a sound judgment in the decision which he has given. The condition of the native ladies when laboring under disease is most deplorable. Deprived, by the rules or prejudices of caste, of the services of medical men, they are left entirely in the hands of women wholly ignorant of the nature or treatment of disease, without any possible means of rescue from the consequences. Whatever may be thought as to the training of female doctors in our own country, there can be but one opinion, we think, as to its advisability, we may rather say the imperative necessity, for it under the conditions which regulate native female society in India. If judiciously carried out it cannot fail greatly to diminish unnecessary suffering and to save life. It will require sound judgment to be exercised, especially in the early stages, to prevent strong prejudices arising, which might counteract the anticipated benefits, but we have little doubt that every care will be taken on this head. We look forward with confidence to the gradual development of a system which will be productive of much substantial good in a direction which has hitherto been found to be impracticable.

CHOLERA PRECAUTIONS.

CHOLERA continues at Damietta, and isolated deaths have occurred at Port Said, Mansourah, and other Egyptian towns. The disease is also rumored to have come as near to us as the French port of Havre. Whether this turn out to be true or not, it is important that the sanitary authorities of our ports and their officers should know what steps to adopt in case of the arrival of any infected vessel within their jurisdiction. Quarantine, as such, we have happily discarded in this country, and we have no wish to return to a system which would compel a fleet of vessels with none but healthy people on board to lie off our shores for a number of days or weeks merely because they had come from certain ports, or which would require a ship containing a cholera patient to lie at anchor with its complement of passengers and crew until as many as were susceptible had contracted the disease, and this under conditions which would give the hitherto healthy the least possible chance of escape. Where the provisions of the Public Health and the Sanitary Acts against the spread of infection have been duly carried out, other infections have been effectually controlled, even when they have arisen in our midst, and

there is no reason why we should not be able to rely at least as fully on the same preventive measures in the case of an infection which can only come from without, and which before it reaches the community, has to run the gauntlet of what should be an efficient system of inspection in our ports.

An order issued by the Local Government Board on July 17th, 1873, lays down a code of regulations which should be adopted against the introduction of the disease into our country, and the duty of carrying them out devolves partly on the officer of Customs—a term including any person having authority from the Commissioners of Customs—and partly upon the Port Sanitary Authority and their officers. The Customs officer has the duty of ascertaining from the master of any vessel whether any person on board is suffering from cholera or choleraic diarrhoea, and if he has reason to suspect that any such disease exists, he has power then and there to detain the ship at anchor, and to refuse access to it to any person except an officer of the Port Authority, with whom he at once communicates, for a period of twelve hours. The port sanitary official, whether he has received his information through the Customs officer or not, may require any suspected vessel or any vessel which has come from a place infected with cholera, to be moored in some appropriate spot selected by the sanitary authority, and there the medical officer of health to the port, or some other qualified medical practitioner, has to examine all persons on board. If cholera or choleraic diarrhoea be discovered, the patients can at once be moved to any hospital provided by the authority, or if either no hospital be available, or the patients are not fit to be moved, the vessel must remain in charge of the port authority, and be subject to such directions as the port officer shall give. On the other hand, all persons found to be in health, and to have no suspicious symptoms, are, after medical examination, free to land immediately; the vessel, together with infected clothing, etc., remaining to be cleansed and disinfected after the last patient has been removed from it.

The above may be taken as a summary of the special action which is needed in view of cholera, and if the disease finds its way into our midst, notwithstanding the precautions specified, we may be certain that it would, as it has often done before, have equally evaded any system of quarantine. These measures are, however, only special ones. The ordinary everyday duty of sanitary authorities, both of our ports and of our inland districts, should be a preparation against infection, whether of cholera, or of any other specific disease, and even at this stage it is not too late to urge on all authorities the removal of all unwholesome conditions which are known to favor the spread of infection, and the provision of adequate means for the immediate isolation of any case of infectious disease which may be imported into, or appear in,

their districts. Were these measures universally adopted we could look cholera, and many other infections, calmly in the face, knowing that even if they ventured amongst us, they would soon expire from want of the needed pabulum on which to thrive.

THE ABSORPTION OF FAT IN THE SMALL INTESTINE.

It has long been a disputed question whether the fine particles of fat, which it is admitted on all hands are absorbed from the small intestine, enter the lacteals through the columnar cells which cover the villi or through minute channels left between these columnar cells; and various modes of preparation have been appealed to as affording the means of settling the question. Zawarykin, the well-known professor of physiology in St. Petersburg, has just advanced another view in the last part of Pflüger's *Archiv*, which he supports by strong evidence, to the effect that the lymph cells of the adenoid substance of the villi are the active agents in taking up the fat molecules from the intestine and transmitting them to the lacteals. In his experiments he has employed dogs, rabbits, and white rats, the plan adopted being to remove the intestines a few hours after a meal, and to treat them with osmic acid, and then to act upon them with picrocarmin, remove the water with alcohol, render transparent with clove oil, and finally mount in Canada balsam. In preparations thus made he states that lymph cells charged with fat may be seen in the layer of columnar epithelial cells, in the adenoid substance of the villi, and in other layers of the intestinal wall. Ordinary lymph cells thus treated exhibit nearly homogeneous protoplasm, which is of a greenish color; but those that are impregnated with fat present a mist of black molecules, which are not always evenly distributed through the mass, and cannot therefore be mistaken for the ordinary granulations of the protoplasm. The fat-containing lymph cells may be found in all zones of the columnar epithelium from the basal border to the subepithelial layer of endothelium, and they may even be seen to project beyond the basal striated border. The form of these cells varies considerably, suggesting that they are performing lively amoeboid movements when suddenly attacked and rendered immobile by the osmic acid. In some instances they present long processes, usually directed towards the basal border, and often containing fat molecules. The presence of such a long process, extending from a lymph cell lying near the attached extremity of the columnar cells to the basal border of the epithelium, and charged with fat molecules, would explain the views of those who consider that the fat molecules enter the intestinal wall between the columnar cells. Zawarykin is of opinion that his preparations tend to show that there is a constant movement in two directions of the lymph corpuscles, those that are desti-

tute of fat pressing towards the free surface of the mucous membrane and of the villi, whilst others charged with fat are moving in the opposite direction. The further transposition of the fat molecules is, he believes, in part into the central cavity of the villi, and in part along the adenoid tissue of the rest of the intestine. In both cases, however, they soon enter the plexiform chyle vessels, which are situated at the base of the follicles of Lieberkühn. A point of importance which he has noted is that the white corpuscles contained in the blood of the veins and arteries are also charged with fat molecules, but he is not prepared to state precisely how they obtain their fat. The follicles of Peyer's patches appear to be especially active in effecting the resorption of fat, as may be well seen in the case of rabbits. The fat may be seen in larger or smaller masses, composed of molecules and larger particles in the follicle itself, occupying both its peripheral and its more central part. The cells are particularly large in the portion of the intestinal coat which lies over a Peyer's patch, the leucocytes charged with fat here assume an almost colossal size, sometimes lying in rows parallel to the long diameter of the columnar cells, in others forming nests. The memoir is accompanied by some well-executed drawings by Rajewsky, which render the descriptions given by Zawarykin very intelligible.

REGINA v. TIMINS.

THE case of Regina v. Timins, which was tried at the recent Maidstone Assizes, presents many points of interest to the medical profession and the public. The facts, as summed up by Mr. Justice Day, may be stated as follows: Towards the end of last year the Rev. J. H. Timins, vicar of West Malling, sent to Mr. Steadman, the local chemist, for an ounce of oil of bitter almonds. Mr. Steadman prudently wrote to Mr. Timins, telling him that the oil was very poisonous and asking if it was the article he required. Mr. Timins replied by a letter produced in court which ran as follows (we copy the words from *The Times*):—"I require the bitter almond oil for external application, and I will see to its proper use." Thereupon Mr. Steadman supplied the oil in a bottle labelled "Essential oil of almonds—poison." Mr. Timins really used the oil as an outward application upon his son who was suffering from nettle-rash, and so far no harm was done. But, unfortunately, a few weeks later Mr. Timins called on a girl of about sixteen who was one of his poorer parishioners, and who seems to have been slightly indisposed. For some inscrutable reason the reverend gentleman poured into a wineglass a teaspoonful of the essential oil and persuaded the girl, against her wish, to drink it, saying that it would taste like wedding cake. The girl cried out once or twice and Mr. Timins gave her some water, but she died in an hour and three-quarters with

all the symptoms of prussic acid poisoning. It was stated that a medical man passed through the house while the girl lay dying, but that nothing was said to him of the occurrence.

Of course, an inquest was held, and a post-mortem examination, conducted by Mr. T. Henderson Pounds, of Snodland, and Mr. Herbert Pope, of West Malling, showed that there was nothing to indicate death from natural causes, but that the conditions pointed directly to death from prussic acid. The stomach, vomited matters, and other parts and fluids of the body were sent for analysis to Professor Heaton, of Charing-cross Hospital. Although a week elapsed before the analysis was commenced, prussic acid was found in the vomit and in the contents of the stomach, while the oil was detected in the blood, and its influence observed in the urine. In repetition experiments prussic acid was found in the contents of the stomach as long as fourteen days after death—an unprecedented circumstance, we believe. Mr. Timins promised to send the residue of the oil for analysis; but as he declared on a subsequent occasion that he had not preserved it, or even the label on its bottle, an analysis was afterwards made of the oil from which Mr. Timins was supplied by Mr. Steadman. It proved to contain 3·4 per cent. of prussic acid, so that a teaspoonful would contain almost exactly two grains of true acid, which, we need hardly remark, is a deadly dose.

The jury, to whom the above facts were very clearly stated by Mr. Justice Day, found the prisoner not guilty, after only a few minutes' consultation. We confess ourselves utterly astonished at the verdict. It is true that Mr. Timins not only had no intention of harming the girl, but had a very obvious intention of doing her good. But his own counsel, Mr. Edward Clarke and Mr. Douglas Kingsford, who defended the vicar with remarkable skill, admitted that as a matter of fact he killed her, and if the administration of prussic acid after such pointed warnings as Mr. Steadman's letter and the red poison label on the bottle was not an act of gross negligence, it is difficult to conceive what would be.

The moral of the history is that unqualified persons should never dabble with dangerous remedies or try to usurp the places of properly educated men. It is true that many—very many—years ago Mr. Timins acquired some smattering of medical science at St. Thomas's Hospital. But he never, as far as we know, passed a single examination, and his own evidence before the coroner showed how loose and inaccurate his medical knowledge was. We have made careful inquiries, and find that the poor of the West Malling neighborhood are generously and freely attended by the resident practitioners, and that Mr. Timins, whose irregular practice has long been a source of anxiety in his parish, has been led to it not by any necessity on the part of his flock, but by a restless vanity, which has at last led to the death

of an innocent girl. Let us hope that in future he will confine himself to the spiritual needs of his congregation.

One or two of the scientific facts elicited in this trial are worthy of notice. The crude essential oil, during rectification by sulphate of iron and me, loses on an average 9 per cent. of its weight, but the loss varies a good deal. Only a portion of this loss is hydrocyanic acid, and the percentage of hydrocyanic acid in the crude oil is sometimes much less than is commonly supposed. Professor Heaton found in one sample of crude oil recently prepared by a well-known firm (Messrs. Wright, Layman & Umney) only 2.5 per cent. of hydrocyanic acid. The crude oil, when carefully kept, does not seem to change rapidly. The sample from which Mr. Timins was supplied had been kept for at least eighteen months, and yet it exhibited little signs of alteration, and was hardly acid to test-paper. Of course it is impossible to say how much hydrocyanic acid it contained when new. The unusual length of time that passed before death, and the long preservation of the hydrocyanic acid in the contents of the stomach, have already been mentioned. Possibly both may be due to the same cause—namely, the retention and, so to speak, the preservation of the acid, by the essential oil. The two are, indeed, believed to exist in the crude oil in loose chemical combination. Nevertheless, it appears probable that the acid would not have been found at all but for the skill and care with which the post-mortem was made and the samples preserved for analysis.

THE PARKES MUSEUM.

An audience, which entirely filled the basement of the Central Hall, listened to the lecture delivered by Mr. Rogers Field. The three canons which regulate house drainage were given thus:—All refuse matter must be completely and rapidly removed. No passage of air can be allowed to take place from drains or waste-pipes into houses. No communication can be permitted to occur between the drains and the water-supply. The lecturer then proceeded to explain how the principles could be best put into practice. Drains to be self-cleansing must be laid in straight lines, must be watertight, and have a certain fall; the soundness of the pipes and joints can only be guaranteed when, the outlet being closed, the drain holds water without any leakage. Traps which allow of deposit, such as the D and dip varieties, must always be rejected. An excellent contrast was instituted between a form of the hopper closet, shown in action in the Parkes Museum, and the ordinary pan closet with its container, in which filth always accumulated. Waste preventers constructed on an ingenious application of the syphon principle were considered to be the best forms for flushing waterclosets. Well-arranged colored diagrams, with many models, served to illustrate the various details alluded to by Mr. Field. Two colored plans were hung before the audience to illustrate and give emphasis to the states of the drainage at 74 Margate-street, before and after the removal of the Parkes Museum there. It was shown how, in the present system, all the ter-

minals of the different drains had been brought to one central station, at which a manhole, very easy of access, was constructed. Dr. Alfred Carpenter, the chairman, spoke of the ridicule with which his suggestions on house drainage had been greeted not twenty years ago. After the usual vote of thanks, the lecturer proceeded to give demonstrations of the sanitary appliances in action in the various parts of the building.

The eighth lecture of the series was given by Dr. C. H. Ralfe on Thursday evening, July 12th, the subject being "Hygiene in Schools." The Very Rev. the Dean of Llandaff, Master of the Temple, took the chair. The lecturer, after dwelling on the importance of the subject, pointed out that great improvements had taken place of recent years in the general management of schools, but hand in hand with these improvements other conditions had arisen which had a tendency to lower the average standard of health at our chief centres of education. Among these the introduction of the competitive system must be reckoned as the chief, which, by introducing an element of strain, anxiety, and excitement at a period when growth and development were most active, proved highly prejudicial. There were other conditions, but these and the competitive system had to be accepted, and the evils resulting from them combated by an increased care and attention to hygienic details. The lecturer then proceeded to relate the best means for the protection of the school from the ill effects of defective drainage and a dangerous water-supply. The construction of the school buildings, and the arrangement of studies and dormitories, were fully considered, together with the question of ventilation and lighting. With regard to the latter, he drew attention to Mr. Brudenell Carter's remarks regarding the prevalence of short-sightedness and other ocular defects among schoolboys, remarks, the lecturer observed, which ought to be attentively considered by all parents and teachers. The channels by which epidemic disorders were introduced into a school, and the best means of dealing with an outbreak when it occurred, were next discussed. A considerable portion of the lecture was devoted to a consideration of the vexed question of school-boy food. The lecturer insisted it should be plain and simple in character, sufficient in quantity, excellent in quality, and adapted to the special requirements of growth and development according to the age of the boy, whilst the most minute attention should be paid to its cooking, and that it should be served hot and in a palatable and relishing form. He denounced the "sock" shops where boys are too often allowed to purchase provisions of a very doubtful nature, and consume them at times when they destroy the natural appetite. The influence of school work and play on the boy's health and development was then discussed. Sound honest hard work the lecturer was convinced never did a healthy boy any harm, but it was the system of forcing minds at high pressure which was accountable for many lamentable break-downs. For a similar reason athletic sports, which required previous training and often a severe strain, were not advisable till the frame was set, the ordinary pastimes of cricket and football being most suitable for the growing lad. In conclusion, the lecturer insisted on the necessity of adequate medical supervision in order to carry out effectually the details requisite for the maintenance of perfect sanitary and hygienic conditions, and alluded to the excellent results that had followed on the appointment of medical officers at Rugby and Marlborough to attend to these details, and who by constantly mixing with the boys obtained an intimate acquaintance with their physical condi-

tions, whilst the great advantage of medical supervision lay in the power of being beforehand with epidemics. In schools where it was thoroughly adopted the necessity for breaking up a school on account of scarlet fever, etc., was found to be of extremely rare occurrence.

Reviews and Notices of Books.

On the Treatment of Wounds and Fractures. Clinical Lectures. By SAMBSON GAMGEE, F.R.S.E., Consulting Surgeon to the Queen's Hospital, Birmingham, etc. etc. With 24 Engravings on Wood. Second Edition. London: J. & A. Churchill. 1883.

IN this single volume Mr. Gamgee has consolidated his two former well-known treatises on the treatment of wounds and on fractures. The lectures have been in great part rewritten, and the teaching shows considerable development in practical detail as the result of ten and five years' patient labor. Mr. Gamgee is an author who always well repays study; in addition to the stores of a large personal experience, he is able to draw from the published teachings of continental *confrères*, and still more happily from the classical writings of the fathers of surgery. The lesson implied by the title of this work, and effectively taught in its pages, that wounds and fractures are precisely similar in their nature, tendencies, and modes of healing, and that the principles of treatment for both are alike, is one that Mr. Gamgee has done good service in bringing forcibly before his readers. The terms in common use applied to the healing of wounds in soft parts are so different from those used in the union of fractures, that it is easy to overlook the essential oneness of the two processes, and yet the study of each throws great light on the other. Mr. Gamgee's chief aim has apparently been to bring out clearly what he conceives to be the *principles* of wound treatment, and while he shows by ample illustrations from his practice his own way of carrying out these principles, his readers are left at liberty to apply them any in way they think fit. These principles are immobilization, compression, dry and infrequent dressings; accessories being drainage, antiseptics, and position. It is impossible to read the facts related without being impressed with the value of the line of practice inculcated when carried out with discretion, skill, and confidence. The most striking part of Mr. Gamgee's book is that in which he explains the mode of action of properly applied compression, and illustrates its value by the recital of numerous cases in point. There can be no doubt that this is a powerful weapon in the surgeon's hand, which for the most part is far too little used. It is to be noted, also, that the dressing materials that Mr. Gamgee uses, his dextrinized millboard splints, and absorbent cotton tissue, are most excellent means by which compression and immobilization can be secured. We have not space to refer to the cases by which Mr. Gamgee illustrates his teaching; they are numerous, to the point, and well told. Among the most interesting are those in the chapter devoted to Head Injuries. But as they are all subsidiary to the great purpose in view of enforcing surgical principles, they must be read in their place to be appreciated. We may add that the volume closes with plain directions for the application of immovable splints of all kinds.

Nouveau Dictionnaire de Médecine et de Chirurgie Pratiques. Directeur de la Rédaction Dr. JACCOUD. Tome XXXIII. Pp. 828. 1882.

THE chief articles contained in this volume are Secretion, by Mathias Duval; Sensibility, by G. Ballet; Septicæmia, by A. Guérin; Simulées (Mala-dies) and Strangulation by Maurice Laugier; Sommeil, by M. Duval and Rey; Soufre, by A. Huton and Prunier; Sousclavière (Artère), by Poinso; Speculum, by Gallard; Sperme, by Duval and Vibert; Sterilité, by Siredey and Danlos; Stomatitis, by A. Chaffard; Strabisme, by Javal and Abadie; Strychnia and Strychnées, by Chapuis and Ovy.

M. Duval's article on Secretion is well worked up to the present day. After noticing the high temperature of the venous blood and of the secretion of the salivary glands, he observes that it is evident that phenomena of combustion are taking place in the cellules of the glands, due to oxygenation, or at least of disintegration, though of a complex nature. In proof of this he adduces the recent researches of A. Gautier on the alkaloids derived from proteids. Gautier and Selmi have, it is well known, discovered in putrefying corpses various poisonous alkaloids known under the name of *ptomaines*. Gautier has further shown that these alkaloids are normally found in most of the secretions, and especially in the saliva, a fact of great significance in relation to the nature of the acts of disassimilation, for the alkaloids in question are the products of anaërobic fermentation. This at first sight appears to be in contradiction with the fact of their occurrence in the healthy organism, for, according to classical notions, if the intimate acts of nutrition are comparable to fermentation, they can only be regarded as aërobic fermentations. On more carefully observing the phenomena, however, it does not necessarily follow that because oxygen is introduced to all parts of the body by the respiratory process and by the blood that the successive acts of assimilation and disassimilation must be aërobic. Indeed, it has been shown by A. Gautier that whilst four-fifths of our internal combustion are true aërobic fermentations, comparable to the oxidation of alcohol under the influence of the mycoderma aceti, one-fifth of the disassimilative combustion of the tissues in general and of the glands in particular is produced at the expense of the tissues themselves, and without the intervention of any extraneous oxygen. Hence it is reasonable to expect in these organs the same compounds that are found in putrid or anaërobic fermentations, such as ammonia, indol, phenol, and the butyric and acetic acids, as well as the organic alkaloids, often poisonous, which under the name of *ptomaines* have recently attracted so much attention amongst chemists. M. Duval discusses the question of the actual formation of the secreted matters, whether they proceed from cells which only yield up their contents or from cells which break down. In some instances, as in the case of the milk and in the sebaceous glands, all stages in the breaking down of the cell may be observed, whilst in the salivary glands the cells are persistent, and the changes they undergo have been well worked out by Heidenhain, Kühne, Lea, Langley, and others. From the researches of these observers it is seen that there are two types of glands. In one, the albuminous type of gland, represented by the parotid of the rabbit, during repose the cells swell, and contain a large quantity of clear material, to which the term "*paraplasm*" has been given, which does not color with carmine. After action the cells become smaller, the paraplasm in great part disappears, and a granular protoplasm re-

mains which does color with carmine. In the mucous glands, represented by the submaxillary and sublingual, there are two kinds of cellular elements—voluminous, transparent cells of cylindrical or pyramidal form, with the base applied to the wall of the acinus, and a flat nucleus; and smaller, angular cells, formed of granular protoplasm, with rounded nucleus. Three or four of these compressed together form the demilunes of Gianuzzi. In action the larger cells disappear, and a new epithelium lines the cul-de-sac. The action of the nervous system on secretion is by no means briefly given, though the subject is dealt with under the heads of the several secretions. He regards the statements of Pflüger in respect to the termination of the nerves in the cells as still doubtful.

Under the head of Speculum drawings of a great variety of specula are given, several of which, if a paragraph in one of the daily papers be true, were in use in Pompeii two thousand years ago. A very useless woodcut is given, intended to show the mode in which the speculum should be introduced. The patient is here shown lying on the back. The speculum can be introduced just as readily, and much more decently, with the patient lying on one side. A drawing is also given showing how a silver spoon may be attached to a wax candle, and made to serve very well instead of a reflector.

The article Sphygmograph, written by Brouardel, who has devoted much attention to it, and made it the subject of his thesis when taking his degree, gives a full account of the method of employing the instrument, and many tracings or, as he terms them, sphygmograms.

Under the head of "Sommell" not only are the physiological characters and conditions of sleep given, with the views of Durham, Hammond, and Sanson on the causes of sleep, but an interesting section is appended upon lethargy, sleeping sickness, or Nelavan, the disease first clearly defined by Winterbottom in 1819, and observed by him in the slaves of the Bay of Benin. Of late years it has been noticed by many authors, but it is curious that it should have been so long undescribed. It is a malady chiefly affecting the inhabitants of the Western Coast of Africa, but has also been seen at Martinique and at Guadeloupe. The affection is preceded by general lassitude, by irregular appetite, and by irregularity of pulse. The patient becomes unable to raise his lids, and sleep seizes on the whole man. Strong stimuli are required to awaken him; hunger and thirst are unnoticed; and after a sleep of two or three days consecutively sleep deepens into death, the change occurring so gradually as to render it impossible to fix the moment of dissolution. The general physique of the body is well maintained. After death, the chief pathological change observed is congestion of the meninges. The cephalo-rachidian fluid is often increased in quantity. No treatment seems to be of service.

Selections from the Works of the late J. Warburton Begbie, M.D., LL.D., F.R.C.P. Edin., Physician to, and Lecturer on Clinical Medicine in, the Edinburgh Royal Infirmary, and Lecturer on the Practice of Physic in the Extra-Academical School. Edited by DYCE DUCKWORTH, M.D. Edin., F.R.C.P., Assistant-Physician of St. Bartholomew's Hospital, etc. The New Sydenham Society.

THE New Sydenham Society has acted well within its best purposes in publishing this selection from the works of the late Dr. J. Warburton Begbie, who

died so sadly too soon both for Scotland and for the practice of medicine. The selection of Dr. Duckworth as editor, on his own kind offer to undertake the work, is equally happy with the main publication. Few men could have been found to whom the labor would be more—to use his own words—a labor of love. Dr. Duckworth, above all things, looks up lovingly and reverently to his *alma mater*. He looks back fondly to the time when he took from her his first great lessons in medicine; and of the men typical of that time he can find none more worthy of study and attention, and we may add, affection, than the younger Begbie. And no one with similar means of judgment will differ from Dr. Duckworth in his estimate of Begbie. He was indeed "the beloved physician," and lives, not only in the gratitude of the patients whom he advised, but in the respect of the profession which he adorned. The papers gathered together by Dr. Duckworth are not only permanently valuable in themselves, but give an excellent idea of the qualities, human and professional, which raised Begbie to the foremost place among the physicians of Scotland. They are models of clinical work, and full of fine touches of feeling and of careful observation. We commend them heartily to the profession for study and for imitation. Dr. Duckworth specifies a few of the most valuable:—1. On Temporary Albuminuria, occurring in the Course of Febrile or other Acute Diseases. 3. On the Use of Belladonna in Scarlatina. 9. Case of Fatal Croup in the Adult. 12. On Lead Impregnation, and its connection with Gout and Rheumatism. 16. Vascular Bronchocele, and Exophthalmos. 19. On Paracentesis Thoracis in the Treatment of Pleural Effusions. 24. The Therapeutic Action of Muriate of Lime. 25. The Swelled Leg of Fevers. 28. Albuminuria in cases of Vascular Bronchocele and Exophthalmos. But there are others equally good, amongst which we would specify a paper on Cases of Cholera, and one on Hæmaturia. All alike give the idea that the writer was not a mere pathologist, but a physician trying to abate suffering and control disease. The papers are preceded by a memoir of Begbie by Dr. Duckworth, which will be read with great interest.

Abdominal Hernia and its Consequences, with the Principles of its Practical Treatment. By RUSHTON PARKER, B.S., F.R.C.S., Professor of Surgery in University College, Liverpool. Liverpool: Adam Holden. 1883.

THE first part of this essay consists chiefly of a plea for more careful treatment of cases of functional laming of the alimentary canal. Mr. Parker points out that in all cases of intestinal obstruction there is more or less of this functional disturbance of the digestive organs, and that the only proper treatment for it consists in rest, which is to be obtained by entire abstinence from food, and all physical exploration of the parts, enemata, etc., and the exhibition of opium or morphia. This is an important truth, and one that is easily overlooked, and Mr. Parker has done well in calling attention to it. But in his desire to enforce his views, we fear that the writer has in several instances considerably overstated his case. In the first place, he has nowhere drawn any distinction between the symptoms and effects of mere obstruction to the passage of feces and of superadded strangulation of the vessels and nerves of the part, and yet this distinction lies at the very root of the symptoms, pathological processes, and results. To plead as he does for a "generalization of the symptoms in all kinds and every degree of intestinal obstruction, mechanical and functional," is to

plead for a truth so partial as to verge upon error. When we read that it is not only useless but injurious to give food "in any form of intestinal obstruction," it is evident that the author is thinking of strangulation or of certain forms only of obstruction, and has made a far too hurried generalization, for we cannot suppose him to mean that we should refuse all food to patients with, say, cancer of the rectum.

Two other points are touched upon by Mr. Parker in this part of his essay. One of these is the alleged production of intestinal obstruction by nipping off omentum in a hernial sac, in the face of the fact that tight ligature of omentum is known not to produce any such symptoms. Mr. Holmes is criticised for believing in this paradox, although unable to explain it. But surely the facts that Mr. Holmes and others adduce are very stubborn things, and are not to be set aside by a theoretical objection which on examination is seen to be unsound; for there is a vast difference between cutting off a piece of omentum and putting a tight ligature on the pedicle, and strangulation of omentum, with its attendant venous congestion and nerve irritation.

The other point referred to is the difference between intra-peritoneal and extra-peritoneal perforation of intestine. It is insisted that the mere perforation of intestine is not directly important, and may be harmless, or at least not fatal. The gravity of intra-peritoneal perforation is attributed entirely to absorption of septic matters from the extravasated fæces, while the effect of fecal examination in producing shock is entirely overlooked, although in a large proportion of the cases the evidence of this peritoneal shock is not wanting.

The second part of the essay is devoted to a consideration of the radical cure of hernia. It is rightly urged that no operation for strangulated hernia should be considered complete in which precautions are not taken to ensure a radical cure. The method advocated by Mr. Parker is the "ligature of the peritoneal lining, with or without other coverings, at the offset of the former from the main peritoneal pouch, by means of anti-septic catgut," or other similar material. This is described as the only method applicable to all herniæ alike. We cannot but regret that in this particular, again, Mr. Parker has overstated his case, and, indeed, we have only to read his own statements in this very paper to find a contradiction to this thesis. We read that where the hernial aperture is small, the above procedure succeeds, where large "it most easily fails;" and, again, Mr. Parker admits that in one of his cases he had "to sew up the pillars of the ring, in order to keep the hernia reduced." The truth appears to be that for radical cure of hernia two things are needed—the closure of the neck of the hernial sac and the restoration (where impaired) of the normal support from fibrous tissues at the implicated region. We believe that Mr. Parker is, in fact, fully alive to this, but in his enthusiasm for simple closure of the sac he has been betrayed into the use of too strong and too general language.

SPAS AND MINERAL WATERS.

The Mineral Waters of Europe, including a short Description of Artificial Mineral Waters. By C. R. C. TICHBORNE, LL.D., F.C.S., Professor of Chemistry at the Carmichael College, Dublin, and PROSSER JAMES, M.D., Lecturer on Materia Medica and Therapeutics at the London Hospital. London: Baillière, Tindall & Cox. 1883.—The treatment of various diseases by baths and mineral waters is

daily attracting more and more attention. There is, of course, nothing peculiar or special in this mode of administering drugs, for mineral waters are simply medicines of complex composition, largely diluted, and containing in solution various salts and gases derived from the soils through which they pass. The book before us is replete with valuable information, and contains much to excite the interest and curiosity of those who have not made the subject a special study. We are told in the preface that nearly all the waters in general use as medicinal agents have been submitted to careful chemical analysis, the work extending over a period of nearly three years. It cannot be too generally known that the analyses of waters as given in many of our text-books are anything but reliable. They have been copied and recopied year after year, and not only has every error been perpetuated with religious fidelity, but in many cases they were originally obtained from advertisements issued by the proprietors or others interested in the springs. It should be remembered, too, that mineral waters are liable to change from time to time in chemical composition, this variation being most marked in those containing large quantities of salts in solution. During the last few years the whole subject of water analysis has undergone a complete revolution, the spectroscope now affording means of detecting small quantities of the rarer metals not possessed by chemists fifteen years ago. Professor Tichborne, for example, in 1868 found lithia for the first time in the Schwalheim waters, although they had been carefully examined by Liebig only six years previously. Another point of practical importance is that many so-called mineral waters have in reality no claim to that title, their constituents, especially in the case of sulphuretted waters, being merely the result of decomposition attending the decay of organic matter. In several instances it was found that waters supposed to possess valuable medicinal properties were little more than a mixture of sewage and water. The authors find that in most cases artificial substitutes are not at all equal to the waters they are supposed to represent, and they assert that the more complex spas can never be imitated. It must not be forgotten, in considering the composition of mineral waters, that as regards the arrangement of the elements by the chemist there is a good deal of theory. He evaporates down a certain bulk of water, estimates the relative amounts of acids and bases present, and then arranges them in his report according to their known affinities, but so many changes have taken place during the process that the arrangement which he is authorized in mapping out does not of necessity represent the true arrangement existing in the waters themselves. The authors have arranged the different mineral waters in groups according to their action: thus we have a group of purgative waters, of alkaline waters, of arsenical waters, of chalybeate waters, and so on. Each group affords material for two chapters—one devoted to a consideration of its chemical characters and the other to its medicinal uses. The book contains the results of much good sound work, and the authors are to be congratulated on the success of their efforts to treat the subject in a truly scientific spirit.

The Thermal Springs of Aix-la-Chapelle and Borette. By Dr. BEISSER. Aix-la-Chapelle: J. A. Mayer. 1883.—Aix-la-Chapelle, as is well known, is now largely resorted to by sufferers from syphilis. The treatment of this complaint has become quite a speciality both at Aix and Borette (Burtscheid), the number of visitors seeking relief steadily increasing year by year. The method employed is

to rub in mercury in the form of ointment, the skin having been previously prepared for its absorption by the use of hot sulphur baths and by drinking the waters. Much apparently depends on the mode in which the inunction is performed, the rubbers at Aix being trained for the work by physicians who devote special attention to the subject. But it is not only in syphilis that the hot sulphurous waters of Aix are beneficial, for it is asserted that they prove curative in almost all forms of gout and rheumatism. In many skin diseases, especially chronic cases, the baths may be used with advantage. Dr. Beissel warns us that in acute eczema they must be avoided, for they do more harm than good. For chronic localized eczema he recommends a mode of treatment which yields excellent results in his hands. The crusts are thoroughly soaked in oil at bedtime and removed the next morning in the bath. No crust of any kind is allowed to remain on, they must be removed entirely, even at the risk of exciting bleeding. The reddened and freely discharging surface is then carefully dried and painted with a one-in-ten solution of permanganate of potash. The painting is to be repeated once or twice a day, and is to be persevered with until a black scale of the thickness of a sheet of paper forms over the eczematous spot. After this mode of treatment has been continued for a week, the dried black mass is allowed to separate and the cure is almost complete, although in places there may still be little fissures or cracks. Dr. Beissel's descriptive history of the towns of Aix and Borectte is amusing.

Medical Guide to the Mineral Waters of France and its Wintering Stations. By A. VINTRAS, M.D., Physician to the French Embassy, Senior Physician to the French Hospital in London, Chevalier de la Légion d'Honneur. London: J. & A. Churchill. 1883.—The object of this work, we are told, is to afford the means of ascertaining at a glance the chemical composition, therapeutical value, and geographical situation of the most important thermal stations in France. Dr. Vintras has consulted the latest monographs and other writings on the subject, in order to bring the information up to date, but his work is not a mere compilation, for he has personally visited all the most important springs of which he treats. He writes clearly and pleasantly, and his descriptions of Vichy, Royat, Mont-Doré, La Bourboule, and other places of resort, should add largely to the influx of English visitors. His chapter of advice to invalids who think of taking the waters is excellent. The first point on which he insists is that the patient should never go to any mineral water station without first consulting a physician. "Whatever friends or acquaintances may say, however much they may have been benefited by taking the waters at such or such a place, turn a deaf ear to their well-intentioned but very dangerous advice. Mineral waters are just as much a remedy as any medicine compounded by chemists, and their properties are as different as those of various prescriptions, although their composition appears to be the same or nearly so. It is the nearly so which makes the great difference to be fully realized only by those who have made a special study of this important matter." On arriving at the springs, the first thing to be done is to call upon the physician to whom an introduction has been obtained at home, in order that his advice may be taken as to the mode of treatment to be adopted. Patients should be guided in everything by their medical adviser, and should not listen to suggestions made by persons met casually at the hotel or elsewhere. The usual stay at

a mineral station is three weeks—that is, twenty-one days of actual treatment; but when this is over it is not advisable to hurry back too quickly, for the medicinal effects of the waters continue for some time longer, and if possible a week's rest should be taken at one or more places of interest on the road home. In an appendix the author gives some account of the legislative enactments relating to mineral springs in France. It appears that no spring can be worked medically or commercially without a special authorization from the Ministers of Commerce and Public Works, and this is granted only after a favorable opinion has been pronounced by the Academy of Medicine. A medical inspector is appointed to every locality possessing one or more establishments of natural mineral waters, and during the season this official exercises a supervision over everything appropriated to the treatment of patients. In the appendix will also be found a series of itineraries from Paris to the principal French thermal stations, the information being clearly and concisely arranged. There are, we must admit, one or two things in this volume which have puzzled us. For example, speaking of Royat, the author says:—"The discovery that lithine (chloride of lithium) existed in considerable quantities in the Royat water has for the last few years attracted to this station a large number of gouty patients," and yet on turning to the accompanying chemical analysis, said to be the "latest that we possess," we find no mention of the presence of lithia in any of the springs. When the particular analysis was made we are not told, but it certainly differs very materially from that made by Willm in 1879, and also from that quoted in the "*Notice sur les Eaux Minérales de Royat.*" Dr. Vintras is perhaps more at home as a descriptive writer than when dealing with scientific facts.

Medical Guide to Contrexéville (Vosges). By Dr. DEBOUT D'ESTRÉES, Chevalier de la Légion d'Honneur. London: J. & A. Churchill. 1883.—The mineral waters of Contrexéville have long enjoyed a reputation for the cure of stone, and they are often spoken of as "the antidote to gravel." They were found by Civiale to be specially useful in restoring contractility to the bladder weakened by chronic catarrh. In gout and its allies they prove almost as successful as in stone. Dr. Debout d'Estrées gives us in a small compass all we are likely to want to know about his favorite watering-place. He tells us how to get there, what to do when we are there, and even lays down rules for our guidance when we have ceased to be under his care. His chapter of "General Information" is interesting, and certainly practical. He reminds us that there are certain formalities to be complied with before we can be permitted to drink the waters: the first being to go to the office and pay the sum of twenty francs. He gives the prices of the baths, which certainly seem to us to be higher than at most continental watering-places. The work on the whole is well done, and will repay perusal.

Vichy and its Therapeutical Resources. By PROSSER JAMES, M.D., Lecturer on Materia Medica at the London Hospital. Fifth Edition. London: Bailière, Tindall & Cox; Alexander & Shepherd. 1883. Vichy is said to be visited annually by 40,000 invalids and tourists, so that it is hardly a matter for surprise that Dr. Prosser James's interesting little book should have run through five editions. It is readable, and contains a great deal of useful information. The present edition has been corrected up to date, the author having recently visited Vichy for the purpose.

Meade's Manual for Students. Fifth Edition, entirely rewritten. By JAMES CANTLIE, M.A., M.B., F.R.C.S., Assistant-Surgeon and Demonstrator of Anatomy, Charing-cross Hospital; and DANIEL COLQUHOUN, M.D. Lond., M.R.C.P., Assistant-Physician and Lecturer on Botany, Charing-cross Hospital. London: Renshaw. 1883.—We had thought, and certainly the wish was father to the thought, that manuals containing everything that is supposed to be required for medical examination had disappeared before the advances and alterations in the method of examination which all qualifying bodies have been making in the past few years. A single examiner, asking questions on botany, chemistry, anatomy, forensic medicine, materia medica, medicine, and midwifery is now a thing of the past; and works, originally intended to meet this condition, can hardly survive, even if revised and rewritten, and we need not deplore their extinction, nor the examination system which called them into existence. We would remark that the new editors of this manual are scarcely justified in basing their defence of cram on the statement that the duration of the course of medical study is now practically limited to two and a half years, for few students pass under four years, and for every one who is qualified within this period, ten may be found studying beyond it. In conclusion, we must add that if books of this class are to be used, this manual is one of the best, and the information contained in it is quite up to date.

The Student's Handbook of Surgical Anatomy. By JOHN McLACHLAN. Edinburgh: E. & S. Livingstone. 1883.—This is a very valuable little book for advanced students who are preparing for an examination in surgical anatomy. It is very correct and well arranged, but unfortunately it is incomplete. A new edition should at least contain, in addition, an account of the surface markings and a description of the arrangement of the fasciæ.

Study and Stimulants. Edited by A. ARTHUR READE. London: Simpkin, Marshall & Co. 1883.—This book is something of a new departure in its method of dealing with the questions of the value of smoking and the use of stimulants. An alternative title appears on the front page: the use of intoxicants and narcotics in relation to intellectual life as illustrated by personal communications on the subject, from men of letters and of science. In a work thus composed, elements of curiosity and of interest are introduced quite apart from the problem immediately in hand. There is certainly a little enjoyment to be derived from reading what this great man says or that learned writer thinks. Our own views on these matters have been so freely and so recently expressed that we are loth to return with any degree of fulness to the matter. The conclusions at which the author arrives are laid down by him in a table of seven propositions. The first statement avows that alcohol and tobacco are of no value to a healthy student. That is undeniably a safe proposition to lay down, the adjective "healthy" will cover a multitude of objections. That the most vigorous thinkers and hardest workers abstain from both stimulants is a deduction which is not perfectly free from fallacy. We can hardly agree with the opinion that almost every brain-worker would be the better for abstinence, though we can easily understand how the most abstruse calculations may be made, and the most laborious mental work performed without artificial stimulus. It may be worth while to consider what is the real difference between the natural and the artificial. Surely that might once have been regarded as artificial

may come to be looked upon as natural. Use is second nature. But we feel strongly inclined to ask, What is first nature? Was it not truly an artificial experiment when the first beginnings of organic life began? The author gets into deep water when he believes that all work done under the influence of alcohol is unhealthy work. That is a very bold assertion to make and the onus of proving the statement rests with its asserter. Unless we have taken altogether a wrong view of pharmacology and therapeutics, we think that there are certainly many more brain stimulants than the author's external ones—fresh air, cold water, walking, riding, and other out-door exercises. With what object the adjective *pure* (brain stimulant) is introduced does not at first sight appear. If it be meant that the stimulant acts solely on the brain we cannot consent, and if he regard the stimulants mentioned as the only pure ones we are yet not satisfied. Or perhaps what Mr. Reade calls a stimulant we should consider as essential to vital existence, and of so mild a nature that the term stimulant might with advantage be dropped. We think most people will agree with us that to speak of fresh air and cold water as stimulants is an abuse of the terms.

Descriptive Catalogue of the Pathological Specimens contained in the Museum of the Royal College of Surgeons of England. Second Edition. By Sir JAMES PAGET, Bart., with the assistance of JAMES F. GOODHART, M.D., and ALBAN H. G. DORAN, F.R.C.S. Vol. II. London: J. & A. Churchill. 1883.—This volume contains a description of more than 1500 specimens, including all those in the museum illustrating morbid conditions of the blood, injuries and diseases of voluntary muscles, tendons and their sheaths, cartilage, bone, joints, and of the vertebral column; diseases of bursæ and synovial ganglia, and distortion of the pelvis. The Catalogue testifies to the great wealth of the museum, especially in specimens of disease and injury of bones. The descriptions of the specimens are very exact and lucid, and form an invaluable guide to all students visiting the museum. The preparation of such a catalogue entails immense labor upon its authors, and it is difficult to estimate the value of the services Sir James Paget and his two assistants are rendering to the profession by this undertaking. Their best reward would be to find that the new catalogue acts as a stimulus to all who have it in their power to avail themselves of the vast stores of information collected in the Hunterian Museum.

The Quarterly Journal of Microscopical Science. Edited by E. RAY LANKESTER, THISELTON DYER, E. KLEIN, H. N. MOSELEY, and ADAM SEDGWICK. New Series. No. XCI. July, 1883. London: J. & A. Churchill.—The memoirs in this number are:—1. On the Ancestral Form of the Chordata, by A. Hübner, in which the learned professor of Utrecht, whilst admitting the validity of Ray Lankester's view, that the Tunicates are rather to be regarded as degenerate vertebrates than as representing the dawn of the vertebrate series, advances a very curious doctrine, to the effect that "the proboscidean sheath of the Nemertean is comparable in situation (and development?) with the chorda dorsalis of the vertebrate." This view is advocated with much acumen, and supported by many arguments. 2. The Renal Organs (Nephridia) of Patella, by J. T. Cunningham. 3. A Rare Form of the Blastoderm of the Chick, and its bearing on the question of the Formation of the Vertebrate Embryo, by C. O. Whitman, Ph.D. 4. On the Development of the Pelvic Girdle and Skeleton of the Hind Limb in the Chick, by Alice Johnson, Newnham College, Cambridge. 5. The Development of the Mole

(*Talpa Europæa*); the Formation of the Germinal Layers and Early Development of the Medullary Groove and Notochord, by Walter Heape. 6. The Tongue of *Ornithorhynchus paradoxus*; the Origin of Taste-bulbs, and the parts upon which they occur, by Edward B. Poulton. 7. Observations upon the Foetal Membranes of the Opossum and other Marsupials, by Henry F. Osborn. There are eleven plates in this number.

Medical Annotations.

"Ne quid nimis."

WINDOW VENTILATION.

No time could be better than the present for beginning the practice of house ventilation by the window, which is still, in the majority of houses, the readiest and the safest means of obtaining a regular and constant supply of fresh air. This practice, begun in warm weather, may be carried on with proper care through autumn and winter. The constantly accumulating impurities derived from breath, from perspiration, from excreta of other kinds collected in sleeping-rooms, from the use of gas or lamplight, and too often, even now, from suction of sewage-gas from waste-pipes by the heat of house fires, etc., render it as necessary for health as for comfort that these should have free egress, and that they should be substituted by the pure outer air. Fresh air from without may very easily be had without draught, and without risk of cold even to delicate persons, if a few simple rules be observed. The cold air of winter of course enters with greater force, and in greater proportional volume than the more equable summer air, into a warm room. The aperture of ingress must be correspondingly diminished. Air from a window is preferable to that from an opened inner door, no matter how roomy the house, from its more reliable purity. If the window be the inlet, the fire, fireplace, or it may be the door of a room in summer acting as an outlet, it may be opened from the top, the extent being regulated according to the outer temperature. There is then a direct inward current at the upper part, which follows the roof of the room, thus mingling with any heated waste products which require to be removed, and an interrupted current at the middle, the previous line of junction of the upper and lower sashes; both are broken and diffused by the blinds or curtains. Venetians for this purpose should be turned upwards. A window should never be made to ventilate by opening it from below, unless the open lower space be filled up in some way, and ventilation be carried on at the middle, where the sashes join; otherwise draughts are unavoidable. The ventilating-pane is a hardly less simple and equally efficient and safe method with either of the others. Window ventilation is especially useful in bedrooms, and its efficiency or otherwise cannot fail to affect the vital powers of the occupant, who in his slumbers must trust to other energies than his own for the removal of those impurities and morbid germs which his every breath multiplies around him.

ALLEGED INCREASE OF INSANITY IN THE UNITED STATES.

We must confess our inability to understand how it comes to pass that the professors of statistical science, in reference particularly to what are known as "vital statistics," do not yet perceive the fallacy of "increments" of integral classes of the

population, calculated on the bases of successive censuses. Even if there be a given number for the whole population at one period of census-taking, and another number—say ten per cent. greater—when the next census is taken, it does not necessarily follow that the population has increased ten per cent. in the interval, as compared with the increase in any previous interval of like duration. It may very well happen that some devastating war or epidemic may have prevented the survival of a certain percentage of those who were alive at the commencement of the earlier interval until the close of it, so that the difference between the numbers polled at the beginning and at the end of the earlier interval may not have been so great as it would otherwise have been, and not so great comparatively as the difference between the census taken at the commencement and the census taken at the conclusion of the latter interval. It seems to be forgotten that mere difference between returns at successive periods throws no statistical light whatever on what has happened in the interval. Comparisons of birth-rate and death-rate are needed to interpret the import of successive census returns, and without such comparisons these returns are not simply worthless, but may be actually misleading. Now, when we come to compare the returns made to the Commissioners in Lunacy at the commencement of each year, we are comparing successive censuses, and no sort of conclusion can be drawn without taking steps to ascertain how any increase which may have occurred is to be explained. Has the number of admissions been greater during this year than formerly? If so, to what extent has this been due to the fact that, more accommodation having been provided, it has been occupied? Again, has there been any proportional decrease in the death-rate? because, if so, obviously a number of individuals who, according to precedent, would have disappeared from the roll during the year have not disappeared, and now help to swell the total? Further, have any changes in policy or administration, such as a broader interpretation of the meaning of "insanity," naturally leading to the extension of the class thus designated, or greater vigilance on the part of those charged with the duty of searching out and classifying the "insane," occurred? Clearly, these and other factors of the result must be examined and estimated before any trust can be placed in the returns made. Meanwhile these returns are mischief-making; they keep up a vicious circle of activity, producing an increase of asylum accommodation which we believe to be perfectly unnecessary, and which must inevitably lead to an apparent increase in the number of the "insane." When, therefore, we hear of a "startling increase" of insanity in the United States, we simply decline to believe in it. General indications of the state of mental health in America do not bear out the inference to which statistics point; and, as "vital statistics" are at present computed in this country and in America, we are convinced that general indications are more trustworthy than figures which may not be facts.

BOVINE OR HUMANIZED LYMPH.

We have received a communication from Dr. Thomas F. Wood, Secretary to the North Carolina Board of Health, in which he adverts to an article which was recently published in *THE LANCET*, and which referred to the observations made by several American physicians as to certain advantages attendant upon the system of arm-to-arm vaccination. Dr. Wood is of opinion that the quotation which we made from a report of his does not correctly express his views upon the

question as to whether the use of bovine lymph should or should not supersede the use of humanized lymph. Regarded from this point of view we admit Dr. Wood's contention, and we have pleasure in giving prominence to the opinion he has expressed on the subject. Dr. Wood's view is that although there are certain advantages connected with the arm-to-arm system as carried out in this country, "where vaccinations are done faithfully and show excellent results," yet that the advantages attendant upon the use of bovine lymph are still greater, and this mainly on the following grounds:—1. Bovine lymph gives all the results of original vaccinations as described by Jenner and others. 2. This lymph has in his practice appeared to be superior in potency to humanized lymph in cases of revaccination. 3. The tendency of the course of humanized lymph is, after a long series of years, towards degeneration, in so far as its protective power is concerned. 4. Humanized lymph has been known to act as a medium for the transmission of diseases affecting the human subject, whereas no such results are as yet known to have followed on the use of lymph direct from the calf.

THE ABOLITION OF HOSPITAL CHAPLAINS IN PARIS.

WHATEVER the antagonism of the present rulers of France to the national religion of that country, the abolition of the hospital chaplains must be regarded as a most extreme and cruel measure. It is not a question of creeds. It is the deeper question of religion, and of provision for the consolation of sick or dying persons. Violently to withdraw such a provision from the thousands who fill the hospitals of Paris is an outrage on the religious sentiment of the people immediately affected, and of the nation itself. We shall not be suspected of any undue respect for Catholic priests, or their ministrations; but we know what are the susceptibilities and the wants of the sick and of the dying—whether Catholic or Protestant. We know how resolutions for a better life, or considerations favorable to a happier death, may be fostered. In Paris, where the hospital system is so highly organized, the withdrawal of such a provision is more than usually offensive to all good taste and feeling; and we venture to believe that it will be reconsidered. The hospital is not the place to fight the battle of reason *versus* faith, and those who force such a fight in such a field will have the worst of it.

HYPODERMIC INFLATION.

DR. HENRY R. SILVESTER, who has already rendered such valuable services in connection with the restoration of persons apparently drowned, has been recently making some observations with a view to the prevention rather than the treatment of this condition. It is stated that he was led to this investigation from being brought into contact with the many life saving apparatus at the Fisheries Exhibition, in his capacity as chairman of jury, Group 7. His method is the artificial production of subcutaneous emphysema. He showed at the Exhibition a small dog, weighing 10 lb., whose subcutaneous tissue he had inflated with air, and which was then able to sustain a weight of 18 lb. in water, in addition to its own weight. Dr. Silvester suggests that a large dog or a calf thus used might be able to bring a number of persons safely to shore, and that there are many cases in which this plan of treatment might be applied to man himself, rendering him practically unsinkable. This is a suggestion that may possibly be of service under some conditions, and is

no doubt an addition to the means of saving life at sea: but we question whether more than this can be said about it.

THE DISTURBANCE BY STUDENTS IN THE THEATRE ROYAL, EDINBURGH.

ON Thursday evening June 28th a number of students created a serious disturbance in the gallery of the Theatre Royal, Edinburgh. Seven of these were taken into custody; they were brought before the magistrates and fined. A meeting of the *Senatus Academicus* was held for the purpose of receiving the report of the Committee that had investigated the circumstances attending the disturbance. There is understood to have been some difference of opinion as to the punishment to be awarded, but ultimately it was determined to rusticate the two chief offenders for the present summer session, which closes on July 29th, and for the ensuing winter session; while in the case of the other five students who were convicted the rustication was limited to the summer session.

THE CONTAGIOUSNESS OF PHTHISIS.

THE revival of an old belief, especially when this is due to the discovery of some new fact that apparently supports it, is no new thing in history; and in medicine particularly we find the ideas discarded by one generation reverted to by the next. The doctrine of the contagiousness of phthisis has been held by some from the very dawn of medicine, has been a matter of popular faith in many countries, and yet has been grounded on no substantial basis. To those who wish to learn how the doctrine is supported at the present time we may refer to the opening article in the new *Bristol Medico-Chirurgical Journal*, by Dr. Shingleton Smith, who begins his thesis with the propositions advanced by Dr. Budd sixteen years ago in support of the view that phthisis is contagious. The arguments employed by Dr. Budd then are much the same as those in vogue at present, with, however, some notable additions from recent pathological research—the similarity of the pathology of tuberculosis to that of zymotic diseases, the evidence of actual communicability of phthisis, the geographical distribution of the disease and its introduction by Europeans into countries hitherto free from it, its prevalence in low levels and amongst crowded communities—conditions also favoring the spread of zymotic disease generally. To these and like arguments must now be added the knowledge gained of the infectivity of tubercular material within the body, the inoculability of the disease in the lower animals, and lastly, the crowning discovery of Koch as to the presence of bacilli in the tubercular deposits and ejecta. All these and many collateral points are dealt with by Dr. Shingleton Smith, who also gives the result of his own examination of sputa for bacilli. The arguments in favor of the zymotic nature of tubercle—i.e., of phthisis—are given here plainly and fully, and the reader must weigh them for himself. He will, however, be considerably assisted in his analysis if he first peruses the next article in the journal, in which Dr. Markham Skerrett writes with precisely the opposite tendency to Dr. Smith, and adduces clinical evidence against the contagiousness of phthisis. On his view the bacillus may only be a concomitant (or a result?), but not necessarily a cause of tuberculosis, whilst, further, inferences from the experimental inoculation of animals may be pushed too far. The body of his paper is occupied, in the first place, with the evidence adduced in sup-

port of the contagion theory, and he shows how readily this may be exaggerated, particularly the evidence of transmission through marriage; then comes the formidable array of facts against the theory of contagion afforded by the hospitals for consumption, and the slight liability to the disease amongst those who wait on patients. Dr. Skerritt shows that the necessity for assuming a special predisposition to tubercle places it in a different category from other contagious diseases, and, indeed, differentiates the human disease from that produced experimentally in animals. The appearance of these articles is timely; and although neither writer would perhaps claim that finality has been reached in this question, their readers will see how different the same thing looks when regarded from two opposite standpoints.

THE LORDS AND PIGEON SHOOTING.

THE rejection of the Bill which was intended to put an end to the ignoble practice of shooting trapped pigeons under the guise of sport, but really for "betting" purposes, is not one of those works of the hereditary legislature which will incite sensible people to "thank God we have a House of Peers." We can conceive of many graver acts of opposition to the will of the Commons House of Parliament which would do less to shake the stability of the "Upper" House than this weak and unwise procedure. It is perfectly true, as a contemporary has pointed out, that with hardly an exception the majority which rejected the measure was composed of obscure members of the House of Peers, who have the power to do this wrong simply because they happen to have been born to rule. The true wit and wisdom of the hereditary branch of the Legislature was on the side of the pigeons. As the Duke of Argyll justly observed, "pigeon-shooting is wanting in all those higher elements which make other sports natural to mankind and delightful to the most civilized man." Pigeon slaughtering is precisely the sort of pastime which would commend itself to the instincts of the feeble-minded and unmanly clique of persons who formed the majority of the Upper House. As a matter of absolute fact, the only consideration which preserves the sanction of the law for pigeon-shooting is the excuse it offers for petty gambling. Anything more disgraceful than the betting which goes on at the so-called "clubs" which assemble for the purpose of slaughtering trapped pigeons it would be difficult to imagine. For the session this measure is lost. Next year it will be revived; and then doubtless, with the accustomed cowardice of their House when actively pressed, the peers will pass the Bill. Meanwhile by its rejection they have driven another nail into their own coffin.

SEA-BATHING RISKS.

WE have repeatedly called attention to the risks which beset bathing on the sea shore, whether with or without machines. It is urgently necessary that this most healthful exercise should be placed on a safe footing. Diving in shallow water and venturing out of fair depth of water are acts of foolhardiness against which it is difficult to protect the public. There should, however, be some official on every beach to supply information and take measures for the safety of those who venture into the sea, and this person ought to be endowed with power to compel necessary precautions. In nearly every instance of loss of life which at this season agonizes the public mind, there is cause to regret the neglect of some obvious measure of carefulness. This is a matter for the interference of local authorities. Those who

are really anxious for the prosperity of their particular places of resort should not fail to regard this phase of enterprise as important.

THE SITES OF DIFFERENT MICRO-ORGANISMS.

It is not at all improbable that the localities which bacteria affect may come to play an important part in the study of micro-parasitic pathology. Whatever be the explanation, there is no doubt that the micro-organisms hitherto found have various relations with the tissues. We are speaking of histological structures, and not of the different organs of the body. For example, the micrococci of variola are found in the vacuolated cells of the rete mucosum forming part of the small-pox pustule or papule. The same may be said of vaccinia. Fehleisen has shown that the zoogloea masses of erysipelas plug the lymph-spaces. From a communication recently made to the Société Médicale des Hôpitaux, we find that these particulars have been verified by MM. Cornil and Babes, who have already distinguished themselves in the field of bacterial pathology.

VERBAL BLINDNESS.

APHASIA presents itself under such a variety of forms, and in such complexity of combination, that there can be no more difficult subject in the whole range of neuro-pathology or psychology. We have obviously used the term in its widest sense as synonymous with disorder of every kind of the faculty of employing verbal language. The following case of what M. Kussmaul would term verbal blindness is reported at length, but still with insufficient detail in some noteworthy points, in the *Gazette Médicale de Paris* of June 16th. A man of business, aged thirty-five, was suddenly seized whilst in the hunting-field with right hemiplegia and aphasia. He had been the subject of severe migraine, but with that important exception had enjoyed good health. Consciousness was lost a few minutes after the hemiplegic seizure. At no time was loss or impairment of ordinary sensation detected. Both the paralysis and the loss of speech were on the mend when one day the patient wished to complete a letter which he had already begun, and found to his astonishment that he was unable to read what he had written but a few days before. Later on it was discovered that an inability to read printed matter also existed. The letter in question when compared with one dated three years back exhibited no special difference. In talking only occasionally did the patient substitute a wrong word. When seen by Charcot five months after the onset of the seizure, no important defect remained except right lateral hemiopia and the inability to read. The hemiopia had been indicated by the fact that in attempting to play billiards the ball was seen to be but half a sphere. Acuity, however, in the other part of the field of vision was normal, so that the letters could be seen, though not read. Loss of memory for a certain number of substantives and proper names, including those of the streets of Paris, existed. He did not venture alone in the city because of the last defect. He could write his name, his address, and even a long letter without any important errors, but he could not read what he had written. In order to decipher a word he slowly formed each letter of the term with the tip of his right forefinger, and then the notions furnished by the movements of the fingers came to his aid and controlled the incomplete, insufficient visual impressions. In the phraseology of Dr. Bastian, the defective action of his visual word centres was helped out by the almost simultaneous ac-

tivity of the *kinæsthetic* word centres. M. Charcot has utilized from a point of view of treatment, the help afforded by this *muscular sense*. So much progress was made that whilst at the beginning of his re-education it took 100 seconds to read one line of print, after sixteen days 27 seconds sufficed to accomplish the same task.

Correspondence.

"Audi alteram partem."

REMARKABLE CASE OF INJURY TO THE ORBIT.

To the Editor of THE LANCET.

SIR—A very unusual accident came under my notice in practice some time since, and, as I have never seen or read of a similar case, I thought, perhaps, it might be worthy of record in your pages. The accident happened as follows:—One of the rests for supporting the globe on an ordinary gas bracket entered the orbit of my patient, a young girl, a worker in one of the mills here, ruptured the conjunctival membrane, and, being bent or hooked at the extremity, got caught on one of the muscles at the external surface of the eyeball; this it tore from its attachment to the bone, the insertion into the sclerotic coat remaining intact; the body of the muscle lay on the cheek of the girl. Of course, there was nothing to be done but to cut the muscle away as close to its insertion as possible. I did this, enjoined rest of the eyeball, and ordered cooling lead lotions to the eye.

The muscle torn away must have been either the inferior oblique or the external rectus, as both are attached close together at the external surface of the eye near the cornea. From the structure of the muscle at the extremity I should infer that it was the inferior oblique, as its origin is tendinous and by a single head, an arrangement very different from that obtaining in the case of the outer rectus, which is fleshy and biventral. In my case the torn end of the muscle was fibrous, and so corresponded with the inferior oblique. As the patient did not return nothing could be gathered by me as to which muscle was injured from the loss of motion and the strabismus which would inevitably result as a consequence of the destruction of the muscle. It must be presumed that no serious inflammatory action ensued either in the orbit or eyeball from the injury. This is rather astonishing, as the force exerted in the rupture of a tendon must be very considerable, and one would have expected that very serious consequences would have resulted in this case to the delicate tissues of the eye. The very serious and unique character of this accident, and the minimum result of injury to the eye, have induced me to record the case in your pages.

I am, Sir, yours faithfully,
J. W. HAMILL, M.D.

Higher Broughton, Manchester, July 9th, 1883.

THE CHOLERA AND HAGAR'S WELL AT MECCA.

To the Editor of THE LANCET.

SIR—The following correspondence, which speaks for itself, is of such an interesting and important nature at the present time that I send this copy to you in the hope that through publication in THE LANCET the question raised may attract attention, and possibly meet with some practical consideration. In spite of the

action taken in the matter by Sir Joseph Hooker and Mr. Thiselton Dyer, and by Dr. Frankland in his letter to *The Times* less than two years ago, the facts stated below have been apparently quite forgotten, and are in no way referred to among the numerous guesses that are now being made afresh concerning the momentous question of the origin and propagation of Eastern cholera. It may be at least worth while to search for the truth about cholera, even at a lesser depth than at the bottom of Hagar's well. The copy of the letters I send you has been very kindly furnished by Mr. Thiselton Dyer.

I am, Sir, yours obediently,

H. DONKIN.

Upper Berkley Street, W., Aug. 3rd, 1883.

[COPY.]

Royal Gardens, Kew, Nov. 18th, 1882.

SIR—I am desired by Sir Joseph Hooker to forward to you, for the consideration of the Secretary of State of India in Council, the enclosed communications from Dr. Frankland, Professor of Chemistry in the Royal College of Chemistry, South Kensington Museum. The circumstances which have given rise to these, are briefly as follows:—Mr. James Zohrab, Her Majesty's Consul at Jeddah, is an old correspondent of the Royal Gardens. On recently returning to this country he forwarded to Kew a considerable scientific collection of dried plants made by him in the neighborhood of Jeddah. The package also contained two bottles of water from Hagar's well at Mecca. Of these, Mr. Zohrab guaranteed the authenticity, and he expressed the wish that they should be placed in the hands of some scientific man who would take the trouble to investigate their contents. I accordingly communicated with Dr. Frankland, who probably has greater experience than any man living in the investigation of potable water. Dr. Frankland very kindly undertook the examination, and he communicated a preliminary account of the results to *The Times* for September 9th. He now desires that the whole subject should be brought officially under the notice of the Government of India. And looking at the fact that the cholera is now raging at Mecca, Sir Joseph Hooker feels assured that, though the subject is foreign to the strict scope of this department, the Secretary of State will not deem it intrusive that his attention should be invited to the matter.

I am, Sir, your most obedient servant,

(Signed) W. T. THISELTON DYER.

Sir Louis Mallet, C.B., India Office.

[COPY.]

Royal College of Chemistry,
South Kensington Museum, S.W.
November 11th, 1881.

HAGAR'S WELL, MECCA.

DEAR SIR JOSEPH—I have received through you a sample of water from Her Majesty's Consul, Mr. Jas. Zohrab, late of Jeddah, and labelled by him with the following note:—"The well is in Mecca. The water is regarded as holy, and large quantities are annually sent as gifts to all Mussulman countries. Most of the Mahomedan princes, especially those of India, have 'keepers of the well,' whose duty it is to send them annually water from the well." I have submitted this water to analysis, and the results which I append hereto appear to me so important as to warrant me in asking you to bring them specially under the notice of the Secretary of State for India in Council. The water is slightly turbid and has a saline taste. 100,000 parts of it contain in solution the very large pro-

portion of 828.24 parts of solid matter, of which a considerable amount is organic and of animal origin. The water also contains an enormous quantity of nitrates—the usual product of the decomposition of animal excreta. The previous animal contamination calculated from the proportion of nitrogen as nitrates and nitrites shows that the liquid supplying this well contains in a given volume nearly six times as much animal matter as is found in the same volume of strong London sewage. This conclusion is confirmed by the presence of a very large proportion of common salt, one of the chief constituents of urine. The suspended matter in the water consists chiefly of dead bacteria.

In answer to my inquiries as to the surroundings of the well, and the authenticity of the sample, Mr. Zohrab writes me as follows:—"In reply to your note regarding the water from Hagar's well brought home by me, I beg to state that it is authentic. It was brought to me last January from Mecca by a Mahomedan gentleman in whose good faith I have implicit confidence. I may also state that several Mussulmans at Jeddah, who had frequently tasted the water at the well itself, and to whom I showed what I had, assured me it was genuine. There is no difficulty whatever for a person at Jeddah to get any quantity of the water, as the well in Mecca is free to all, and anyone may carry away as much as he pleases. I am not at all surprised at the water being heavily charged with excrementitious matter, and the reason, as I will now show, is evident. The city of Mecca, lying in a basin, contains a permanent population of about 40,000 souls, and annually during the Hadj (pilgrimage) from 100,000 to 150,000 pilgrims, who become residents for periods varying from one week to three months, crowd into it. This vast influx of strangers finds accommodation where it can; the well-to-do rent rooms, the poor live in the streets. The houses in Mecca are generally built in flats to accommodate pilgrims; each flat is provided with one or two badly constructed latrines, and there are from six to twelve of these in each house. These latrines empty themselves into pits dug outside the houses. When these get filled they are emptied into other pits, which are made in the streets or any convenient spot, and then covered over with earth. For the poor, latrines on the same principle are made in and outside the town, and the same method of emptying them is employed. This system of burying foul matter in every direction has been pursued for centuries; it is not, therefore, surprising that the ground in and around Mecca is surcharged with excrementitious matter, which rains (these are frequent in Mecca) carry by filtration into the wells. Hagar's well is not a spring, but its water is supplied by filtration—that is, by rainwater passing down through an overlying mass of foul matter. But there is yet another cause for the pollution of Hagar's well, this is the thousands of pilgrims, diseased or sound, who daily wash beside it, the water they use naturally finding its way back into the well."

Such being the surroundings of this holy well, and the composition of its water, there can be no doubt that here is a most potent source of cholera poison, for the evidence is most conclusive that cholera is propagated by a specific poison contained in the alvine discharges of persons suffering from the disease. Hagar's well, therefore, must, according to Mr. Zohrab's description, constitute an efficient collector of the poison, and it would scarcely be possible to devise a more effective means for the diffusion of this poison throughout Mahomedan countries.

I presume that it would be quite impossible to get this well closed; but in the interests of the

health of Europe and Asia efforts ought to be made to guard the water from this abominable and dangerous pollution. In the whole course of my experience I have never met with a sample of drinking water making even a distant approach to the degree of pollution exhibited by the water of Hagar's well. I remain, yours very truly,

(Signed) E. FRANKLAND.

Sir Joseph Hooker, K.C.S.I., etc., etc.

[COPY.]

India Office, S.W., January 3rd, 1883.

SIR—I am directed by the Secretary of State for India in Council to acknowledge the receipt of your letter of Nov. 18th, 1881, forwarding the result of an analysis of water stated to have been taken from Hagar's well at Mecca, made by Dr. Frankland, together with his report on the same. In reply, I am to inform you that a copy of these papers will be sent to the Foreign Office and to the Government of India.

I am, Sir, your obedient Servant,

(Signed) ENFIELD.

W. T. Thielton Dyer Esq., The Royal Gardens, Kew.

PARIS.

(From our Paris Correspondent.)

DEATH OF M. PARROT.

I REGRET to report the death of Dr. Parrot, which took place on Sunday, August 5th, after an illness of two months from pulmonary disease. Dr. Parrot took his degree in 1857, was promoted to agrégé in 1860, and appointed Professor of the History of Medicine in 1876. He was also member of the Academy of Medicine and Physician to the Asylum of the "Enfants Assistés." His body was removed to Excideuil in the department of Dordogne, his birth-place.

M. PASTEUR ON THE ETIOLOGY OF CHOLERA.

M. Pasteur having been solicited to lay before the public the instructions he had given the members of the scientific mission to Egypt to investigate the nature of cholera, now raging in that country, and which was noticed in your annotations recently, has generously complied with the expressed desire of his friends. M. Pasteur prefaced his instructions (of which I send you an abstract copy) by remarking that the precautions hereinafter enumerated relate to those cases where the causes of contagion will be found to prevail in their maximum intensity. These precautions, he added, are instituted under the hypothesis, which he considers very probable, if not certain, that cholera does not enter the human organism by the air passages, but that it does so only by the digestive canal, unless under very exceptional circumstances:—1. Not to make use of the drinking water of the locality in which the mission will be located without having previously boiled the water, and shaken it well, after it has become cold, for two or three minutes, in a bottle half filled; or the water may be put into vessels previously heated, "vases flambés"—that is to say, vessels that had been subjected to air heated to about 150° C. or even more, the higher the temperature the better. The natural mineral waters may be employed with advantage instead. 2. Make use of wine that has been heated in bottles to from 55° to 60° C., and which should be drunk in glasses also previously heated. 3. To make use of alimentary substances only after being well cooked, and fruits in their natural state, but previously washed with water that had been boiled, and preserved in the same vessels in which it was boiled.

or had been transferred into those previously heated. 4. To make use of bread cut up into thin slices and submitted to a temperature of about 150° C., during twenty minutes or more. 5. All the vessels employed for alimentary purposes should also be previously subjected to a temperature of 150° C. or more. The bed linen and towels should be plunged into boiling water, and then dried. 7. The water for washing or bathing should be previously boiled, and, after being cooled, mixed with solutions of thymic or of carbolic acid, the former in the proportion of 1 to 500 parts, and the latter 1 to 50 parts. 8. The hands and face should be washed frequently during the day with boiled water, and to which should be added solutions of thymic and carbolic acid. 9. It is only in cases where the bodies of patients who have died from cholera or their soiled linen has to be handled that it would be necessary to cover the mouth and nostrils with a small mask formed of two pieces of thin plates of metal, enclosing between them a little cotton-wool of not more than 1 centimetre thick, the mask having been submitted to 150° C. only, and renewing the temperature of 150° on each fresh exposure to contagion.

ARTIFICIAL LIMBS.

To the Editor of THE LANCET.

SIR—A considerable number of persons, who have been the subjects of amputation in London and provincial hospitals, and also under the care of various surgeons as private cases, have been examined by me at the Surgical Appliance Society for the purpose of advising what form of artificial limb would be best suited for each particular case. The result of these examinations leads me to think that the surgeon sometimes forgets the future of the patient; he devotes much care to his recovery and the production of a good stump to look at. The surgical authorities advise saving as much as possible, on the principal that the less loss of substance the less risk; accordingly conservatism is carried to an extreme, and operations are performed so as to leave as long a stump as possible. The long stump left in these cases with its large extremity is difficult to fit into the usual artificial case. It would have been better for the patient to have a little shorter stump, and the increased risk would be hardly appreciable. Most of the writers on surgery pass over the question of artificial limbs with scant notice, such as "it is better to leave the application of artificial appliances to the mechanical artist."

The surgeon who performs his operation in such a way as to leave what may be called a workable stump will earn the gratitude of the patient. The cost of the usual artificial limbs is so high that they can only be obtained by the wealthy, and there is constant expense in repairs. Artificial limbs suitable for mechanics, clerks, and laboring men have long been wanted at a reasonable price. They have been obliged to put up with a pin-leg or a hook-arm, which are neither very efficient nor ornamental. Through the kindness of Lieut.-General Maxwell, specimens of the artificial arms and legs invented by the Count de Beaufort were sent to the Surgical Appliance Society with the view of meeting this long acknowledged want. The artificial arm is extremely light, is securely attached, and looks most natural; with it men can perform most of the ordinary functions required of the hand. The artificial Beaufort leg is made in several forms, according to the position of the operation. In a case of amputation above the knee, with a fair stump a man can walk without a stick, and can sit down comfortably without having an incon-

venient projection as in the ordinary pin-leg. In amputation below the knee the artificial Beaufort leg will supply the place of the lost member in a truly wonderful manner, enabling a workman to follow even a laborious occupation. The ordinary bucket legs are very heavy. These limbs are light, the leg weighing about five pounds, the arm twelve ounces. The common pin-leg gives one pound of support; in the Beaufort leg each successive part of the curved foot as it touches the ground becomes a new base of support, and there is less liability to slip. There is less shock in walking, and almost none of the dragging feeling so much complained of by wearers of the ordinary forms of artificial limbs. I have fitted on many of the Beaufort limbs, and strongly recommend them for general use. Moreover, their small cost brings them within the reach of persons of very limited means. These limbs have been in use on the Continent for many years by all classes of people, and are well known and appreciated. I shall be pleased to show models of these limbs to any surgeon at any time, and to give any further information about them.

I am, Sir, yours, etc.,

JAMES THOMPSON, M.D.

Finsbury-circus, July 7th, 1883.

Dr. W. H. BYFORD, Prof. Gynæcology, Rush Medical College, President and Prof. Obstetrics Woman's Hospital Medical College, Chicago, Ill., says: "We have tried the Bromidia prepared by Battle & Co. It is a useful preparation, and fulfils our expectations."

Dr. A. H. SMITH has been elected Professor of Clinical Medicine and Therapeutics at the New York Post-Graduate School, dividing the former chair with Dr. T. E. Satterthwaite, Professor of Pathology and Clinical Medicine. Dr. Alex. J. C. Skene, of Brooklyn, has been elected Professor of Gynæcology, dividing the chair with the present incumbent, Professor B. F. Dawson.

Dr. JOHN S. BILLINGS has declined the offer of the Professorship of Hygiene in the Johns Hopkins University (says the *American Medical News*), for the reason that it is impossible for him to hold this place while he is an officer of the army, and he prefers to retain the latter position and continue his library and indexing work, for the present at all events. It is probable, however, that during the coming winter he will give a course of lectures at the University on the subject of municipal hygiene.

THE HANSOM CAB.—We are glad to see that this comfortable vehicle is coming into favor with the physicians of New York, several of them being now seen in our streets. To the elderly physician especially the Hansom Cab is a great boon. As regards the ease with which it may be entered and left, and the protection which it affords, in all weathers, it is quite the equal of the favorite coupe, while it possesses the important advantage that the pleasure of riding in the Hansom Cab is as great as in an open vehicle, the view being entirely unobstructed. We believe that Messrs. Hincks & Johnson, of Bridgeport, Conn., are the only makers of these vehicles in the United States. They recently constructed one for the use of the great showman, P. T. Barnum, who is certainly a good judge of what comfort in riding is. City physicians would do well to procure price lists, descriptive cuts, etc.

PRINTED AND PUBLISHED BY

THE INDUSTRIAL PUBLICATION CO., 294 Broadway, N.Y.

THE LANCET.

A Journal of British and Foreign Medicine, Physiology, Surgery,
Chemistry, Criticism, Literature, and News.

JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

PUBLISHED MONTHLY.

No. 5.

NEW YORK, NOVEMBER, 1883.

Address to Students.

PRELIMINARY REQUIREMENTS.

It may be presumed that our remarks will be read chiefly by those who have already decided upon medicine as their future profession, by students who at the various hospitals or colleges have to some extent progressed in a knowledge of the laws tending to proficiency in their high calling, or by the newly fledged practitioner only anxious to join in the fight against disease and death. But we would earnestly wish to be heard by those also who have not yet taken what may be an irrevocable step; and to impress upon youths themselves, their parents, and their guardians how important is the issue which sends so many to a certain failure, which could have been easily foretold. The temptation of an honorable and honored profession, and one in which absolute failure, after a diploma is obtained, is rare, where steadiness and zeal are sure of a moderate reward, seems, in these days of hurry, worry, and waste, one which to the middle-class Englishman is hard to resist. The choice of a profession so often depends upon trifling considerations that we might wonder at the number of successful votaries, and be disposed to assert that the haphazard method of sending sons to the various professions or trades can scarcely be improved upon. But, so far at least as medicine is concerned, it should be known to parents and school teachers that its exactions are such as to fairly test the powers of intellects naturally robust and thoroughly trained; whereas the feeble youths unacquainted with the laws of thought, or incapable of their application, soon fall off in the contest, and must ultimately turn to more congenial tasks, depressed by the consciousness of inferiority. Were a little knowledge of the requirements for a hopeful course in medicine appreciated outside medical circles, we should not have those terrible records of baffled effort, of depressed minds, and often of ruined lives indicated in the percentage of rejections at our various universities and licensing bodies. Who can estimate the misery involved in the table of rejections at the College of Surgeons? The average number passing yearly into the profession is but a ghastly shadow of the eager recruits who join the ranks as medical students; and there need be little doubt that many of the shoals which

cause such numerous shipwrecks are shown on the personally constructed chart of every intelligent practitioner. We have before indicated the importance of a thoroughly sound physique as a part of the outfit of every intending student of medicine; but year after year the ranks are thinned by nature's own weeding, and otherwise promising men sink under the weight of study or the worry incidental to examinations. A physical examination by a medical man would be a fitting prelude to even serious thoughts of medical study; and were the examiner to take into account not only the physical condition of the aspirant, but also the hereditary history with regard to lung and brain mischief, an appreciable proportion would be rejected at this best of all periods for the process. There are, too, amid the throng of the preliminary examinations, many boys who on the score of age alone should hardly be admitted. It is distinctly against the ultimate interests of the practitioner to enter for anatomy before he has attained his seventeenth or even eighteenth year, while it is not unusual to find boys of fifteen or sixteen reading the bones or puzzling themselves with the atomic theory. We have known a boy of sixteen to attend, uncontrolled, several cases of midwifery, and that before he had ever heard a lecture on the subject. The three or four years before eighteen is reached can most fitly be spent in the study of those subjects embraced in the "preliminary;" and if it be possible to obtain such an acquaintance with any of these as shall far exceed the requirements of the examining board, and so constitute a life-long delight and a present intellectual exercise, the student will indeed be fortunate. What we want in these preliminary subjects is thoroughness rather than range of study, though the choice should be wide. The boys who dabble in a long list of subjects only with a view to satisfy the least exacting of the public boards have no permanent good for their pains, and in gaining a mere smattering of Latin, Greek, mathematics, etc., their time is all but wasted. It may be taken for granted that the candidate who can only succeed in translating one carefully indicated book of Xenophon's *Anabasis* will find it difficult at the end of his curriculum to run over the Greek alphabet, and certainly this classical language will be neither a help nor a solace in after years. Taking the subjects best fitted to the taste of the youth and his opportunities of acquirement, they should be so far pursued as to become intellectual stock-in-

trade, thoroughly assimilated, and capable of production at any time. It would then matter less whether classics, modern languages, or science should have been studied; the mind has been thoroughly fitted for close application, and its powers have been elicited even at this stage. The schoolboys who swallow their subjects are plucked; those who assimilate their knowledge go on increasing in their strength from year to year. Those who are detected as mere drudges had far better stop short of medicine, as assuredly, where observation and generalization are so much required, they will be found defective. Guardians should save such youths from the destiny which awaits them in the Preliminary, or more probably the First Professional Examination; and as a plain indication of the chances for a boy of mediocre attainments, who chooses a diploma as his goal, we may transcribe the lists for the Primary and Pass Examinations of the College of Surgeons for the past two years:—

		Total.	Passed.	Rejected.
1881-82	Primary.....	1091	744	347
	Pass	666	412	254
1882-83	Primary.....	1119	795	324
	Pass	769	488	281

The fact that during these two years 2,210 men presented themselves for the Primary Professional, and that during the same period only 900 received their diplomas, is full of warning, and affords distinct proof that the preliminary examinations do not form a sufficient barrier against the incompetent, but rather lure them on to subsequent destruction. It would be interesting to find the proportion of students licensed without one or more failures in one or more examinations. While saying all this, however, we do not claim for the would-be medical student more than a sound constitution, a due preliminary training, and a talent for the peculiar course of study that must be his, always remembering that many youths are admirably fitted for other honorable pursuits who show themselves unequal to the many-sided requirements of the successful medical student.

THE CURRICULUM.

Before entering upon a course of study at one of the many Universities or Medical Schools it is essential for future success, with a minimum of irritation and disappointment, that the course of study, the degree or diploma to be striven for, and the time to be devoted to the curriculum should all be mapped out, after the most serious discussion with well-informed friends. It is of course possible that changes may be forced upon a student, however well thought out is his course; but most of the elements for decision are open, even within the limits of our present number, and pecuniary or other social circumstances should have the consideration necessary before the curriculum is entered upon. If a minimum qualification is the only possible goal, the number of classes and even of subjects is considerably reduced, and the usual period of four years' study gives ample opportunity for gaining the knowledge necessary to satisfy examiners. There must always remain a large class of men satisfied with the lowest attainable qualification for legal practice; but, except where insuperable difficulties intervene, we must advise all students worthy of the name that a title implying a more than minimum acquaintance with medicine is a lifelong satisfaction, and one which is gradually becoming more and more esteemed by the public as well as the profession. Fortunately, the days of single and incomplete qualifications are now numbered; the Legislature itself deems the evil one to be crushed.

Those of our readers who aspire to a respected position will ever aim at a course of study and a series of examination much above the legal requirements. Branded as *single* qualifications have become, it should need no Medical Act to ensure that every capable man should show himself trained in all the branches of his art; and it is certain that the amount of public discussion recently given to medical matters has shown the people of this country how inadequate may be the knowledge of men now legally entitled to practice. The higher titles, then, should attract more and more of our average students, and for this purpose it is necessary that the prize should be viewed from the first as attainable. Every man who has facilities for the competition should aim at a degree in medicine. The increasing value set upon this distinction is evidenced by the crowds of students now filling the Scotch Universities, by the recent development of the Victoria University on the same lines, and by the rapid growth of the promising Cambridge school. Though the usual course, even for a degree, can still be accomplished in four years, its increasing extent, both in width and depth, will gradually force upon the Medical Council and the Examining Bodies the desirability of extending the period of study to five years, and every entrant who can now make choice should begin with the distinct determination to labor thus long before accepting a diploma. Already candidates for such distinction as the M.B. of the London University confers are compelled by the nature of the examinations to spend five years or longer in study; and we understand that the proportion of Scotch students who obtain a degree at the end of the fourth year is rapidly diminishing. These facts, then, must be looked in the face, and either the curriculum must be extended or the whole of the less strictly medical subjects excluded, and considered as belonging to the preliminary training. Physics, inorganic chemistry, botany, and zoology should ere this have taken their rightful place, and should no longer be allowed to interfere with the proper work of the medical student. But it must be remembered we have not yet attained to this common-sense order of study, though we may be nearer it than is evident on the surface, and it behoves commencing students to carry out for themselves a thoughtful method, in so far as this is possible, the standing regulations of schools and examining bodies being considered. The present curriculum of study may be divided into three parts or branches; and the subject in each division should be looked upon as constituting a distinct section for intellectual effort, each having its own relative value, but all being necessary for the full equipment of the practitioner of medicine, general or special. The purely scientific subjects should be grappled with at the earliest possible moment; they should be looked upon as valuable in themselves, and as the most fitting introduction to the method of work to be carried on not only by the medical student but by the busy practitioner. A knowledge of man will the more easily be obtained after the study of the animal creation in the class of zoology and comparative anatomy; the physiology of plant-life will accustom the student to processes which he will afterwards the more fully appreciate in the class of human physiology; and without even the trifling amount of chemistry usually carried forward into other work a want would be felt at every turn. The gathering of facts, the methods of classification, and the generalizations on well-ascertained data to which the student here becomes accustomed constitute a fine discipline, without which scientific study is impossible, and he who is enabled to grasp the principles which he may

not have time to elaborate will in after-life find such knowledge of superior value to all his facts. The simple acquaintance with bones, muscles, bloodvessels, and nerves obtained with the aid of the scalpel and text-book in the dissecting-room is the first study to which the average medical student attaches a definite importance; and as his knowledge of function or microscopic anatomy enlarges he gradually finds himself engaged in the most important work of laying a sure foundation for all his subsequent study; he is indeed occupied with the keystone as well as the basis of the structure. Anatomy may be considered as a subject not lightly to be laid aside during the whole period of college life, and no man has yet acknowledged that he has dissected too much. The purely scientific studies being disposed of, the subjects which next most profitably engage attention may broadly be said to embrace the theories and principles upon which all but the most empirical medicine is based. Now is the time when the scientific physician takes shape; when a knowledge of organic function, whether physiological or pathological, is obtained; when the principles, apart from the practice, of medicine and surgery can be taught, and the foundations laid deep and strong for the gradual rearing of a goodly building, the stones for which will be picked up in the last or third stage of the course, when a practical acquaintance is made with disease. The sound physiologist readily profits by the teaching of the pathological laboratory, and, provided with such knowledge, passes easily into an acquaintance with the laws underlying all pure medicine and surgery, as well as the actions of drugs in health and disease. It is perhaps difficult for the student adequately to recognize the importance of teaching, which to his eyes seems but distantly connected with the cure of disease; but it is at the particular stage in his studies which we have now reached when general principles can be laid hold of, and the scientific method made applicable to the whole work of his future career both at college and in practice. The difference is here established between the class of men who subsequently become animated posological tables, backed by a set of "cures" for the various ailments, and the modern ideal physician in whose mind's eye is a picture of disease in which all details are found, and embracing the pathological state as well as suggesting the most rational treatment. With a mind trained to observation and reflection, and a thorough acquaintance with the general doctrines applicable in the healing art, the student will find the third, or directly practical, part of his course an easy matter. He must then devote himself to the steadfast observation of disease at the bedside and in the outdoor department of his hospital; he will accustom himself to accuracy and speed in the use of his senses and the various aids which science has placed in his hands; his constant care must now be given to learning the methods by which disease is met, whether by the physician or the surgeon, and, in short, "clinical" study must now have his chief attention. To a student who knows his anatomy dislocations and fractures are easily understood and remembered; the man who has an intelligent conception of brain function, even as now known, and has handled an atheromatous artery or a roughened valve in the dead house, is easily taught the leading features in a case of apoplexy, and a knowledge of therapeutics at once indicates the appropriate treatment. It is impossible to make an accurate division of the curriculum such as has here been sketched; there must be considerable overlapping of subjects. But the spirit of the method should be conserved, and the result will be less of the perpet-

ual cram and more of the genuine reflection which is characteristic of the cultured student.

THE MODERN MEDICAL STUDENT.

Judging from the descriptions of medical students current during the last, and even far into the present, century, the term must at one time have been anything but complimentary. There is, indeed, no reason to believe that the youth depicted by our novelists could ever be considered as average specimens of those whose training consisted chiefly in "walking the hospitals;" Smollett's revolting sketch—whether personal or not—was merely that of a decidedly objectionable character, who chanced to have as a future a medical career, and the Bob Sawyer of the less remote past bears no closer a resemblance to the average student of to-day. There is still, however, an opinion current that the modern medical student indulges in repulsive pastimes, lives a truly Bohemian life, and assumes, as a supposed evidence of a scientific spirit, atheistic notions in religion, and heterodox views on things in general. These opinions are but the remains of those formerly accepted on all hands, fostered by the ignorant and fanciful sketches of needy or prejudiced writers, and the occasional indiscretions of a real or fictitious medical student. Though the Roderick Randoms are as extinct as the dodo, it is to be feared that first year's men, coming to hospital with the popular notions concerning their class, do sometimes place themselves in circumstances which, in common with their more advanced fellows, they soon come to look upon with shame; but it is certain that the hard work of the regular students and the *morale* of the school are sufficient quickly to eradicate tendencies so dishonoring. As in other classes of the community, there are found among students various grades; and as certain features are characteristic of these, it may be worth while to inquire as to their origin, their continuance, and their subsequent history.

(a) *The Prizeman.*

Perhaps the one most essential element of marked success during a college career is simple industry. The race is not always to the swift; and close observation on the part of teachers elicits the fact that the steady worker of moderate capacity carries off a large share of the honors. The prizeman, too, almost always comes to the front early in the curriculum, by undeviating attention to the subject in hand, from his first entry at the hospital. A first session success is a splendid incentive to future effort. It need not, however, be forgotten that the system of examination by written papers gives an opportunity for "cram;" and thus in many cases the more thoughtful and intelligent student is left behind when detail and numerous facts must be mastered. It requires much thought and judgment on the part of the teacher to arrive at the best method of examination, and not unfrequently he fails to mark by the order of his certificates the merits of the men whom he wishes fairly to judge. As the curriculum advances, and principles as well as particulars must be understood, the mind trained to thought, and intellectually strong, takes a rightful place in the struggle, and finds little trouble in retaining it if moderately diligent. The man who, parrot-like, repeats the fact that the "biceps arises by two heads"—though quite familiar with his Latin—and labors to impress his mind with the truth, may succeed so long as mere memory will serve him, but is out of the race whenever thinking is required. But it becomes yearly more necessary for those who aim at distinction to thoroughly

utilize all the channels of knowledge capable of affording assistance in mastering their subjects, and he who depends upon his lectures and his text-books solely for acquaintance with many matters formerly alone taught in this way, will find himself lamentably deficient. Whenever a statement can be tested by experiment, or conditions shown by dissection; wherever facts can be more forcibly impressed, as they almost always can, by demonstration, the student should greedily accept every opportunity of gaining such practical knowledge. By touch, sight, hearing, taste, and even smell, an acquaintance may be made, with a condition which a long discourse might fail to afford, and the ready and constant use of all the aids to the various senses becomes yearly more and more the habit with all good workers. A time may come when a too great dependence may be placed upon those means of diagnosis which formed no part of the armamentaria of the celebrated physicians of the past; but assuredly we are far from that stage now, and no better or fairer test can be applied to students than the practical use of the stethoscope, thermometer, microscope, laryngoscope, sphygmograph, ophthalmoscope, and other aids, which should be "on the finger ends" of every modern physician. Men who take the necessary trouble to ascertain all that can be known through these channels are unlikely to be suspected of superficial examination, the damning habit which creeps upon so many; and even now familiarity with instruments of precision is expected of all who look for special recognition on the part of their fellows. This, then, is one of the leading characteristics of the distinguished student, that he has called no man master, and received nothing on authority which could be tested by means within his power; and it may be expected that in the future, with such liberal provision on all sides for such inquiries, few except men of this stamp will emerge from class or other examinations as prizemen. It is needless to say that the honors man is usually distinguished for regularity in class and work-room, far removed from the idlers or the drivellers who disgrace their class, or even from those who often excel with the sculls or bat, and seem always bent on preserving the *mens sana in corpore sano*.

(b) *The Average Student.*

During recent years the requirements of students, even for the lowest of the too many qualifications, have increased considerably; this has been met by such earnest effort in every medical school throughout the country, and even the preliminary training and examinations are now so much more satisfactory, that the average student of to-day takes deservedly a higher place than at any previous time. Work has become such a necessity, that to have a fair chance of success at examinations implies a generally exemplary line of conduct, and such industry as is at least respectable. The student who expects to "get through" must now, or in the near future, be satisfactorily grounded in all that relates to medicine, surgery, and midwifery; and medicine, with its collateral studies, now forms such a wide field, that the drones had better avoid all effort at its cultivation. To a man of moderate ability there is no time for idling and trifling, as he is expected during four years to obtain an amount of knowledge which will fully test his powers, and no better help can be given to such than the time-honored but constantly forgotten advice to make the most of his opportunities from the first day of entering his classes. The practical loss of the first session, examinations being then in the somewhat distant future, is the commonest calamity to students, and

it will be generally found that these idle youths are the means of attracting the modicum of opprobrium which still attaches to their class. They seem proud of their unaccustomed title, and show the absence of a needed home-restraint by indulging in follies more childish than vicious. It was noticeable that in a recent outbreak of rowdism at Edinburgh nine out of ten of the disgraced students were of the first year. The manner of life common to medical students, which allows the fullest liberty in a choice of residence, and is unrestrained by college authorities outside the classroom, has disadvantages of an obvious kind. During the young man's first years of city life there is a necessity for guidance, and often for admonition, while the promiscuous gathering of associates is a danger against which all who have an interest in the student should assist in guarding. It is an easy matter to drift into the darker currents, and with our present system no better guarantee against this can be suggested than the fullest use of personal introductions to teachers and friends, who should aim at "attaching" these youths sufficiently to act as a real restraint. The cultivation of exercises outside the bounds of the curriculum is to be commended most fully, and a well-regulated curriculum might with advantage be formulated applicable to the hours necessary for relaxation. The various societies for discussion of non-professional as well as medical subjects, and for the cultivation of music, vocal or instrumental; the boating, cricket, or football clubs, and the many accomplishments zealously pursued by a large number of young men—show how many-sided is the character of the modern student of medicine, and deserve every encouragement. A moderate indulgence in such pastimes does not injure the chances of success at College or Hall, but recognition of the number of failures at the examining boards should teach the anxious student how necessary is steady application to his chief business. Perhaps the most noticeable feature in the average student which requires condemnation is his evident desire merely to fit himself for examination. To this end he deems dresserships and clinical clerkships unnecessary and therefore undesirable; he looks upon compendiums and crams as legitimate possessions, and ignores fuller and complete text-books and special treatises; he imagines there is a royal road to success by means of spurts, and so inclines to desultory study; and the end of all this is the detection by the examiners of the weak links in the chain, frequent rejection, and disgrace. We can scarcely expect a law to be passed against the publication of these traps to the unwary, in the shape of guides to examinations and crams generally, but we can warn the intelligent student against reliance on such broken reeds, and tell him that the road to a degree or license is necessarily toilsome, and not to be taken by such short cuts. A hasty survey of the field may be enough to assist the man who is thoroughly grounded, but the examiner who cannot detect knowledge acquired in such a fashion is unworthy of his position. To the average student, then, good behavior, steady application, and intelligent study are absolutely necessary if the curriculum as laid down by the licensing bodies is to be carried out, and failure in examination avoided.

(c) *The Residium.*

We have already caught glimpses of men in training for the formation of this despised class, but it is unlikely that our words will reach them, and it is advisable to be brief over the unsavory subject. There is, indeed, one division of this class for whom sincere sympathy will be felt, and our re-

marks regarding preliminary requirements were directed towards a diminution of their number. Men are frequently met with in our schools who, having by some means got through the meshes of the net supposed to intercept the unsuitable, prove themselves incapable of reaching a standard of respectable knowledge, and gradually drop off to more congenial work. But it is the chronic nuisance which occasions such evil influences in a school; those helpless, hopeless youths not only rush to certain ruin themselves, but drag not unwilling victims towards their own haunts and damaging customs. The unhappy tap-room *habitué*, the billiard-room frequenter, the well-dressed nincompoop, the moneyed idler, are all dangers as well as disgraces to their fellow students, and a few such men may degrade a whole college. There is in the management of this hindrance to work a decided lack of firmness or perhaps of power, but in any case means should be found for the expulsion of this demoralizing agency from well-ordered universities and hospitals. It is puzzling to know what becomes of these men; they are constantly rejected at examinations, become year by year less familiar with the work of their classes, and better acquainted with their peculiar haunts; they ultimately disgust the friends whom they have deluded, and probably drop into obscurity or infamy. The influence of rejection is by no means an incentive to study in such cases as these, and when that is so the road assuredly leads downwards. The chronic student rarely escapes from his acquired habits or rises higher than the unqualified drudge to some needy and shady practitioner.

THE PRACTICAL ELEMENT IN SCHOOL WORK.

Within recent years there has been no such marked or forward movement in teaching as that which has resulted in the present prominence to all that is practical in ordinary class work. It is to the development of the method of teaching by demonstration which has spread over the schools we must now look for the preparation of a higher standard of student than was possible in the days of continual lecturing and dogmatic statement. The study of medicine must now exert a greater fascination than in the student days of most practitioners; the interest of the whole course, from microscopic botany to practical toxicology, is now sustained by actual demonstration instead of description, and little room is left for authority where all is supposed to be capable of such direct proof. The student should give himself up to the spirit now dominating the method of our schools, gain by dissection, macroscopic or microscopic, and by experiment a thorough mastery over the elementary subjects, and, pursuing the same habit of personal investigation, so accustom himself to the use of all the instruments of precision that long ere the curriculum is closed the habit of direct inquiry may become one of his possessions, as valuable as we have before seen is the thorough mastery of principles when compared with the storage of facts. The recent prominence given to practical teaching, and the still augmenting consequence attached to it, will before long compel a rearrangement of the curriculum by which systematic lectures will hold a less commanding place, or the necessity for a more lengthened course of study will soon be made generally apparent. It would be a most undesirable solution of the difficulty were students to shirk the opportunities for practical study now offered, and as every day the methods of examination are becoming more and more in accord with the teaching, it will soon be found impossible to escape in this manner. While looking with the most friendly eye upon the recent change, it must, we fear, be acknowledged that here and there

endeavors are made to give the system undue weight, but the student has opportunity for discrimination so long as these classes are not compulsory. All earnest workers will see the advantage of practical physiology, pathology, and chemistry, as well as operative surgery, and tutorial teaching in the advanced subjects will be found most useful; but, except where unlimited time can be disposed of, the necessity for practical classes—all of course with extra fees—in botany, zoology, pharmacy, and midwifery is less obvious. While botany and zoology hold a place in a four years' curriculum it is positive cruelty and something like imposition to pitch examinations so high as to virtually compel students to take this extra course, and we are not charitable enough to suppose that in all cases the profits of the class are not a chief consideration. Practical pharmacy can probably best be picked up in a chemist's shop or dispensary—at least, student's speak of this class as largely a waste of time—and midwifery other than theoretic must be learnt in the lying-in room.

EXPERIENCE IN THE TREATMENT OF DISEASE.

In the midst of our modern methods, and with a scientific atmosphere which lends vigor to all inquiry, whether prompted by a desire for utilitarian results or the simple elucidation of the truth, it must not be forgotten that the ultimate aim of all medical knowledge is the alleviation, cure, or prevention of disease. We have already seen how valuable, even in this light, is the study of the earlier subjects; but the foundation being thus securely laid, the keystone can only be placed after every means have been taken to secure facility in dealing with disease. This can be gained in but one way: the book of Nature must be mastered at the bedside, and by regular and continued familiarity with the more trivial complaints met with in the out-patient department and in dispensary and general practice. There is room for a much greater development of the tutorial system in the teaching of clinical medicine in our hospitals, and especially in our larger schools; the elementary work is too often neglected by the visiting physician, either through want of time or inclination, or from the vastness of the field open to him and the superior attractiveness of complex cases and problems; the average student crowding around the popular physician gains little of the intimate acquaintance with the patient's condition necessary to independent diagnosis, and the result is a smattering of high-flown opinion about phenomenal cases, with total inability to deal with the diseases of every day life. We need a large infusion of younger and less engaged men to take in hand the junior student, and teach him how to use his senses and the instruments of precision lying around him; he must be made familiar with urine testing, auscultation, percussion; he should know something of dyspepsia or diarrhoea before troubling himself with the "splendid cases" of a later experience; prescription writing and case-taking should constantly exercise him, so that with confidence he may go forward upon what will, with all his aids, be found a thorny and difficult path. It is only in small groups that students can be adequately trained to this routine work, and even then they must have the closest individual attention; so that physicians of the experience and position of those constituting the visiting staff cannot reasonably be expected to engage in such drudgery, and are entitled to be relieved of the work. Sent forward from such tutorial classes the student is enabled to profit by the bedside demonstrations of the physician or surgeon, and his wisdom will be shown by giving due importance to both methods. It should be the aim of

all to obtain the advantage of a dressership, and, in due time, a clerkship in the surgical and medical wards. Such opportunities should be looked upon as essentials, and in a well-managed hospital a large proportion of students will be so employed. Though the cases allotted be few, the close observation necessary and the feeling of responsibility engendered are lessons of the most valuable kind, such, indeed, as can be obtained in no other way. It will be found that the men of our schools who afterwards become house-physicians or surgeons have been distinguished by their constant attendance and occupation in the wards, and they are thus fitted for the almost inestimable advantages they enjoy in securing the prize of residence. No other position open to a junior practitioner can offer the same facilities for obtaining the best kind of experience—thoughtful and well directed—as the position of resident in a well conducted hospital, especially where teaching is carried on; and, at whatever pecuniary or other immediate sacrifice, such a post should be striven for by men who would know their work. It may be that residents give too much heed to the graver cases, and fail to observe the commoner ailments they will afterwards be expected to treat, yet they cannot avoid vast benefit from their fortunate position. But all men cannot be supplied with these advantages, and, whether in the pursuit of knowledge or for other reasons, a considerable proportion seek to gain the required experience as assistants to general practitioners. We would warn students against the dangers of endeavoring to assume full medical functions while yet unqualified, and with an unfinished curriculum. Such a course too often ends in the indefinite postponement of classes as well as examinations; the supposed advantages of experience do not accrue, and the only result is a slipshod method of treatment difficult to be got rid of, wholly unscientific, and empirical. It is a mere meeting of symptoms, not unfrequently a serious injury to the patient, and generally a species of deception. The system now condemned, though extensively practiced, is capable of a limited good, and an unqualified youth may gain a knowledge of dispensing, bandaging, and other elementary matters, besides experience in the "management" of patients, which will stand him in good stead afterwards. Such aims would be legitimate; but the employment of unqualified assistants as now carried out is hurtful to the zealous student, unfair to patients, and degrading to the profession. It is far otherwise when qualified men are employed; in their case a year or more of work under an experienced practitioner may be of the most signal service, and the majority of graduates or licentiates will find such training afford readiness in dealing with various classes, acquaintance with minor maladies, experience in midwifery, and that confidence and suavity in the treatment of patients which can hardly be obtained in any other way. When it is possible, choice should be made of a situation where facilities for special studies are available. The newly fledged practitioner should bear in mind that he is still but a student, and he will be fortunate indeed if his principal still regards himself in the same light. It is of course obvious that this period of advanced pupillage will have the highest value if spent under a master who avoids simple routine and devotes appropriate thought to individual cases. Daily discussion on these will serve the highest purposes. The haste to commence practice so soon as a diploma has been obtained is an error common to most men; the student, by the simple possession of the parchment, deems himself equal to all emergencies; but we venture to say that the first case of placenta

prævia or puerperal convulsions is likely to cause a rude awakening.

SPECIAL STUDIES AND PRACTICE.

The ever-widening area of medical knowledge, attended as it has been by an almost stereotyped curriculum, has now reached such an extent that an acquaintance with many diseases, absolutely essential to the well-trained practitioner, can only be attained by special effort. It has become necessary to exclude from the course of medicine all consideration of mental diseases, and it is but seldom the student is made acquainted in the regular course either of medicine or surgery with the important diseases affecting the skin; the lecturer on surgery feels he has enough to do in the one hundred lectures allotted to his subject to even hurriedly glance at the principles and practice of general surgery, or what is now known as such, the consequence being that the student too often loses the opportunity of learning anything about ophthalmic or aural diseases. It is a melancholy and even shameful reflection that our system of teaching and examination allows the possibility of men being licensed as fully qualified practitioners who are incapable of intelligently dealing with diseases so common and so important; the only satisfactory thought in connection with the subject is that the outlook is more hopeful, that in the near future these so-called "special" courses will be embraced in the ordinary curriculum, which must be extended to receive them, and examining boards will look upon a knowledge of such subjects as essential. We repeat that the time of the medical student is now fully occupied, and another year is urgently needed that his education may be both complete and thorough. Herein lies the hope of crushing the wretched and increasing quackery which branches off into all conceivable by-ways, and under the specious guise of special study and aptitude entices a credulous public to place confidence in men who, on their own showing, ignore the fact of the complexity of the organism and dependence of special diseases on general conditions. We have almost reverted to the manners of the ancient Egyptians, who had "doctors for each disease, and that disease only. Every place was full of doctors—some for the eyes, some for the head, some for the teeth, others for the belly, and others for secret diseases." Indeed, if this last is a category of specialists, we have already gone far beyond these early efforts, and the special hospitals in London alone expose an amount of charlatanism distinctly opposed to the more legitimate work here indicated. In large tailoring establishments we believe the custom exists of leaving buttonholes to one set of workers, and possibly threading of the needles to another; but though the method works well in such instances, the plan of the tailor can only be imitated by scientific physicians if willing to be considered as the needle-threaders in the profession. Unfortunately, quackery of this kind pays, and so long as that is so the profession must be dragged in the dust, legitimate hospitals starved, material for clinical teaching lost, and patients sacrificed through the ignorance of men whose therapeutic vision is of the most limited character. But we must not forget that the rank and file of the profession are responsible for much of the success of this unfortunate development, as they too often support men of the class referred to, ignoring the claims of the many accomplished physicians and surgeons attached now or formerly to general hospitals, but teaching some so-called special subject as a branch of legitimate study. It must also be remembered that there are branches of practical medicine or surgery, such as mental or eye dis-

ease or gynecology, of such width, requiring such manipulative skill as can only be obtained by practice, or demanding so much personal attendance upon cases, that it is of advantage, alike to the profession and the public, that men should be found to devote their lives to their pursuit. But a sound ophthalmic surgeon must have as a groundwork a thorough all-round knowledge of medicine. The gynecologist and asylum physician should have experience in general practice, whereas the peddling specialist usually has neither. Let our students, then, approach the study of the various subjects dealt with below with the feeling that an acquaintance with these is as necessary as a knowledge of pneumonia or fractures, and that they have only a right to any special place from the fact that they are crushed out of the courses now composing the curriculum. An extra year of study would suffice to obtain a good working knowledge of these organic derangements. The study should, in all the cases, be chiefly clinical, and we trust ere long to see a course of study, compulsory throughout the three kingdoms, which will be drawn with a view to the inclusion of these misnamed specialisms and the suppression of overgrowth in the crop of specialists. A glance at the headings of the remaining paragraphs in this address will be enough to indicate the time at which these studies should be taken. As branches of medicine and surgery they can only be taken when the general principles have been mastered and some experience gained in hospital practice; they should, in fact, be taken in the last year of the curriculum, and, if work for such examinations as are now held is pressing, the young graduate or licentiate should not fail afterwards to spend some time in their pursuit.

DISEASES OF THE EYE.

Among the several special studies to which we must ask the attention of the student, ophthalmology has an undisputed pre-eminence, and the sternest opponents of the modern development, which finds in every organ not only a subject for particular study, but an opportunity for special practice, recognize the importance alike to the public and to the science of medicine of the work carried on by the many distinguished oculists in this and other countries. But even here it may be noticed how much accomplished physicians, known in far other fields, have done to prove once more that the special study of organs can only be advanced by men who have cultivated the whole domain of medicine. There is no more marked feature in modern medicine than the enormous and growing importance rightly attaching to the ophthalmoscopic symptoms in general diseases, especially those of the arteries, and in affections of the kidney or brain. Nothing more intensifies the importance of gaining a thorough knowledge of the physiology and pathology of the orbital contents than to feel, as every student should, that such work, besides its most obvious use in dealing with diseases of the eye, is necessary to a due consideration of the earlier changes in Bright's disease and other serious disorders. Dr. Gowers, in the preface to his excellent work "Medical Ophthalmoscopy," says: "The condition of the fundus should be systematically described in medical case-taking." Alas! how few of our advanced students can do this; and of these few how very small a proportion carry this knowledge into practice, for "when the student, as is now too often the case, only succeeds in seeing the optic disc just before he leaves the hospital, his knowledge of the use of the ophthalmoscope in most cases ends with this." Only those who have made the ophthalmoscope their ally know how valuable it is in the solution

of many of the difficult problems that are constantly meeting one in the practice of medicine. Practice in the use of this instrument should be gained early in the course, say in the third winter, that the student may from that time in the *general wards* be enabled to profit by its revelations; but there is some difficulty as to who should be the teacher at this initial stage. It is, of course, essential that the professor of physiology should have much to say about the organ of sight, but we question if he is the best guide to more than the "mere smattering," almost completely valueless afterwards to the student, for which he alone has time. The same may be said of the lecturer on surgery. Left to one teacher, who devoted himself specially to the subject, the grounding in ophthalmology would be so thorough that to the student it would be one of the most pleasant and useful accomplishments, and he would continue his studies, as occasions occurred, throughout his final summer and winter in hospital. In the empire of medicine, ophthalmology is a colony that has not yet been able to assert itself and has not the position it deserves. True, it is now dawning upon the powers that be that it is a more fruitful region than was supposed, and that its supplies are requisite for the prosperity of the few large colonies hitherto attracting the talents and attention of our professional rulers. The day is not far distant when ophthalmology will hold a very different position in every well-equipped school from what it does now. It is unnecessary to urge the importance to our eye patients of having the advice of men well trained in their work; but we may warn students how damaging may be the results of an apparently simple error in treatment. Let any thoughtful surgeon try to conceive of the misery, the blighted lives, the hopeless future of those infants improperly treated for ophthalmia, and he will urge every student with whom he has influence, and every examining board too, to give increased attention to such diseases. It is not expected that every practitioner should be an expert in the removal of cataracts or in performing iridectomy, but assuredly no one should possess a diploma who is incapable of treating the more common diseases, of knowing the risks arising from the most uncommon of these, and of detecting the point at which his own knowledge fails and a more experienced practitioner should be consulted.

DISEASES OF THE EAR.

It is fortunately no longer a necessity that men desiring an acquaintance with diseases of the ear should journey to the Continent or to particular centres in our own country in quest thereof, as the importance of this study has now been so far recognized that means for its pursuit are provided at all our medical schools. Those who wish the fullest instruction in this, as in other special subjects, will doubtless still avail themselves of the opportunities offered at some of our own large hospitals and at those of Berlin, Vienna, Paris, and Heidelberg, as it is of the utmost importance not only to know the views but to watch the practice of the masters. Now-a-days, however, there is no necessity for ordinary students going far afield for their knowledge, and there is no apology for any man with such splendid facilities ready to his hand if he remains ignorant of a most important group of morbid changes. It is time, indeed, for the reproach to be wiped away that in this country, the cradle of scientific aural surgery, the country of Wilde, Toynbee, and Hinton, the knowledge and skill requisite for the successful battle with these common diseases should still be confined to a small minority of the profession. Remembering, too,

that it is forty years since Sir William Wilde, by the publication of his "Practical Observations on Aural Surgery," gave the deathblow to the antiquated theories and absurd practice which up to his time had held sway, it seems strange that a halo of mystery should still surround these diseases in the minds of many common-sense practitioners. By an intelligent application of anatomical facts, a sound physiology and pathology and rational therapeutics, Wilde was enabled to clearly demonstrate the fact that the great majority of ear diseases have an inflammatory, and not a nervous, origin. This was the grand generalization which broke down mystery and empiricism, and allowed of the application of the same well proved physiological, pathological, and therapeutical principles which were constantly used in other investigations to be brought to bear upon the diseases under consideration. Students and practitioners should be made to know that about 75 per cent. of diseases of the ear are due to inflammation in one form or other, and are therefore for the most part curable in their early stages; while neglect to follow rational principles in treatment or adopt a do-nothing policy often ends with the most terrible consequence to life or happiness. Deaf-mutism in the young, deafness of various degrees at all ages, cerebral meningitis and abscess, pyæmia, and fatal hæmorrhage are a few of the risks run in neglected cases. These consequences are in the majority of cases preventable, were means taken to avoid the extension of the inflammatory process from the naso-pharynx, from which it usually spreads; and it is worthy of emphatic note that this pharyngeal catarrh occurs idiopathically or in such diseases as scarlet fever, diphtheria, measles, and small-pox—exactly in that class of ailments, in almost all cases, treated by the general practitioner. Facts like these should induce every student of medicine to fit himself for dealing with such diseases. The difficulties are not great; the treatment in the early stages exceedingly simple; the risks avoided by successful treatment almost incalculable; and there is hardly anything more gratifying to the practitioner than the bright glance of satisfaction in the face of a patient who, rescued from the terrible curse of deafness, once more hears the voices of friends and the harmonies of sweet music.

DISEASES OF THE THROAT.

Accuracy in diagnosis, success in treatment, and even a knowledge of the physiology and pathology of laryngeal diseases may be said to be such a modern development that the middle-aged practitioner in his student days could obtain but a rough idea of these troublesome and often fatal ailments. Diseases of the throat, so far as they are included in pharyngeal affections, were open to the observations of ordinary surgeons, but until the truly magic mirror was introduced all was guesswork among the numerous diseases beyond the reach of the unaided eye. The genius and necessities of Senor Garcia as early as 1855 had allowed of a reflection of the throat being obtained, but it required further development in the skilful hands of Professors Throk and Czermak before we had the present laryngoscope, whose revelations have almost equalled those resulting from the marvellous invention of Helmholtz. Instead of a prolonged, labored, and often incorrect reasoning, we have now the aid of sight in determining diseased states; and the practical surgeon was not long in so benefiting by the advantage as to entirely revolutionize the surgery of the region. Perhaps none of the modern instruments of precision have been of such practical value in the treatment of the diseases in whose diagnosis they have assisted as the

laryngoscope, as by its use the whole vocal mechanism and higher respiratory tubes have been so exposed as to lie within easy reach of the trained hand, guiding the different aids to the surgeon which are supplementary to the laryngoscope itself. Tumours and foreign bodies are removed with celerity, the inflamed or ulcerated surface can be directly dealt with, and the surgeon is literally within touch of the conditions against which he must war. Nor is the invention of slight use to the physician, who by its aid localizes the paralysis which renders phonation difficult, is assured of the central spot where disease is making way, and can actually see the effects of the spray upon such ulceration as occurs in phthisis or syphilis. The student will find his time well spent in the throat clinique, now happily found at most of the general hospitals, and even a few weeks of close clinical study will assist much in mastering the cases to be seen in general practice. Though it is not expected of the general practitioner that he will readily undertake the extirpation of the larynx, he should obtain such a thorough facility in using the laryngoscope, forceps, syringe, probang, brush, tracheal tube (the last but recently recommended by Macewen), and guillotine or scissors as will allow, not only of the detection of any disease, but the treatment of most.

DISEASES OF THE SKIN.

The skin under a diseased aspect is commonly enough regarded as a highly perplexing field of observation to the student of medicine, and it appears so little inviting that a large number of practitioners may be said to be truly ignorant alike of the etiology, classification, and treatment of skin affections. Before the days of specialism in this department, the student was treated to some remarks on the subject either in the course of medicine or of surgery, and so obtained such a knowledge of dermatology as enabled him afterwards to prescribe indiscriminately the use of arsenic and the inunction of sulphur; but now that recent study and observation have raised these diseases to a specialty, they are simply ignored by not a few as entirely optional. Thus the very advance of knowledge has proved a hindrance to the average student, and it becomes necessary to indicate the importance of the study to the fully equipped practitioner. To leave the management of skin diseases in the hands of specialists, or, what is far worse, to continue to treat such affections without acquaintance with their pathology and retinal therapeutics, is to abrogate the functions of the physician and descend to the level of the quack. We have surely reached a stage when at least a knowledge of the commoner diseases should be expected from the would-be practitioner, when all chronic eruptions should cease to be designated "eczema," and when the necessity for local or general treatment should be at once recognized. How often does it happen that after many months of arsenic or other routine treatment the patient finds that time, money, and suffering have been alike wasted, and that his ailment is parasitic? Liability to these inglorious mistakes should teach the student to avoid their possibility, and even on the most selfish grounds he should desire a knowledge which may easily place him in a favorable position among his fellows. A leading attraction to the study of skin diseases, and the greater reproach in case of ignorance, is the fact that they can be so well observed and so easily mastered by systematic clinical study. We say clinical, of course under a teacher, as we do not envy the man who attempts to read up skin diseases, however beautiful the plates. The variety in classification is most puzzling to the student of books; yet an

able teacher will demonstrate *his own* classification with perfect lucidity, and to this the learner should lean till a thorough familiarity is obtained with one method. After this he may more fully consider the basis of his teacher's arrangement, and possibly reject it as less scientific or less practical than that of another authority. It is, we believe, this initial difficulty which frightens off many willing students; they leave before an interest in the work is secured. It should also be observed how very common are cases of skin disease, and as a further encouragement to the overworked student it may be mentioned that the practice of dermatology does not require the aid of complicated special instruments, or peculiar manipulative skill in the use of them. Moreover, skin affections occur during the existence of other diseases and in close connection with them, so that neither can be understood without a knowledge of both. A broad and scientific study of general medicine is a *sine qua non* to the accomplished dermatologist.

MENTAL DISEASES.

Of late years there has been a greatly increased amount of attention bestowed on the department of psychological medicine, and there are now few schools without a lecturer on mental diseases and abundant clinical material near at hand. It is fortunately becoming more and more common to view insanity as the result of physical change; the mystery which enshrouded the study is gradually clearing off along with the rigid seclusion which marred the practice, and year by year we come nearer the time when acute cases will have home or hospital treatment just as circumstances may determine. The feeling of hopelessness and disgrace attaching to disease of the brain, functional or organic, will tend to disappear as the medical profession begin to look upon such afflictions in the same manner as upon other serious maladies. But all this can only be possible when the medical student applies himself to the study of mental diseases in the same serious manner as those of organs other than the brain. The importance of psychiatry to the practitioner is evident when it is remembered that in this country alone about 80,000 of our fellow countrymen are deprived of their personal liberty upon certificates granted in most cases by the general practitioner; and while it is manifestly impossible that the profession as a whole should have a complete knowledge of these diseases, scarcely obtained by a lifelong study, each individual member should be able to discriminate between those cases that he is in duty bound to treat to recovery at home and those that ought to be relegated to the asylum (hospital) for treatment. But how is a practitioner untrained by the observation of the various mental aberrations to deal even with the primary question of sanity or insanity, or discriminate between the various phases of mental instability? It is part and parcel of the lingering superstition of former ages, when insanity was wrapped about with difficulties and degradations, that calls upon such a man to decide off-hand as to the mental state of his neighbor, as if it were a question easier of solution than any affecting his bodily condition. The insurance certificate granted by an individual who had not been trained in the use of the stethoscope both in health and disease would be scarcely one whit more anomalous than the lunacy certificate of one unschooled in the facts of mental physiology and pathology.

DISEASES OF WOMEN AND CHILDREN.

Anyone possessed of three months' experience in general practice has already become aware that the vast majority of his patients is made up of

women and children, and that the passport to success has been provided as soon as the wives and mothers are satisfied that the practitioner is entitled to confidence. Looking forward, the junior practitioner satisfies himself that the subjects of his life's work are often the occupants of the cradle; looking back to his student days, he finds that children's diseases were conspicuous by their absence from the curriculum, and almost as little seen in the hospital. The junior, again, is consulted by a woman presenting a variety of perplexing symptoms; she knows herself, though she has some delicacy in alluding to the subject, that the womb is at fault, but even the commonest displacement is unrecognizable by a man who has not been taught concerning diseases of women, and the disappointed applicant is probably dismissed with a tonic. It need scarcely be added that she does not return. Our student readers may well ask, Why are our curricula so arranged? In many of our larger schools lectures have within the past few years been advertised on these important subjects, but these have been attended by only a limited number of the best students, and so long as the course remains optional the teacher must address a beggarly array of empty benches. The theory is that gynecology and diseases of children are included in the course of midwifery; but it is obvious that when this is limited to fifty lectures there is absolutely no time for their consideration, and in the universities where one hundred lectures are compulsory only a few of these are devoted to diseases of women, while diseases special to children are totally neglected. In a course of one hundred lectures it should be possible to give twenty-five to diseases of women, and from these a fair theoretic knowledge might be gained; but children's ailments, now so completely neglected, demand a separate course, and students who wish to take an intelligent position as family practitioners should find their knowledge in a less experimental manner than is common at present. There can be no doubt that the regulations of the Divisional Boards will require a new acquaintance with these important subjects; but, whether compulsory or not, a knowledge of at least the commoner diseases should be obtained as the surest road to pleasure and profit in the practice of our profession.

In conclusion, we may observe that our hurried sketch of the special subjects of study is supplementary to our last year's remarks on the Curriculum. We then discussed at some length the ordinary and compulsory subjects, as well as the important speciality which concerns itself with the Public Health; and to these remarks we would again refer our readers. Neither in the study of the ordinary curriculum nor in that of the special studies would continued pressure upon the student be necessary, were it kept steadily in view how all-important and responsible are the functions of the humblest practitioner of medicine. The least accomplished in our profession may have a responsibility upon his shoulders which the highest among his fellows feels to be onerous; life or death is, humanly speaking, in his hands. Let students and practitioners but think often of this aspect of their work, and every effort will surely be made that we may fight and war against disease, and not unfrequently against death itself. We may, too, remind the students of natural science, dealing with ascertained facts and demonstrable principles, that such studies may wean the mind from the contemplation of the Unseen, and tend to shut out the highest thoughts of which man's mind is capable. Let not the supposed opposition between science and religion occupy a thought, until, at least, a wide scientific knowledge

has been obtained; when in all likelihood attempts to solve the insolvable will appear a useless labor. The eloquent words of Professor Gairdner's last introductory address may fitly close these remarks—"Finally, *ora et labora*. Look for the blessing from on high. And if modern science seems, at times, to wean your minds away from God, look again, and look further and yet nearer, till in the reign of law you can perceive a truly divine order; in nature a living force behind nature; in the mystery of your own will the faint image of a higher will than your own, neither less nor more mysterious in its essence; in the endless descent of species, whether by evolution or otherwise, the infinitely multiplied reflection of a relationship to Him, who, while He is the Father of our spirits, and the framer of our bodies, is also 'nigh to every one of us,' the Father of all the families of the earth, from everlasting to everlasting."

ON BOOKS.

It has been customary with us for some years past to include in this number a slight sketch of the literature which is at the disposal of the student in medicine at the present day. Since we commenced that practice many new text-books have appeared, and in some subjects these more modern candidates for the favor of students bid fair to displace the old. In revising what was written on this head a few years ago, we shall not omit what was said of the well established works, some of which appear in new editions almost every year; but we shall also endeavor to notice those additions to literature that seem to us likely to obtain a permanent place.

Chemistry.—Barff, Roscoe; Williamson, Attfield, Fownes; Miller, Roscoe, and Schorlemmer. Of these Professor Barff's "Introduction" is suitable to the beginner, but its scope is too limited for the requirements of any of the medical examining boards. Roscoe's "Elementary Chemistry" travels over the whole range of the subject, and will, if thoroughly mastered, prove more than sufficient. The like is true of Fownes's well-known work, which has been brought up to the modern standpoint by recent editors. For a compact but clearly reasoned book, the student cannot do wrong if he prefer Williamson's work; and those who have time at their disposal, or are ambitious of university honors, the work of Miller, or the last-named on the above list, may be consulted or read.

Practical Chemistry.—Odling, Bowman, Attfield. These books are each of them useful to the student who has not the advantage of personal supervision of his work at the hands of the teacher, or their perusal may profitably be undertaken in conjunction with the practical study of the subject.

Natural Philosophy.—Newth, Ganot; Deschanel, Thomson, and Tait; Balfour Stewart, Tyndall. In this subject, which is required for the "preliminary scientific" examinations, but does not enter into the ordinary curriculum, some of the pleasantest books to read are Ganot's *Physics* and the works on Heat, Sound, and Electricity, by Prof. Tyndall—these latter being books that may be read in hours of comparative leisure, for they are penned by one of the clearest expounders of scientific truths extant. Similar subjects are dealt with in Deschanel's treatise, which may be obtained in separate parts; and Balfour Stewart's work on Heat is widely recognized as one of the best in the language. The large "Natural Philosophy" of Thomson and Tait can only be regarded as a work of reference for most students.

Botany.—Cooke, Silver, Oliver; Balfour, Bentley, Sachs. *Atlases:* Bentley and Trimmen and D. McAlpine. Several works are to be had of an elementary character; that of Mr. Cooke on "Structural

Botany" or the little "Outlines" of Dr. Silver are good. Oliver's "Elementary Botany" has met with well-deserved success, and recently translations of some foreign works have appeared. Balfour's work has long been a favorite, and Bentley's is also much read. Messrs. Churchill publish an excellent Atlas of "Medicinal Plants," under the joint authorship of Professor Bentley and Mr. Trimmen—a work which should find a place in the library of every medical school; and Messrs. Johnston, of Edinburgh, have recently published a useful botanical Atlas by D. McAlpine, containing representations of the leading forms of plant life.

Zoology and Comparative Anatomy.—Nicholson, Huxley, Rymer Jones, Gegenbaur; Flower, Rolleston, Huxley and Martin. For practical work in this subject no better guide could be mentioned than the last-named, and of a severer class is Prof. Rolleston's "Forms of Animal Life." In systematic zoology the various works of Prof. Nicholson have been very popular. They have replaced the well-known text-book of Rymer Jones; and those who wish to go deeper into the subject should not fail to read Prof. Huxley's "Vertebrata" and "Invertebrata." Bell's translation of Gegenbaur's manual serves to complete a list of writings on a subject upon which a few years ago English literature was very defective, and candidates for University degrees could not do better than make this their text-book. Prof. Flower's "Osteology of Mammalia" is the only work of its kind, and its study would add much interest to the dry details of human osteology.

Anatomy—Systematic: Quain, Gray, Wilson. **Practical:** Ellis, Holden, Heath, Ledwich, Cunningham. **Osteology:** Ward, Holden, Morton, Wagstaff. **Arthrology:** Morris. **Regional Anatomy:** Holden, Smith, and Walsham. **Plates:** Ellis, Godlee, Braune, Sibson. In this subject, which occupies so much of the student's time in the first two years, there are very numerous works. For the latter purpose the most complete and trustworthy is Professor Ellis's *Demonstrations in Anatomy*, which has stood the test of many generations of students, and is apparently as much appreciated as ever. Similar excellent guides are the smaller works of Heath, Holden, Ledwich, Cunningham and Carrington. For the systematic study of the subject, Gray's *Anatomy* has long been a favorite, and holds a well-deserved place in the estimation of students; whilst the book which has obtained a world-wide reputation is Quain's *Anatomy*, the representative work of anatomical science in England. Mr. Reeves has lately produced an elaborately illustrated work on *Human Morphology*, which deals with some of the more speculative regions of anatomy. Of the books that have been written upon Osteology, the most exhaustive is undoubtedly Ward's; but Holden's work is perhaps much more widely read, and it is very excellent. The work of Dr. Humphry, of Cambridge, on the *Human Skeleton* is useful alike to the anatomist and the surgeon. The only work specially devoted to the anatomy of the joints is that by Mr. Henry Morris, which may be consulted with advantage. Valuable for the assistance they afford in recalling the parts dissected, and very useful therefore when the student cannot be engaged in his practical pursuits, are the excellent "Plates" of Ellis and those in the Atlas of Mr. Rickman Godlee. In the department of regional anatomy there are the plates of Professor Braune, with English text by Mr. Bellamy, and Sibson's work on *Medical Anatomy*; whilst smaller works dealing with "Landmarks" are those of Holden, Smith, and Walsham.

Physiology.—Huxley; Kirkes, McKendrick; Marshall, Foster, Hermann, Carpenter, Flint. To those who come to a medical school without any

previous knowledge of the subject, no better book to begin with can be recommended than Professor Huxley's elementary work. But this, of course, will not suffice for the whole education of the medical student in this most important subject. The well-known text-book of Kirkes is, of all the works on this subject, by far the most popular, and has run through many editions. Almost as popular, but less attractive to the general student, is the admirable text-book by Michael Foster, which it is incumbent upon the aspirant for higher diplomas to read. Of the same scope as Kirkes' may be mentioned the manuals by McKendrick, Marshall, and Küss; whilst Carpenter's large work has always maintained a high position. The works of Hermann and of Flint have also obtained a well-deserved position in this country. Upon *Physiological Chemistry* the student will find a useful guide in Dr. Ralfe's practical work, and a book by the same writer is promised in Cassell's series, though for a fuller study the larger work of Professor A. Gamgee must be used.

Histology.—Quain's *Anatomy*, vol. i.; Gray's *Anatomy*, Introductory Chapter; Klein; Schäfer; Rutherford; H. Gibbs; Stricker; Klein and Smith's *Atlas*. A fairly exhaustive account of histology is to be found in some of the books mentioned in the last section, but for the most complete treatise on the subject Quain's *Anatomy* continues to hold the first place, the large work by Stricker (Syd. Soc. Ed.) being necessarily too exhaustive for the ordinary student. In the newly projected series of student's manuals, now in course of publication by Messrs. Cassell, there is one volume devoted to Histology by Dr. Klein, which is certain to become a great favorite with students. Professor Schäfer's work is the most thorough guide on the subject of practical histology, and Rutherford's "Outlines" are excellent; and so is Dr. H. Gibbs' little work.

Practical Physiology.—Power and Harris, Foster and Langley, Sanderson. For laboratory guides the two first-named are sufficient, and the larger "Handbook" edited by Dr. Sanderson should be referred to for further details.

Materia Medica and Therapeutics.—Brunton, Thorowgood, Milne, Farquharson, Garrod, Scoresby-Jackson; Wood, Phillips, Ringer, Waring, Fothergill, Neligan. In *Materia Medica* Dr. Garrod's, Neligan's, and Scoresby-Jackson's works are good, as, of smaller size, are the compendia of Thorowgood, Royle, Farquharson, Owen, and Milne, whilst the "Tables" of Brunton are intended to facilitate the student's labor in this somewhat arid subject. Wood's and Phillips's works are both of them of a high class, the best, perhaps, in the language; they deal largely with the physiological action of drugs. Upon the more interesting subject of practical therapeutics, that which has been most widely read is Dr. Ringer's handbook; and the works of Dr. Waring and of Dr. Milner Fothergill also abound in useful hints and suggestions.

Medical Jurisprudence.—Guy, Taylor; Tidy, Ogston. In this subject the books most suitable for students are Taylor's *Manual* and Guy's "Forensic Medicine," which embrace all branches of the subject; but Taylor's "On Poisons," and his larger work on "Medical Jurisprudence," may profitably be referred to; as also the work recently written by Dr. Tidy. The interesting lectures of Dr. Ogston form a recent and useful addition to the literature of this subject.

Public Health and Hygiene.—In Dr. Wilson's work the student will find most of the information he requires, but the standard work of Parkes, which has been edited by Dr. De Chaumont, is one that must not be forgotten.

Medicine.—General: Tanner, Roberts, Bristowe, Carter, Charteris; Aitken, Niemeyer, Flint, Watson; Reynolds, Trousseau. *Nervous Diseases:* Wilks, Charcot, Althaus, Hammond, Bastian, Rosenthal, Gowers, Buzzard, Ross. *Diseases of the Heart:* Walshe, Balfour, Fothergill, Hayden. *Diseases of the Lungs:* Walshe, D. Powell. *Diseases of the Kidney:* Roberts, Dickinson, Stewart, Johnson, and Beale. *Diseases of the Liver:* Murchison, Habershon. This long list by no means includes all the works which may be selected from, but it will be seen that we do not wish to imply that the student should have to consult one-fourth even of the above. It will be necessary for him to procure one text-book, and the following brief hints may guide him in his selection:—Each has its own peculiarities. That of Dr. Tanner, edited by Dr. Broadbent, has been longest in the field, and is fully sufficient for most purposes; it is eminently practical. The handbook of Dr. T. F. Roberts is, however, perhaps the most useful, and abounds in information supplied in a thoroughly systematic manner, although, from the very extensive range travelled over, the subject is necessarily condensed, and the book, therefore, no light reading. The work of Dr. Bristowe is more original, and is valuable especially in its pathological portions, and in the admirable account given of diseases of the nervous system. Dr. Aitken's "Outlines" are also good. But for a work which is both pleasant in the reading and valuable for its suggestiveness, the text-book of Professor Niemeyer takes the front rank. Certainly no candidate for the higher examinations should fail to read this book, and to carefully study it, for although in some sections it hardly comes up to the standard of some English authorities, yet, as a whole, there is no work like it. Dr. Flint's work has obtained a wide and deserved reputation, not only in America but also in this country. Nor should Dr. Watson's famous book on the "Principles and Practice of Physic" be omitted, for many an hour may be passed both profitably and with pleasure in the perusal of these classical lectures. Those who intend taking high degrees, such as the M.D., should read much of the "System of Medicine" edited by Dr. Reynolds, and the time would not be wasted in the perusal also of several of Trousseau's admirable lectures on Clinical Medicine, translated by the Sydenham Society. Such candidates also would do well to read the monographs of Dr. Murchison on Diseases of the Liver, or those on Diseases of the Kidney by Drs. W. Roberts, Grainger Stewart, or Dickinson; and also to consult Dr. Walshe's works on Diseases of the Lungs and Diseases of the Heart, or the lectures of Dr. Balfour on the last-named subject. On Continued Fevers, there is no work comparable to Dr. Murchison's treatise. On Diseases of the Nervous System there are the larger works of Ross, Rosenthal, and Hammond; but the lectures of Dr. Wilks, and those of Charcot, which have been translated by the Sydenham Society, may profitably be read. Dr. Bastian's lectures on Brain Diseases, Dr. Gowers' lectures on Diseases of the Spinal Cord, and Dr. Buzzard's clinical lectures are all admirable as examples of clinical exposition in this attractive region. Lastly, we can recommend the student to consult on any or all of the subjects connected with medicine the Dictionary published under the editorship of Dr. Quain; whilst no sketch of medical literature would be complete without mention of the great work of our time—Ziemssen's *Cyclopædia*—for the translation of which we are indebted to American enterprise, and a copy of which is sure to be found in every school library.

Clinical Medicine: Da Costa, Finlayson, Fen-

wick, Tanner, Gee, Barclay, Warner. *Urine Analysis*: Legg, Tyson. *Ophthalmoscopy*: Browne, Jackson, Gowers, Clifford Allbutt. The first-named, that of Dr. Da Costa, is of the highest class. The handbook edited by Dr. Finlayson is very complete of its kind; Dr. Fenwick's work is smaller, but has been much in use; whilst the subject of "physical signs" in chest disease is admirably treated of in Dr. Gee's little manual on Auscultation and Percussion. To the clinical ward clerk the guide compiled by Dr. F. Warner will be found of considerable utility. As aids in the analysis of urine, Dr. Legg's and Dr. Tyson's works are excellent. We have added four works on Ophthalmology; the first is a guide to the use of the ophthalmoscope, which the beginner will find of great service; but the senior student will be repaid by studying the excellent work, which includes an atlas, by Dr. Gowers, or the book by Dr. Clifford Allbutt on the same subject. For reference, Liebreich's plates, or preferably those of Jaeger, edited by De Wecker, may be consulted.

Pathology.—Green, Payne, Coats, Ziegler, Wilks and Moxon, Rindfleisch, Cornil and Ranvier, Rokitsansky, Billroth, Paget. The most popular text book for some years past has been Dr. Green's small work, but there has long been a need felt for a more comprehensive treatise on a subject which is more than ever receiving attention. During the past year two excellent works have appeared which go far to supply this want. The one is the "Manual of Pathology," by Dr. Coats, of Glasgow, which is a work of high merit, and is sure to be widely read. The other is the equally attractive work of Ziegler, the first part of which only has yet appeared in an English dress in the careful translation of Dr. Macalister. A second part will soon be published, but the work has not yet been completed in the original. Ziegler's book is as notable for its illustrations as for the clearness and conciseness of its text. Dr. Payne's edition of Jones and Sieveking's Pathological Anatomy, and the text book of Wilks and Moxon are valuable, the latter being especially distinguished for the descriptions of diseased organs. In Pathological Histology, besides the works above mentioned, the advanced student will find no better guides than Cornil and Ranvier's work, the second edition of which has partly appeared in English in Mrs. Hart's translation, an American copy of the first edition being also available. Then there is the work of Rindfleisch, translated by Dr. Baxter. In Surgical Pathology Mr. Pepper has written a book for Cassell's series which will doubtless be of great use to the student; and Mr. Walsham's "Manual," comprising an analysis of the contents of St. Bartholomew's Hospital Museum, is a careful compilation and guide. Billroth's "Surgical Pathology" is well worthy of study; whilst Sir James Paget's well-known lectures abound in suggestive matter.

Surgery.—Druitt, Bryant, Holmes; Erichsen, Spence, Pirrie, Syme, Gross, Agnew, Holmes's and Hulke's System, Gant. *Practical*: Hill, Heath, Stimson, Stephen Smith, Bell and Maunder; Fergusson. *Surgical Anatomy*: Bellamy, Chiene, Treves. The two text books by Mr. Bryant and Mr. Holmes respectively, are perhaps now the most widely read. Druitt's "Vade Mecum" is now less sought after; still, by some it may be preferred to either Bryant or Holmes. Of larger works Erichsen's "Science and Art of Surgery," or Gross's Surgery, need only to be mentioned; their merits are well and widely known. And the same may be said of Holmes's System of Surgery, a new and cheaper edition of which, under the joint editorship of Mr. Holmes and Mr. Hulke, has recently appeared. Mr. Gant's work is compendious. Prac-

tical Surgery has been treated by the late Sir. W. Fergusson, Mr. Spence, Dr. Pirrie, and Mr. Syme, in books which have obtained a deserved repute. The works of Bell, Maunder, and Stimson on Operative Surgery, and Mr. Heath's Atlas, are all excellent. Mr. Hill's book on Bandaging and Mr. Heath's two small works on Minor Surgery and on Surgical Diagnosis are of great use to the student in his career as dresser or house-surgeon. Mr. Keetley's Index of Surgery is a work which contains much information within moderate compass. In Surgical Anatomy we are promised a small textbook in Cassell's series, by Mr. F. Treves; and on the same subject there are also the excellent works of Prof. Chiene and Mr. Bellamy.

Midwifery.—Swayne, Meadows, Lloyd Roberts; Playfair, Leishman, Barnes, Clay, Lusk. *Diseases of Women*: Lombe Atthill, Galabin, Barnes, Graily Hewitt, Thomas. In the department of Midwifery the best works are those of Dr. Playfair, Leishman, Lusk, and Dr. Robert Barnes' or Mr. Clay's works on "Obstetric Operations." With these the student preparing for University degrees would be well armed; whilst for emergencies Dr. Swayne's "Obstetric Aphorisms for Students" is excellent, and may be used in conjunction with the lectures attended by the student. In *Gynaecology* the small book of Dr. Lombe Atthill is deservedly popular. Of like scope is the handbook by Dr. Galabin. Of rather wider range is Dr. Edis' work on "Diseases of Women;" and still more extensive information may be found in the larger works of Drs. Barnes, Graily Hewitt, and Thomas.

Dermatology.—Liveing's Diagnosis, Fox's Epitome, Duhring, Malcolm Morris; Tilbury Fox, Neumann (Pillar's translation). *Atlases*: Tilbury Fox, Duhring. The student will find ample information within a small compass in the first-named works. Duhring's book is not so well known in this country as it deserves to be, and Neumann's is especially rich in cutaneous pathology.

Diseases of the Eye.—Lawson, Nettleship, Macnamara, Soelberg Wells. The most useful for the student are the two first named.

Diseases of the Ear.—Allen, Dalby, Keene, Field, Hinton, Woakes.

Dental Anatomy and Surgery.—O. Tomes, J. Tomes, Salter, Harris, Sewell.

Medical Electricity.—De Watteville, Reynolds, Poore, Bennett.

We need but enumerate the authors in the above subjects; and we have only to add one subject which is still included in the University of London curriculum for candidates for the M.D. degree:

Logic and Moral Philosophy.—Bain and Jevons are the authors most generally read; but those who can make the acquaintance of Mill, Lewes, and Spencer will not regret it.

Lectures

ON THE

RELATIONS OF THE TUBERCLE BACILLUS TO PHTHISIS.

By C. THEODORE WILLIAMS, M.A., M.D.,

Fellow of the Royal College of Physicians; Physician to the Hospital for Consumption, Brompton.

LECTURE II.

ITS INFLUENCE ON THE CLINICAL HISTORY AND TREATMENT.

GENTLEMEN—We now come to the clinical aspect of the question, and it would be best to approach the subject, first, by the light of the evidence of physical signs, and, secondly, by that of the con-

stitutional and local symptoms, such as pyrexia, wasting, cough, expectoration, and general aspect. Do we find bacilli in the sputum of patients in the stage of early consolidation, where the physical signs are slight and limited to a very small region—for instance, the supra-clavicular or the supra-scapular? My experience would answer in the affirmative, provided there is any expectoration to examine, which is often a difficulty. Objection will be at once raised by sceptics in physical signs, who will assert that in no case can we be quite certain of the absence of excavation. While admitting that many cavities are overlooked, and that small ones, especially when deep-seated, are very difficult to detect, I maintain that a case like the subjoined does not admit of much doubt.

CASE 2.—Edith C—, aged seventeen, milliner and dressmaker, admitted on Dec. 30th, 1882. No family predisposition. Has had pain under the right clavicle for three months, which kept her in bed and out of work for one week. She states that she has no cough, but that some expectoration follows a tickling in the throat. She has not lost flesh or had night sweats. At present her breath is not short. Tongue clean; bowels and catamenia regular; temperature and pulse normal; weight 8 st. 6½ lb. Dr. Percy Kidd, who admitted her in my absence, found weak respiration with prolonged expiration in the first interspace and above the scapula on the right side.—Feb. 22nd, 1883: has gained 6 lb. The expectoration is so scanty that it is difficult to obtain any; it has been examined three times for bacilli; on the first two occasions none were found, but on the third a few were detected. Physical signs: Tubular sounds audible in the first and second interspaces.—March 15th: Has improved in strength, and a little in weight, being now 8 st. 13½ lb.; bacilli present in the expectoration, but very scanty. Physical signs: Tubular sounds in first and second interspaces, with occasional crepitation in the first interspace on coughing. Temperature 98.4° F. (A specimen of this patient's sputum now under the microscope shows from five to ten bacilli in the field.)

In the foregoing case the signs may be said to have developed while under observation, the crepitation, be it noted, appearing at a later date than the prolonged expiration or tubular sound. The bacilli could only have reached a small number of the alveoli, and detection was consequently very difficult. The extension of the disease is generally accompanied by either an increase in the bacilli, or, if they had previously disappeared from the sputum, by their reappearance. It is not always easy to find cases of this sort without the presence of a cavity, which, small though it be, would by some observers be considered the source of all the bacilli present. I think, however, that in the subjoined instance the fine crepitation indicated for the most part fresh tuberculization, especially as on the right side its diminution was unaccompanied by cavernous sounds, and on the left side the tubular sound which followed was associated with increase of dullness.

CASE 3.—Jessie B—, aged thirty-one, servant, admitted on Jan. 31st, 1883. Her mother died of phthisis at the age of forty-six, one brother at twenty, one sister, at twenty-nine, and another at twenty. She had inflammation of the lungs following measles, but completely recovered. Cough came on eleven months ago, and has persisted, accompanied by abundant expectoration, occasionally streaked with blood. She has had night sweats, and has wasted considerably. At present she complains of pain in the left chest; cough is severe; expectoration scanty; breath short on exertion; no night sweats; appetite good; tongue

clean; temperature 98.8°; weight 9 st. 8½ lb. Physical signs: Slight flattening with crepitation from the clavicle to the third rib on both sides; some tubular sound on the left over the same area. Crepitation audible above both scapulae.—Feb. 8th: Cough improved; expectoration decreased; bacilli numerous.—March 1st: Cough about the same; expectoration partly grey, partly purulent; crepitation less on both sides of the chest.—15th: Improving; has gained 3 lb.; expectoration 1 oz., with bacilli in fair numbers. Physical signs: On the right side, crepitation diminished front and back. On the left side, dullness to the third rib, with tubular sound; crepitation less.—April 9th: Cough less; expectoration diminished; bacilli absent; weight 9 st. 13½ lb.; physical signs as before.

In this case the numbers of the bacilli corresponded pretty exactly with the activity of the tuberculization, and when the disease became quiescent, they disappeared from the sputum. This instance would come under the category of Mr. Cheyne, where the bacilli enter the lungs and not the body; though here the soil was well prepared by family predisposition. The general health was excellent, and there was fair hope of the disease remaining localized. The following case is somewhat similar, and the disappearance of the bacilli accompanied the subsidence of the physical signs.

CASE 4.—Frank R—, aged twenty-six, footman, admitted on March 19th, 1883. His mother died of some disease of the lung, and a brother and a sister are asthmatic. After exposure late one night, a year ago, when out with the carriage, cough and expectoration came on, and have continued ever since. Night sweats followed and persisted for six months. He lost flesh at first, but has regained it lately. His breath has been short on exertion for some time. Has never had hæmoptysis. The cough at first was very severe, and ended in vomiting. The expectoration has been white and frothy, but lately has become somewhat opaque. At present his appetite is fair; tongue furred; some dyspepsia after food; bowels confined; temperature 98.4°; pulse 90; urine normal. Physical signs: On the left side slight dullness with fine crepitation from the clavicle to the third rib; posteriorly, scattered crepitation audible over the upper half.—30th: Sputum examined, and found to contain twenty bacilli in the field, and these in a state of division.—April 9th: Cough more troublesome; expectoration increased; appetite bad. The patient states that he does not feel so well.—11th: Sixty bacilli in the field, of greatly varying lengths.—16th: Cough and expectoration somewhat less; complains of pain in the left chest. Physical signs: On the left side crepitation somewhat more abundant in the posterior region.—17th: About thirty bacilli in the field, still greatly varying in length.—23rd: Physical signs about the same. No cavity can be detected. Cough and expectoration are moderate, and the patient is gaining weight.—May 7th: The patient is not so well, and coughs more. Crepitation has increased, and is audible as low as the fifth rib on the left side. Since admission the temperature has risen to 100°, and the morning records have been subnormal.

The above seems to be a case of advancing tuberculization of one lung; and the interesting feature is that the spread of the crepitation downwards was preceded by a division of the bacilli noted on March 30th, and their being detected in greater abundance in the field on April 11th, when they were still found to vary considerably in length, as if there was a prospect of further multiplication and consequent spread of disease.

CASE 5.—Arthur B—, draper's clerk, aged

thirty, admitted on March 19th, 1883. For eight years he has been subject to winter cough, and for four years cough has been continuous, and during the last two years he has complained of shortness of breath, which increased so much at Christmas, 1882, and was accompanied by such debility that he had to give up work. Two years ago he had slight hæmoptysis, and night sweats have occasionally appeared. He has during this time lost more than a stone in weight. At present he complains principally of shortness of breath, especially on exertion, cough severe night and morning; expectoration yellow, but sometimes frothy. Physical signs: Slight dulness with crepitation from clavicle to the lower edge of fourth rib on the right side. Sonorous rhonchus audible at the base posteriorly.—30th: The sputum contains a few bacilli.—April 2nd: Breathing rather easier, but patient weak and languid. Cough less, expectoration scanty. Physical signs on right side the same as before, on left side some wheezing and rhonchus are audible.—9th: Cough and expectoration less. Sputum contains a fair number of bacilli, forty in the field. Some single ones, but many in faggot groups of two three, and four. The bacilli vary in appearance. Some are simple rods without beadings, and others again show the beading well.—16th: Breath still rather short; expectoration deeply stained with blood during the last few days. Fine crepitation is audible in the interscapular region on the left side.—17th. Forty bacilli in the field, still varying in size.—23rd: Fine crepitation is also audible at the right posterior base.—May 7th: Cough rather worse, expectoration same in quantity but tinged with blood. Temperature rises at night to 100°. Physical signs the same.—June 4th: Expectoration has diminished. Temperature high at night. Physical signs the same on the right side; on the left there is crepitation at the extreme base anteriorly, and in the scapular and interscapular regions posteriorly. No cavernous sounds can be detected anywhere. Examination of the sputum shows abundant bacilli, fifty in the field, and with well-marked beadings.

In the foregoing case the disease undoubtedly progressed, the physical signs indicating increase of tuberculization in the same lung, and also extension to the opposite one. No cavity was detected, but with a history of so long standing we cannot be sure of the absence of such. The main feature of the case was progressive tuberculization, and we may fairly connect with this the large number of bacilli, the increase between March 30th and April 9th, and the well-marked bundles which are so characteristic of active changes.

The above cases might be easily multiplied; but they will at any rate suffice to demonstrate that the bacilli are present in the sputum when only consolidation can be detected, and we may conclude that their number corresponds to the number of alveoli in which tubercular changes are proceeding. Moreover, where a small and quiescent cavity is known to exist in one lung and the physical signs indicate an extensive spread of tuberculization in the opposite lung, without any defined spots of coarse crepitation or gurgled to signify that fresh excavation is taking place—if under these circumstances we find an increase in the number of bacilli in the sputum, we are fully justified in attributing such increase to the fresh tuberculization, and not to the old quiescent cavity.

The relation of the bacilli to the process of excavation appears to be very intimate, and their numbers increase largely while the latter is proceeding. Even when there is apparently no cavity extension they are found in the sputum, and continue to be so as long as there is any discharge

from the cavity. Cases 6 and 7 are good instances of their relation to caseation and softening.

CASE 6.—William S—, aged twenty-six, laborer, was admitted February 2nd, 1883. No family predisposition. Has been subject to winter cough for some years. After a succession of wettings last Easter, cough with expectoration increased, and his breath became shorter. Six weeks ago there was slight hæmoptysis, and he has had night sweats for three months, and has been losing flesh since Easter, having wasted to the extent of two stone. At present cough troublesome, expectoration muco-purulent and aerated; breath short, night sweats severe. Tongue has an irritable look, appetite very poor; the patient suffers from dyspepsia. Pulse rapid, temperature 100.6°. Physical signs: Right side, crepitation to the third rib, with some tubular sounds. Left side, crepitation to the fourth rib; crepitation audible above both scapulae.—12th: Has had diarrhoea for two days; three motions a day; is sweating less. Temperature has ranged from 97° to 99° in the morning, and from 100° to 103° in the afternoon.—19th: Diarrhoea ceased; breath short on exertion; bacilli in sputum abundant. The evening temperature has ranged from 100° to 102°.—26th: Has complained of pain in the right side for the last few days, and friction is audible over the lower front. The pain has been relieved by strapping; cough very troublesome; bowels rather relaxed. Physical signs: Cavernous sounds audible on the left side over limited areas in the first, third, and fourth interspaces, where there is some flattening and retraction of the spaces on inspiration. The heart is apparently uncovered by lung. On the right side the crepitation remains the same. Bacilli scanty.—March 5th: Cough and expectoration less; appetite improving. Physical signs the same. Bacilli in sputum scanty. The temperature has fallen, ranging from 98° to 99.8°.—19th: Symptoms have become worse; temperature rises to about 101° every night. Cough worse; the patient is unable to lie long on one side. Physical signs: On the left side cavernous sounds more marked, with less crepitation. On the right side crepitation greatly diminished, with doubtful cavernous sounds under the clavicle.—April 2nd: Cough more troublesome, accompanied by retching; expectoration increased; night temperature ranges from 101° to 102°; night sweats troublesome; on the left side physical signs as above; on the right side crepitation has extended to the fifth rib; bacilli few and dividing.—9th: Cough about the same; expectoration muco-purulent, with patches of pigmentation; temperature at night 100° to 102°; bacilli abundant, sixty in the field, either single or in groups of three; they have well-marked beadings, and apparently are in a state of division.—16th: Symptoms about the same; on the right side crepitation is increased front and back; cavernous sounds are audible on the left side to the fourth rib. Evening temperature 101°.—May 8th: Patient worse; has wasted greatly; more crepitation is heard on the right side front and back; cavernous sounds detected in both lungs.

The increase of the bacilli seems in this case to have preceded the detection of the excavation by a considerable period, a week elapsing between the noting of "abundant bacilli" and the cavernous sounds being heard in the left lung. On the right side the physical signs came before the increase of the bacilli, but later on the lung excavation changes were accompanied by great activity of the bacilli. Their numbers increased, they showed well-marked beadings or spores, and arranged themselves in the little faggot bundles which generally indicate, or usher in, fresh tubercular outbreaks. The appearances of division men-

tioned in this case are when the bacilli show greatly varying lengths.

CASE 7.—Wm. B., a bricklayer, aged forty-six, was admitted on Feb. 5th, 1883. His mother and two brothers and sisters asthmatic. History: The patient has had cough for two winters, which has become persistent since last March, and is accompanied by expectoration. He has had shortness of breath for two or three years, which has lately increased. For twelve months he has lost flesh to the extent of a stone. He has never had hæmoptysis or night sweats. Cough troublesome; breath short on exertion; tongue slightly furred. Temperature and pulse normal. Expectoration frothy, with some yellow streaks, and contains abundant bacilli. Weight 8 st. 2½ lb. Physical signs: Chest hyper-resonant; wheezing and sonorous rhonchus audible over the whole lungs; slight dullness in the first intercostal space on the left side.—19th: Cough about the same; physical signs the same; bacilli in sputum still abundant.—26th: Cough more troublesome; expectoration abundant; some crepitation in the left side in the fourth interspace on coughing; wheezing and rhonchus audible everywhere; bacilli abundant and dividing.—March 5th: Has suffered much from cough and wheezing, but now the former is easier and the expectoration much less; bacilli few in number.—April 2nd: The breathing has improved during the last few days. The expectoration is very abundant, yellow, and comes up easily. Pulse 104; temperature 99° 2'; respiration 22. Bacilli very few in number. Physical signs: Less rhonchus over the entire lungs, and now chiefly confined to the left side. Doubtful cavernous sounds audible above the left clavicle on coughing.—9th: Cough less; breathing better; expectoration diminished; appetite good; distinct cavernous sounds above the left clavicle; bacilli few, four or five in the field, with an occasional group of three.

This case is interesting with reference to its diagnosis, as well as regards the progress of the cavity formation. There was a strong family history of asthma, and dyspnoea appears to have accompanied, if it did not precede, cough in the history. Had it not been for the wasting and slight dullness in the first interspace on the left side we would hardly have expected phthisis, especially in a man of forty-six, and while the abundant expectoration made us suspect excavation, the examination of it settled all doubt, though it was not till the wheezing and rhonchus had entirely cleared up, that we were able to hear the cavernous sounds. Possibly had we examined for lung-tissue this might have been made out earlier. The reduction in the number of bacilli when excavation had finished was as marked as in Case 6. The following case is an example of excavation taking place in phthisical consolidation following pleurisy, the bacilli being present during the period of lung destruction.

CASE 8.—Albert B., a laborer, admitted Jan. 19th, 1883, aged nineteen. No consumption in the family. He had pleurisy at fourteen, and has since had three attacks, the last being in March, 1880. Cough constant since the pleurisy, and worse in winter; it has been increasing lately. Expectoration has diminished, but is thick, greenish-yellow, sometimes frothy. He had hæmoptysis to the extent of twelve to fourteen ounces two years ago. Has had occasional night sweats, but none lately, and has lost flesh since 1880. At present he complains of pain in the right chest, palpitation, shortness of breath, and cough. Physical signs, dullness in the lower third of left chest anteriorly, and the upper half posteriorly. Crepitation on cough, audible in the first interspace. Weight

10 st., 7½ lb.—Feb. 5th: Expectoration has been slightly streaked these last three days; cough less; bacilli abundant in the sputum.—19th: Expectoration again streaked, but contained no bacilli.—March 12th: Gaining weight rapidly and improving; no bacilli in sputum.—20th: Improving; has gained 9 lb. in weight; cough slight; expectoration yellow. Physical signs: Left side, tubular sound below the clavicle, slight dullness in the first two interspaces, slight crepitation on cough in the second interspace; cavernous sounds heard posteriorly above the scapula; sputum contains bacilli.—11th: Has improved and gained nearly a stone during his stay in the hospital. Cough moderate; expectoration slight; breath short on exertion; bacilli scanty, about six in the field of the microscope.

The subjoined is a good instance of the relation of the bacilli to laryngeal phthisis with advancing tubercularization.

CASE 9.—Annie S., aged twenty-three, asylum attendant, admitted on March 16th, 1883. Her mother suffered from chest affection. Cough came on in March, 1882; it diminished in the summer, but increased again last October. At first there was no expectoration, but latterly it has amounted to half an ounce a day, and occasionally it has contained a few streaks of blood. She suffered from pain in the left chest and shortness of breath on exertion. She lost her voice twelve months ago, and has not regained it. During the last fortnight she has had diarrhoea. Has not lost much flesh. Evening temperature 99° to 100° F. The symptoms have continued up to the present time. Physical signs: Left chest—dullness, slight flattening, and rather coarse crepitation from the clavicle to the lower border of the third rib; dullness and crepitation over the upper fourth posteriorly. Weight 8 st. 1½ lb. Dr. Percy Kidd examined the larynx, and found an old ulcer with ragged edges on the posterior wall, with cords reddened, and showing incomplete adduction; he pronounced it to be a case of laryngeal phthisis.—March 30th: Cough more troublesome; expectoration slight. Complaints of pain in the left axilla. Bacilli very abundant in the sputum, and arranged in bundles.—April 26th: Cough still troublesome; expectoration decreased; larynx tender. The evening temperature has ranged from 99° to 101° F. Crepitation audible on coughing in the first interspace on the right side, and to the fifth interspace on the left side. The bacilli were few in number fourteen days ago; they have now become abundant, numbering thirty to forty in the field. Voice about the same.—May 1st: Has had diarrhoea during the last two days; four motions a day. The temperature rose last night to 103° F.—June 10th: The patient has been more or less feverish during the last five weeks, and often confined to bed. Cough less; voice the same. She has lost flesh steadily, and now only weighs 7 st. 6 lb., a loss of 9 lb. Pulse 112; evening temperature 101° F. Physical signs: Right side—slight dullness in the first interspace. Left side—dullness as before; crepitation greatly diminished, but still audible to the fifth rib, and posteriorly over the upper half. Dr. Kidd examined the larynx, and found it in much the same state as on admission. The ulceration had not extended, and the adduction of the vocal cords was still imperfect. The sputum contained from ten to fifteen bacilli in the field.

In this case the advance of the disease took place in the lungs, and not in the larynx, being ushered in by an increase in the number of bacilli. With the diminution of crepitation the number of bacilli in the sputum sank.

In cases of quiescent cavity we find bacilli

present in numbers corresponding chiefly to the amount of discharge, which, as a rule, is very small. When the cavity contracts this may be reduced still more, and in many instances of this kind they cease to appear in the sputum, not because they no longer exist in the lungs, but rather because the communication between the cavity and the bronchus being blocked by the increasing lung contraction, the bacilli cannot escape with the sputum, which under these circumstances is purely bronchial; at any rate this is the case with the sputum ejected from that lung. I had a good instance of this in the case mentioned in the statistics of bacilli. Many cases of contracting cavity, where there is considerable dislocation of the adjoining organs; and where the cavernous sounds are barely audible, nevertheless show bacilli in the sputum, because the bronchus leading to the cavity remains patent; but if these are few in number and there is strong evidence of fibrosis, their presence need not much modify the prognosis of the case; on the other hand, when a cavity opens into the pleura and pneumothorax results, the number of bacilli increases considerably, as I noted in a well-marked case of acute phthisis ending in pneumothorax under my care last winter.

We will now consider the relation of the tubercle bacilli to the general symptoms of phthisis. The perusal of the above cases will show that they do not materially affect the gain or loss of flesh. As regards pyrexia, the question is more difficult to determine, but it may be safely affirmed that they are present, and in fair abundance, in non-pyrexial phthisis. When pyrexia accompanies tubercularization and exudation they certainly increase largely, but this may depend on the local processes, and not on the general irritation.

In the case of a girl, aged seventeen, with a cavity at one apex and some tubercularization taking place at the other, the temperature ranged between 100° and 103·6° F. for fourteen days, and it was not until four specimens of the sputum had been tested that we succeeded in finding bacilli, and then only in small numbers. In another female patient, aged fourteen, with a cavity in each lung, where the temperature course occasionally ran high, bacilli were found in the sputum, but in small numbers. A third case, also one of double cavity with pyrexia, showed a temperature chart between 100° and 103·6° F. for sixteen days, yet bacilli were only detected in the sputum in small numbers. On the other hand, some cases in which the bacilli have been particularly abundant have shown no pyrexia, and the explanation appears to me to lie—first, in the fact that both tubercularization and excavation may take place without pyrexia; secondly, that the examination of the sputum only teaches us what is going on in the lungs, which doubtless in cases of active pulmonary changes means a good deal, but when the blood is poisoned and the system generally becomes infected, we must not expect the sputum alone to give explanations, which should be sought in other secretions. At present our testings of the blood have failed, but I have no doubt that this will not always be so.

Prognosis.—Much stress has been laid by writers on the value of the bacillus tuberculosis in prognosis, and the cases I have given demonstrate this strongly, the unfavorable elements being, first—the rapid increase of bacilli, and, second—their arranging themselves into groups, both of these phenomena indicating activity or extension of the disease.

Infection.—The detection of the organism special to phthisis in the breath and sputum of consumptive patients naturally would lead us to conclude

that it must be infectious, especially when it is remembered that owing to a large portion of the population being phthisical it is probable that in many of the houses and streets the air is impregnated with lung exhalations and dried sputum.² Still cases of infection are very rare. The evidence of this large hospital, now established thirty-seven years, has been published by me elsewhere,³ and shows that among its resident staff of medical officers, clinical assistants, matrons, nurses, and servants, the contraction of the disease by infection is practically unknown, for among some hundreds of residents only two instances of the disease having commenced during stay in the hospital can be cited, and in each of these there were special circumstances. The non-resident staff also appear exempt, except the dispensers, who have little or nothing to do with the patients, but who nevertheless, owing probably to bad ventilation of the old dispensary, have had some cases among them. There have been times when, owing to defects arising in the ventilation, the air of the hospital has become undoubtedly impure, and erysipelas and sore-throat have appeared in the wards; but although we have carefully watched for instances of infection among the non-consumptive cases under these circumstances, we have never found them. This, considering that the bacilli must accumulate at such periods, is worth noting. When, however, I am asked if phthisis is communicable I answer, Yes; I believe it can be communicated, though it rarely is, under certain conditions, which are as follows:—1. By constant inhalation of the breath of a patient suffering from acute tubercular disease, undiluted with the proper quantity of fresh air. To produce this result the sick and healthy must sleep in the same room, and probably occupy the same bed, facing each other; the ventilation must be very bad, and the healthy person must be weakened by anxiety and nursing. The commonest examples of this form of infection are mother and daughter, or two sisters sleeping together, and the healthy one sickening of consumption after nursing the other. Here, again, we generally have a certain amount of family predisposition to take into account, as in the case of mother and daughter; if the daughter's disease comes on after the mother's, we are apt to conclude at once that it is hereditary, and in the case of the mother's disease following the daughter's it is said that the predisposition to phthisis already existed in the mother, that she transmitted it to her daughter, and that it developed late in herself. I am inclined to think that we are assigning too much to heredity in some of these cases. Taking these intimate relations of life between the healthy and sick into consideration, we must not forget the many negatives, where under these very conditions phthisis is *not* contracted, and we must compare them with the few positives, where it is so contracted. 2. From husband to wife, or vice versa. This may occur (1) through coition, or (2) through inhalation of the breath. Dr. Hermann Weber's cases are the principal evidence of the first form, these being for the most part instances of wives being infected by husbands, infection only taking place after pregnancy, and the disease then assuming an acute form. Dr. Weber pointed out how much more liable the wife was to such infection than the husband, who was the

² An interesting confirmation of this is to be found in MM. Malassez and Vignal's experiments (Brit. Med. Jour., August 18th, 1883). The zoögleic masses which these authors describe, and apparently connect with the tubercle in which no bacillus is found, are probably the same as the blue micrococci of Heneage Gibbs, which have often been detected in phthisical sputum, accompanying the bacilli.

³ British Medical Journal, Sept. 30th, 1882.

subject of attack in only one of his cases. Here, again, we cannot help reflecting on the numerous opportunities of such contagion, and of the rarity of its occurrence. I have known a few instances of the first form of infection, and as regards the second (that between husband and wife) I have a good instance in a widow, in the Derby ward at present, where infection took place probably through the inhalation of breath, and not through pregnancy, as the patient recovered thoroughly from her confinement.

CASE 10.—Harriet P., aged twenty-six, a widow, formerly lady's-maid, admitted April 30th, 1883, with the following history. Father alive, aged sixty-three, healthy; mother aged fifty-four, healthy; paternal grandfather died at the age of eighty-two; maternal grandmother upwards of seventy years of age before death. Has three brothers and four sisters younger than herself, and all healthy. She was apprenticed to dress-making from the age of sixteen to nineteen, lady's-maid from nineteen to twenty-two, and when she married, in 1879, was in excellent health. Her husband was attacked with consumption soon after marriage, and died in August, 1881. About two years after her marriage she was confined, and recovered perfectly, the child (a girl) being somewhat sickly, with a slight cough. The patient nursed her husband throughout his illness of two years duration, living at the time in small contracted rooms very deficient in ventilation, the bedroom having no fireplace, and being only ventilated through the sitting-room, and being quite unfit for habitation. The husband's disease was of an acute character, with well-marked pyrexia, and in addition to large cavities forming in the lungs, causing profuse expectoration, there was tuberculous ulceration of the intestines, giving rise to obstinate diarrhoea. The patient had a slight cough at the time of her husband's death, which disappeared shortly after. Her chest was examined by me at this time and found free from disease. She remained in fair health for six months, when the cough returned with a small quantity of expectoration, which about last Christmas became yellowish, and increased in quantity till it reached two ounces daily. At that time night-sweats came on and she lost flesh (about 8 lb.) She has had no hæmoptysis. On March 22nd, 1883, she was examined by me, and I found on the left side dullness and coarse crepitation from the clavicle to the fourth rib and above the scapula, and crepitation in the first interspace on the right side. On April 16th I examined her again, and found the symptoms worse, and that the crepitation on the left side had extended over the upper half of the lung. On admission to the hospital, April 30th, her cough was slight and the expectoration nummular (half an ounce); breath short on exertion; night-sweats slight; bowels regular; appetite fair; catamenia too frequent. Pulse 100; evening temperature 100.4° F. Weight 7st. 4lb. Physical signs: Right side—dullness: crepitation from clavicle to third rib with click sounds above the clavicle; crepitation over the upper third posteriorly with tubular sound above the scapula. Left side—dullness from clavicle to third rib; cavernous sounds audible in the first two interspaces close to the sternum; posteriorly dullness over the upper half with loud cavernous sounds above the scapula. Since admission the temperature has been somewhat high. Bacilli have been abundantly detected in the sputum.

It is seldom that we come across a history so free from family predisposition to phthisis as this one, and the only drawback to accepting the case as one of infection is the period which elapsed between the death of the husband and the

development of the symptoms. These, however, came on so rapidly, both lungs appearing to be simultaneously attacked, that we must conclude the cause of the disease was something in the system, and not the result of cold. It is possible that the bacilli can lie dormant for a while, and multiply and become active after a time; or, on the other hand, they may, for a period, be present in such small numbers as not to give rise to processes which can be detected by physical signs.

A third form of infection is through eating tuberculous meat, or drinking of the milk of diseased women or animals. Several cases of this kind have occurred on the Continent, but they are, happily, little known here. The remarkable cases of bovine tuberculosis in man related by Dr. Creighton⁴ may also be due to this cause.

What measures should be taken to prevent the above forms of infection? 1st. Good ventilation of the rooms inhabited by the healthy and sick, and especially of the bedrooms. 2nd. The consumptive should sleep in a separate bed, if not in a separate room, from the healthy. Where a healthy person shares the same bedroom as a consumptive, the window should be kept open, or a Tobin tube introduced, to ensure abundant fresh air in addition to the ordinary chimney. Where, for unavoidable reasons, the healthy person occupies the same bed as a consumptive, care must be taken not to inhale the breath of the latter. 3rd. The sputum should be frequently removed and disinfected, or, as perhaps there are now doubts as to the efficacy of disinfectants, it had better be burnt. The sputum should be received into a covered cup or spittoon, which only allows of a very limited evaporating surface, and this should contain a strong disinfectant, such as terebene or chlorate of lime, and it should be emptied at least twice a day; and in this way danger of infection from this source may be prevented.

Treatment.—And now comes the question, How are we to combat these bacilli? Shall we apply medicaments directly to the pulmonary mucous membrane? or shall we depend on strengthening the constitutional powers to resist the attack, or shall we try both methods? The treatment of phthisis by vapors or inhalations is very old, and has never been very successful. The form most in fashion at present is that of an ori-nasal respirator, containing a few drops of carbolic acid, creasote, thymol, eucalyptol, with or without some sedative to prevent irritation, a common adjunct being spirits of chloroform. The shapes of the respirators vary greatly, from the simple perforated iron oval one of Dr. Roberts, to the more elaborate ori-nasal form of Cushman. They are worn for periods of from one hour to six or seven hours, taking them off occasionally when irksome to the patient. During the last three years I have made trial of every form which seemed to offer any advantage, using in them a great variety of medicaments. I have specially noted their influence on cases where tubercularization was commencing. Sometimes, though rarely, the cough has somewhat lessened, and the patients have felt soothed by their use; but I have never found them to have the slightest effect in diminishing the local disease, or in permanently reducing the cough. I have noted the extension of crepitation from one apex downwards, or its replacement by the signs of excavation, in spite of continued use of this form of treatment, and though I have often perceived a diminution of the crepitation in early cases, I have never been able to connect it with the use of these respirators.

The contrast between the effects of these and

⁴ Bovine Tuberculosis in Man, 1881.

the results of counter-irritation applied to the chest wall overlying the diseased lung is very striking. The cough, which weeks of inhalations have not relieved, is often at once reduced by the production of a good blister on the skin, and the expectoration, which was difficult, is quickly rendered easy by some forms of saline expectorant, especially if combined with a little antimony or ipecacuanha. Another objection to these respirators is that they seriously impede the freedom of respiration, partly by limiting the movements of the jaws, and partly by the obstruction to the exit and entrance of air, which is caused by the wire gauze. They thus more or less muzzle the patient, and prevent that entire of freedom of respiration which is so essential in phthisis. Some experiments made by Dr. Hassall on the validity of various antiseptics when used in respirators, and published in *THE LANCET*, go to show that creasote, carbolic acid, and thymol are scarcely capable of volatilization at the temperature generally used in these appliances, and that the amount inhaled when the respirators are used for one or two hours daily is so small as to be practically useless. Iodine, on the other hand, was easily volatilized; but, on reaching the mucous membrane of the mouth, appears to be converted into an iodide by combination with the saliva, and it is doubtful how much of the pure iodine reaches the respiratory surface, though some probable may. When carbolic acid and iodine are inhaled together, according to Dr. Hassall, a strong chemical action is set up between them, whereby probably the antiseptic properties of both are impaired.

Those practitioners who firmly believe in the antiseptic, or rather germicide, virtues of carbolic acid in phthisis, will do well to consider the statement of Mr. Watson Cheyne, reported in the *Practitioner*, April, 1883, p. 285, Experiment xiv., No. 3, "One part of the fluid containing bacilli was mixed with one part of a 5 per cent. watery solution of carbolic acid; this stood fifteen minutes, and was then injected into the left eye of a rabbit." After forty-three days the animal was killed and found to have tubercular iritis of both eyes, and with a considerable number of minute tubercles in both lungs, one or two of which showed commencing caseation. The liver and spleen also contained tubercle. Microscopic examination showed abundant bacilli in all these organs. Here the influence of the carbolic acid was brought to bear on the bacilli in a far stronger and more intimate way than is practicable for application to the human body, except we are prepared to follow Dr. Fränkel's example and inject it and other antiseptics, directly into the lungs through the chest wall, and the results of this mode of treatment as practiced by him are not very encouraging. In Mr. Cheyne's experiment the carbolic acid seems to have exercised no influence whatever on the bacilli, which continued to prove their vitality by largely multiplying in the inoculated animal, and this shows the great importance of first studying the conditions of life of these low organisms outside of the human body, and then of testing the effects of various antiseptic drugs on them. In this way we may discover substances fatal to the bacillus, and then proceed to devise methods of applying them, so as to reach and attack the enemy in his strongholds of the human body. But this knowledge can only be attained by long and careful investigation and the work of many patient observers.

Another mode of antiseptic treatment is by hot-water or steam inhalations of various kinds, some form of inhaler being used, and the different drugs kept at a temperature suitable to promote their vaporization. In this way we, at any rate, do

get the drug inhaled to a certain extent. The best form of this treatment seems to be jets of steam spray charged by means of capillary tubes with necessary medicaments, such as may be seen in use in the inhalation rooms of the new hospital at Brompton. The patients receive a good deal of the drug into their bronchial tubes and lungs in a short time, owing to the force of the steam current; but the objection lies in the damp and hot atmosphere which it causes and the inexpediency of subjecting the patient for any length of time to such strong measures.

The third method is by diffusing through the air of a chamber medicated vapors. In this way consumptive cases can be kept under the influence of special drugs for long periods. In this method we only imitate some varieties of climate, such as those of the sea coast, of pine woods, and of sulphur springs, or in the neighborhood of volcanoes. Two rooms are set apart for this purpose in the new hospital, and at the present time two of my wards, containing three beds each, are kept specially impregnated with the vapor of iodine and chlorine respectively, and suitable cases are selected for this mode of treatment. Observations are being made, and I purpose trying the effect of various drugs in this way.

In the treatment of consumption no stone must be left unturned where we can see any reasonable prospect from treatment, local or general; and we must not forget that though various kinds of local treatment, including inhalations, have been tried from time immemorial, it is to the general treatment in the form of tonics, cod-liver oil, and hygienic and climatic measures that we owe the prolongation of life and the majority of cases of arrest of the disease, now happily so numerous. These trusty aids must never be omitted; but we may often combine with them antiseptics in the form of arsenic, quinine, etc., which, by entering the pulmonary circulation, may, as has been often proved to be the case, act more effectually on the local disease than when applied direct to the pulmonary mucous membrane. By such constitutional measures we may do much, and, even if the enemy gain a foothold in the fortress, we may, by strengthening the garrison, cause him to be expelled and the breach repaired. The arrest of phthisis has undoubtedly been produced in many cases by the influence of certain climates, and specially by that of the high altitude resorts. We must remember that though the aseptic character of the air of these last is urged as their chief advantage, the bacillus tuberculosis is found in the sputum of phthisical patients at Davos, as in London, showing that the air of these regions is not absolutely fatal to bacillar life.

Clinical Lecture

ON

MEDIASTINAL TUMOURS.

Delivered in the Western Infirmary, Glasgow,

By DR. McCALL ANDERSON,

Professor of Clinical Medicine in the University of Glasgow.

GENTLEMEN—The patient whom I am about to introduce to your notice presented a variety of symptoms of a somewhat unusual character, and his case is one to which attention may naturally be directed in connection with my last lecture on intra-thoracic aneurism, for the disease under which he labored is not unfrequently mistaken for it. He is a blacksmith, aged fifty-one, and was

admitted on Feb. 9th, 1883, complaining of breathlessness and of swelling of the upper extremities. His family history is obscure, but he seems to have had two sisters, both of whom are dead, one of them having died after childbirth; while his father and mother reached the age of sixty-two. About twelve years ago, after exposure to inclement weather, he complained of a burning pain in the right infra-clavicular region, which does not appear to have been very severe, nor aggravated by respiration, and was unaccompanied by other symptoms; it was treated by means of the application of iodine to the chest wall, and disappeared in about a week. With this exception, he enjoyed good health until the beginning of the winter 1881-82, when he caught cold and was much troubled with cough and expectoration. These symptoms never entirely left him, although he was in great measure free from them during the greater part of last summer. He remained fairly well until about four months before admission, when, after an unusually hard day's work, he got a chill and suffered from shivers. He seems to have been feverish during that night, and the next day his cough became very troublesome, and continued so afterwards. From the onset of this last attack shortness of breath was increasingly complained of, until at last he was unable to lie down in bed. Two months before admission his hands and arms became swollen, but no other part of his body; and latterly he rapidly lost flesh, strength, and color.

Let me now recall the results of our examination of this patient on February 16th. He was extremely emaciated, very weak, and anæmic; but he had no trouble with his digestive organs, and his temperature was normal. The urine was very scanty—three to twelve ounces in the twenty-four hours—high colored; specific gravity 1033, and loaded with lithates; but it contained neither tubercasts nor albumen. His cough was troublesome; there were abundant frothy mucous expectoration and orthopnoea, but the pulse respiration ratio was not materially perverted. At the base of the right lung there was some fulness, marked dullness on percussion, feeble distant breath sounds, and diminution of the vocal fremitus and resonance. These symptoms led to the conclusion that there was considerable effusion of fluid in the right pleural cavity, an opinion which was strengthened by the circumstance that the liver was pushed downwards, and that it did not rise and fall with the respiration. But over and above these physical signs there were others which at once aroused our attention: (a) As in many cases of intra-thoracic aneurism the right radial pulse was weaker than the left; whereas in a state of health if there is any difference in the pulses at all the right is rather the stronger of the two, thus showing that there was some obstruction to the free passage of blood to the right upper extremity. (b) There was marked distension of the veins of the head, neck, arms, chest, and abdomen, indicating that there was some impediment to the free return of venous blood to the right side of the heart. (c) As a consequence of this there was œdema of the arms and hands, which was especially marked upon the right side, but there was no trace of it elsewhere.

Further, on examining the front of the chest, we observed flattening in the supra and infra-clavicular regions, so that the clavicle seemed to project considerably, while there was a distinct prominence of the lower portion of the manubrium sterni, although the patient could not say whether this had occurred recently, or was a congenital malformation. Over the whole of this area, and extending about two inches to the left of the middle line, there was very great dullness on percus-

sion—even more intense than over the pleuritic effusion at the base; the vesicular murmur was quite inaudible, but here and there distant tubular breathing was heard. These physical signs, coupled with the three symptoms previously mentioned, led to the suspicion that there was a tumour in the anterior mediastinum, which had encroached upon the right lung, and which was interfering with the free passage of blood to the right upper extremity, and with the return of venous blood to the right side of the heart.

As regards the nature of the tumour, we came to the conclusion that in all probability it was malignant—(1) because this is the most frequent form of mediastinal tumour; (2) because of the age and sex of the patient, such disease being most frequent in males and in persons who have passed middle life; (3) on account of the rapid development of the symptoms; (4) because of the signs of pleuritic effusion, malignant tumours being very apt to excite inflammation within the chest; and (5) because of the great loss of flesh and strength, and the cachectic appearance of the patient.

A good many cases similar to this one have from time to time come under my notice, two or three of which by way of comparison may be mentioned.

On November 11th, 1874, there was admitted an iron moulder, forty-four years of age, who enjoyed good health until twelve months before admission, when a slight cough set in, accompanied in a few weeks by expectoration, which gradually increased in amount, and six months afterwards having caught a severe cold, the cough became violent and the sputa streaked with blood, and after that time he frequently brought up small quantities of blood. About three months prior to admission he began to experience giddiness, oppression, and a sense of suffocation on making violent muscular exertion, especially on stooping, lifting heavy weights, etc., but these symptoms passed off on assuming the erect posture, or after resting awhile. About the same time slight puffiness of the neck was observed, and three weeks before admission, all his symptoms being aggravated, he was obliged to give up work. He never complained of headache, but on stooping or coughing his sight became dim, everything appearing as if in a mist. During his whole illness he occasionally felt a dull aching pain, sometimes of a burning character, shooting through from the right breast to the scapula, which was aggravated by hard work; and latterly on carrying his hand backwards towards his shoulder a pain seized him in front of the upper arm below the shoulder, and prevented him from completing the act. His general health seems to have been above the average, although he took stimulants pretty freely. On examining this patient's chest we observed that at the upper part of the right side anteriorly the movements of respiration were restricted, and that there was marked dullness upon percussion, which was not limited to the area of the lung, but extended across the sternum a little to the left of that bone. Over the whole of the dull space the vesicular murmur was absent, although at the apex tubular breathing and increased voice sound were present. These physical signs, coupled with the following four symptoms, led to the conclusion that there was a tumour in the anterior mediastinum. (1) The pulse at the right wrist was much more feeble than at the left. (2) There was marked dilatation of the superficial veins of the arms, head, neck, and top of the chest, especially on the right side. (3) In addition to the varicosity of the veins there was distinct œdematous swelling of the neck. (4) The breath sounds over the

base of the right lung were very much feebler than on the opposite side.

Some years ago there was admitted under my care in the Royal Infirmary a ship carpenter, aged thirty-two, who gave the following account of himself:—In the month of February, while at sea, he was a good deal exposed, sometimes having his clothes wet for a whole week. About this time he began to cough a little, and the cough never left him, although he improved a good deal under treatment during the summer months. In April shortness of breath set in, with general pain over the front of the chest, shooting through to between the shoulders. At this time, too, the veins of the right side of the neck and chest became distended, and the face gradually assumed a swollen and dusky appearance. During the spring he fainted three times at intervals of some weeks, on each occasion after drinking a cupful of cold water. All the above symptoms had been on the increase for three months preceding his admission. He was unable to lie upon his back, but breathed pretty freely sitting up, or upon either side, especially the left.

On examining his chest we found in the first place that there were the usual physical signs of moderate catarrh of the bronchial tubes, the cough being accompanied with some mucopurulent expectoration, but there were a great many very striking symptoms besides. For we found, on listening to the breathing on the two sides, that it was decidedly louder and more marked upon the right side than upon the left. On inspecting the front of his chest, too, the movements of respiration, particularly at the upper part, were found to be defective. There was marked dullness and increased resistance upon percussion over the whole of the sternum, more marked above, and not only over the sternum, but to a considerable extent on each side of it, especially to the left, in which direction it extended at least two inches. We noticed, likewise, that the upper part of the sternum was somewhat prominent. On placing the hand upon the chest over the dull area, and making the patient speak, the vocal fremitus was observed to be almost entirely absent, and on applying the stethoscope the respiratory sounds could hardly be heard. Then we endeavored to find out the situation of the apex beat, but failed to discover any at all. On applying the stethoscope, however, over the præcordial region, the sounds of the heart were clear and pure. They were most distinct over this region, which led to the supposition that there was no very great dislocation of the heart. On feeling the pulses at the wrists it was noted that the left was weaker than the right. But the most remarkable symptom having reference to the organs or circulation was the enlargement of the superficial veins of the face, neck, chest, and abdomen, particularly of the front of the chest and abdomen, and which was more marked upon the right side than upon the left. The most distressing symptom in this case was dyspnoea. The patient could breathe best when he was sitting up in bed, and pretty freely when lying upon either side, especially upon the left, but it was quite impossible for him for any length of time to lie upon his back with his head low, the dyspnoea became so urgent. Another feature was hoarseness, which had been observed for about three months; and there was this peculiarity about it—that if we made him turn his head to the right shoulder his voice was comparatively clear, but if towards the left, then the hoarseness became decided, and if we made him lie upon his back with his head low his voice became extremely husky. A laryngoscopic examination showed that there was congestion, but no paralysis of the vocal

cords. These symptoms and physical signs pointed to the conclusion that there was a tumour in the anterior mediastinum.

A short time since I saw a somewhat similar case in consultation with Dr. Wm. Pearson. This patient, a female, aged forty-nine, began to complain of pain to the right of the middle of the sternum, which, about nine months prior to my visit, extended up to the right shoulder. This was followed by a hard irritative cough, which was soon accompanied by slight frothy and occasionally tough mucous expectoration. To these symptoms were added distension of the superficial veins of the right side of the neck and face and right arm, and oedema, which was aggravated by exertion. At the time of my seeing her, the cough and expectoration and pain of chest continued, and she had dyspnoea to such an extent that she could not lie down with comfort. The breathing over the whole chest was harsh, but air entered both lungs with equal freedom. There was distinct prominence, associated with dullness on percussion, of the upper part of the sternum, and at the right supra-scapular region the percussion was less clear than at the left. The voice was hoarse, but the pulses were equal on the two sides, and the pupils were unaffected.

But, to return to the case with which we commenced, we felt very powerless as to even palliative treatment. We hoped, however, that by removing the fluid from the pleural cavity there might be some mitigation of the dyspnoea. This was accordingly done on February 16th, twenty-six ounces of inflammatory serous fluid being withdrawn with the aid of Southey's trocar. This, however, was not followed by any diminution of the dyspnoea, showing that it was dependent upon the pressure of the tumour, and little if at all upon the pleuritic effusion. Death put an end to the sufferings of the patient two days afterwards, and on February 20th a post-mortem examination was made by Dr. Joseph Coats, pathologist to the infirmary, with the following result.

The lower limbs show considerable emaciation. There is marked oedema of both upper limbs, especially in the right hand and forearm. Chest: The heart is of normal size. The mediastinum is occupied by a bulky tumour which extends considerably more to the right than to the left side; taking rough measurements it may be said that the tumour in its thickest part extends four inches from before backwards, and five inches from side to side. The main mass of the tumour is in the fork formed by the bifurcation of the trachea, and more behind than in front; but the mass which involves the great veins is somewhat separated from the main mass and is almost equal in size. On opening the pericardium it is seen that all round at the place of issue of the great vessels, the pericardium is involved in the tumour, whose whitish-gray tissue has replaced it, and projected into the sac in lobulated masses. There is no considerable extension to the heart itself, but at the auricles the tumour tissue approaches very near to, and on the left side does involve slightly, the wall of the auricle. On the other hand, the superior vena cava on the one side, and pulmonary veins on the other, have their walls infiltrated and their calibre somewhat encroached on by the tumour tissue. The contraction from encroachment of the tumour is considerably greater in the case of the superior cava and right pulmonary than in the left pulmonary vein. On tracing up the superior cava its wall from the orifice to its division is completely occupied by tumour tissue, and its continuation upwards into the right innominate and internal jugular is similarly involved. The left innominate and right internal jugular are entirely

occluded by thrombi. The right subclavian vein cannot be traced to its junction with the innominate, its wall being apparently converted into tumour tissue and its calibre filled up. Beyond this the vein is occupied, but only for a short distance, by a thrombus. The left branch of the pulmonary artery is not involved in the tumour mass, but the right branch passes through a considerable thickness of it, and its calibre is obviously narrowed; but it is not determined whether its wall is actually involved or not. The aorta is not affected by the tumour. The left phrenic nerve in passing down in front of the root of the lung is impinged on by a projecting piece of the tumour and partly involved in its tissue. The extreme lower part of the trachea and both main bronchi have their walls partly replaced by the tumour tissue, which presents itself internally in the form of rounded whitish nodules. The right main bronchus is much more involved than the left, and for a certain distance its wall is undistinguishable from the main tumour; the tumour also extends a short distance into the lung, along the bronchus and its primary branches. On examining the arteries, it is found that the right subclavian carotid and innominate lie for the most part behind the mass of the tumour. The subclavian is nearer, and would be more pressed on but it is not embedded in the mass. A microscopic examination showed that the tumour was a lymphosarcoma.

Original Papers.

ON A CASE OF EXPLORATION OF THE KIDNEY.

By THOMAS F. CHAVASSE,

Surgeon to the Birmingham General Hospital.

At the present time, when the surgical treatment of kidney affections is attracting much consideration, the case under notice is interesting with reference to the questions of both diagnosis and treatment.

John T—, aged forty-nine, commission agent, admitted into the General Hospital May 15th, 1882. For a number of years patient has consumed a large amount of alcohol; latterly has much diminished the daily allowance. Six years ago he was suddenly seized with pain in the back (the precise position not defined), lasting for some hours. This was followed by a discharge of blood mixed with the urine. He was then told by his medical attendant that he was suffering from a stone in the kidney. Another attack of hæmaturia took place two or three months afterwards, and a recurrence of this symptom has been noted, at varying intervals, down to the present date. The longest period that it was altogether absent has been four months. Of late the frequency of hæmaturia has much increased. On and off the man has been a patient at the hospital for three years and a half. His first visit was to my outpatient room for complete retention of urine and great bladder distension. This, it was found, was caused by the presence of large blood-clots. An examination of the bladder with the sound and bimanually revealed nothing abnormal. In and around the loin no abnormality could be detected. The patient declined to become an inmate of the hospital. From time to time up to admission I saw him, and he was also under the care of my

colleague, Dr. Saundby, and various private practitioners. Large doses of perchloride of iron and ergot seemed to control the hæmorrhage better than any other remedies. The patient was taught how to pass a catheter himself, and could generally relieve the bladder when retention of urine occurred. On admission there was marked anæmia, and it was stated that within the last three months the patient had lost flesh rapidly. The body was, however, fairly well nourished. Pain was complained of in the right lumbar region, passing down the course of the ureter. There was marked dullness in this region, and anteriorly a feeling of resistance on palpation was met with. It was said that "matter" was often seen in the water.

Examination of urine: 40 oz. passed daily, sp. gr. 1023; a cloud of albumen, pus and blood-corpuscles, together with crystals of oxalate of lime.—May 17th: A severe attack of hæmaturia occurred, during which it was necessary to resort to catheterism several times daily.—24th: The pelvis of the right kidney was explored, through an oblique lumbar incision four inches long. An aspirating needle passed into the renal pelvis at several points failed to detect any calculus. Smart hæmorrhage followed these punctures. An antiseptic sponge was inserted into the wound, and left in contact with the kidney until evening, when it was removed, and the edges of the incision united. The patient complained of pain in the regions of the stomach and the bladder; the latter viscus was distended, and on the introduction of a catheter 16 oz. of very bloody fluid were withdrawn.—25th: Morning temperature, 99°; evening, 99·4°. Morning pulse, 102; evening, 112. Antiseptic dressings soaked with bloody serum. Complaints of great thirst and of pain shooting down in the direction of the ureter to the testis of the right side. Urine voided without a catheter.—27th: Urine still bloody; reaction alkaline, sp. gr. 1020, albumen 1·20; blood-corpuscles and crystals of the triple phosphates; marked cystitis. Bladder washed out with weak carbolic lotion. The quantity of urine passed daily for the first week after the operation was 34, 43, 40, 45, 38, 36, and 34 ounces.—June 2nd: Antiseptics discontinued, as the wound is rapidly granulating; by the 5th the more acute bladder symptoms had subsided.—30th: Has had no hæmaturia for three weeks, and is free from pain. The patient went home.—July 15th: Readmitted to hospital owing to another attack of hæmaturia. Urine faintly acid; contains a little albumen, blood, pus, and epithelial cells. Evening temperature 103°. The hæmorrhage continued until July 24th. In the meantime œdema of both feet and ankles had appeared.—31st: Feeling much better, patient at his own request went home. Subsequently he was removed into the country, where he remained for some weeks, and the hæmaturia nearly ceased.

In November I found he had returned to his own home, and was obliged to keep his bed. There was marked œdema of both feet. A large immovable mass could be detected in the region of the right kidney, and the liver was much increased in size. On the upper part of the right thigh, internal to the femoral vein, there was a pigmented sarcomatous-looking growth the size of a hazel nut. In January of this year a semi-fluctuating mass was found over the left external malleolus; this being incised to a slight extent, revealed a mass of granulation tissue (sarcoma?). The growth in the thigh was enlarging, as were also the intra-abdominal masses. Hæmaturia was no longer complained of; no pain existed; took fluid nourishment only. On February 4th the patient died exhausted.

Twenty-four hours after death, with great difficulty, I obtained permission to make a partial examination of the abdomen. On opening the cavity from the front, a very much thickened diaphragm of peritoneum excluded the right kidney from the peritoneal cavity proper. The kidney itself was three times its normal size, adherent in front to the peritoneal reflexion, and posteriorly to the muscles of the back. No distinct supra-renal capsule could be seen. Externally there was a very thin layer of apparently healthy looking cortical substance; internally the organ was a large mass of caseating material. No calculus was to be found. The opposite kidney appeared somewhat enlarged, but otherwise normal. The bladder was empty, and slightly hypertrophied. The liver was much enlarged, and contained many carcinomatous deposits. By cutting through the diaphragm similar deposits were detected in the right lung. The tumour of the thigh was the size of a walnut, but I was not permitted to remove any for microscopic examination. A portion of the renal substance taken from the inside of the organ showed under the microscope nothing definite, merely débris and fatty matter.

The first point worthy of attention is that nearly seven years elapsed from the first occurrence of hæmaturia until death. Could the bleeding have arisen from any cause unconnected with the neoplasm? Post-mortem examination of the bladder and the opposite kidney failed to detect any other condition that could have excited it. The patient himself, an intelligent man, was always looking out for a small calculus, or gravel, to pass per urethram, and, according to his own statement, nothing of the kind ever happened; so I think it is probable that the commencing carcinoma was the cause of the hæmorrhage. It is an acknowledged fact that renal cancer in adults may extend over a long period, but it is rare for the fatal issue to be postponed for three or four years, although Ebstein speaks of a case in which this condition was demonstrated to have lasted eighteen years. In the present instance, during the last three months of life, the amount of blood passed per urethram was hardly noticeable; this may be explained by the increased growth of the neoplasm causing occlusion of the opening into the ureter. With regard to the operation, the exposed pelvis of the kidney was sufficiently explored by a needle to show that no calculus existed, but the subsequent course of the case would lead me to suggest the advisability in similar operations of making an incision into the pelvis itself, and thus ensuring that the examination be more thorough. From other cases met with I do not think such a procedure would materially affect the after-bleeding from the wound. In this instance hæmorrhage was severe, although the kidney was gently dealt with. It is possible that the malignant nature of the disease might account for this.

If the exploration had revealed the precise nature of the case it seems to me to be justifiable to have made an effort to remove the affected organ. Through the lumbar incision made it certainly would not have been possible to take away the kidney *en masse*, neither would it have been an easy matter to have secured the pedicle. By opening the abdomen from the front, the thickened layer of peritoneum found after death, which covered, and was adherent to, the anterior surface of the kidney, would have rendered removal from the front also scarcely possible. A transverse lumbar incision meeting the oblique cut at its upper part would have been most advantageous. In all probability the peritoneal cavity would have been opened, but extraction could have been completed. In a successful case of nephrectomy per-

formed by Mr. Lawson Tait, by means of a transverse incision, the patient rapidly recovered, although the peritoneum was thus opened; in this instance a previously performed laparotomy had failed to effect enucleation of the viscus. Although a correct diagnosis in the present case was only surmised until the lumbar tumour solved all doubts, yet in obscure cases of hæmaturia we have every reason to hope that a thorough examination of the kidney and pelvis, by means of incisions, will aid us in discovering at an early date the precise nature of the renal condition which has to be dealt with. Whether such an exploration will hasten or retard the growth of a malignant neoplasm is a question to be decided by future experience.

Birmingham.

AN ACCOUNT OF THE GENERAL HOSPITAL, INDIAN DIVISION, EGYPTIAN EXPEDITION- ARY FORCE, AT SUEZ,

FROM AUG. 25TH TO OCT. 13TH, 1882.

By Brigade-Surgeon J. H. THORNTON, I.M.D.,

Late in Medical Charge of the General Hospital, Indian Division, Egyptian Expeditionary Force at Suez.

As public interest has been so much aroused by the recent inquiry into the state of the hospitals at Ismailia and Cairo during the late Egyptian campaign, a short account of the General Hospital of the Indian Division at Suez may not be out of place, especially as this hospital has hitherto remained almost entirely unnoticed. It was at first established in the buildings of the Victoria Hospital at Suez, but on Aug 27th, 1882, it was removed to the P. and O. steamer *Hydaspes*, in Suez docks. The number of sick transferred to the *Hydaspes* was as follows:—

Sick of British troops (2nd Batt. Seaforth Highlanders)	10
Sick of Native troops	16
Sick of Native followers	3
Total	29

The *Hydaspes* had brought over cavalry, and was entirely unprepared to receive sick, as the horse-fittings had not been removed from her main deck. By the kindness of Captain Hext, R. N., Superintendent of Naval Transport at Suez, I obtained the services of some carpenters, who at once proceeded to remove the horse-fittings and to fit out the main deck with beds, etc., in accordance with my directions. The sick were kept on deck as much as possible while this work was going on. The *Hydaspes* is a steamer of 2,984 tons, 375 feet in length and 38 feet broad; she has a flush deck fore and aft, with plenty of space, and a main deck provided with numerous large ports admitting free ventilation. A considerable part of the main deck is occupied by the engine-room and boilers, but there is a large space in front and on each side. This space was used for the hospital, and 100 wooden beds were constructed in it of such height as to place the occupants almost on a level with the ports, so as to get the utmost advantage from the breeze blowing through them. Fifteen of these beds, on the port side of the ship, were entirely separated from the rest, and were devoted to the use of the sick European soldiers and their attendants, while the remaining beds, eighty-five in number, were given to the native sick. The orlop decks, fore and aft, were also placed at my disposal, but were only used for stores, as they were unsuited for hospital pur-

poses, having no ventilation except through the hatchways. A small dispensary was constructed on the main deck close to the fore hatchway, and an operation table was made. This was surrounded by canvas curtains so as to form a room for operations, examination of patients, and such like purposes. When not in use the curtains were rolled up so as not to interfere with ventilation. The situation of the ship was very convenient; she was moored close to the sea wall on the south side of the Suez docks, and presented her broadside to the prevailing wind, which blew through her large ports, ventilating the main deck so thoroughly that even at night, when every bed was occupied, I found on visiting the hospital that the air was sweet and not the slightest odor perceptible. As she was close to the shore and provided with suitable gangways, I ordered all cooking to be done on land, and I had latrines dug at a short distance, instead of allowing the ship's latrines to be used. By these means, and by the liberal use of disinfectants in the hospital, the sanitary condition of the ship remained perfectly good from first to last. Condensed water was supplied to the sick from the ship's condensers; the supply was ample and of good quality. The rations supplied by the commissariat department for the use of the sick were of good quality throughout, and I had no occasion to find fault with anything. Although the heat in the daytime was considerable, the thermometer on deck frequently indicating a temperature of 100°, the nights were cool and pleasant, and the climate appeared to be very healthy. The sick rapidly improved, especially those sent down from the front, and hardly any cases took an unfavorable course. It was at one time proposed to bring up the *Hydaspes* to Ismailia; but, taking into consideration the superiority of the climate and sanitary conditions at the Suez docks and the convenient situation of the ship, I recommended that she should be allowed to remain where she was, and that the sick should be sent down to her. This plan was ultimately adopted. In a short time the available space in the *Hydaspes* was all occupied, and the sick subsequently received were accommodated in tents, which were pitched on the shore at a short distance from the ship. Early in October orders were received for the removal of the hospital from the *Hydaspes*, as the ship was required for the transport of cavalry returning to India. Additional tents were accordingly obtained, and the hospital was removed from the *Hydaspes* to the tents, where it remained until all the sick were disposed of by transfer to their respective corps as they arrived at Suez on their way back to India. The sick native followers, ninety-four in number, were placed on board the transport *Avoca*, under my charge, for conveyance to Bombay. They nearly all recovered during the voyage; only one of them died at sea; and the few remaining sick on arrival at Bombay were sent to the hospitals of that city. The total number of patients treated on board the hospital ship *Hydaspes* from Aug. 27th to Oct. 11th was as follows:—

Officers.....	3
Sick of British troops (2nd Batt. Seaforth Highlanders).....	10
Sick of Native troops.....	130
Sick of Native followers.....	180
Total.....	323

The principal diseases among the fighting men were ague, dysentery, and venereal affections. Very few of the cases were severe, and none proved fatal. Some cases of conjunctivitis occurred, but none of them were of a severe type. There were four cases

of gunshot wounds, of which only one (a gunshot wound of the right forearm, missing the bones) could be considered severe. There was also one case of sword wound of the chest, in which only trifling injury had been inflicted. A few cases of bronchitis, pneumonia, and pleurisy were received, mostly slight, and requiring no particular notice. One of the officers suffered from typhoid fever, probably contracted on board the transport in which he came from Bombay to Egypt; his case was serious, but it ran a favorable course, and he was discharged to rejoin his corps on Oct. 10th.

The principal diseases occurring among the native followers were ague, dysentery, ophthalmia, ulcers, and venereal disorders, and they suffered from these affections much more severely than the fighting men. Many of the followers appeared to be weak and sickly men, who should not have been allowed to accompany the expedition at all, and most of them seemed to have contracted a slight scorbutic taint from the combined effects of hard work and insufficient and monotonous diet. Lime-juice of course was freely used in these cases, but fresh meat seemed to be of greater value, not only as nourishment but as an antiscorbutic. Some of the cases of dysentery among the followers proved very intractable and resisted all treatment; nearly all of them were saved by careful nursing and plenty of nourishment, but one proved fatal. This was the only fatal case that occurred in the General Hospital from August 25th to October 13th, the period during which I was in charge. The solution of nitrate of silver (ten grains to one ounce) proved effectual in most cases of ophthalmia when taken in time, but in one unfortunate instance vision had been destroyed before the patient applied for treatment. Most of these cases seem to have occurred through the agency of dirt and flies, the men generally neglecting to wash their eyes and to prevent the flies from settling upon them. Two cases of Guinea-worm occurred, but they presented no features of interest. I watched for cases of hæmaturia from the presence of the bilharzia, but met with none.

In conclusion, I may mention that Rear-Admiral Sir William Hewett, K.C.B., V.O., commanding at Suez, frequently visited the General Hospital in the *Hydaspes*, and approved of all the arrangements.

Monghyr, Bengal.

LIVER ABSCESS PRECEDED BY ACUTE, AND ACCOMPANIED BY CHRONIC, DYSENTERY; CURE.

By J. H. BRANNIGAN, L.R.C.P., L.R.C.S. Edin.

THE following is a short report of a case that came under my notice in April of last year, which from the serious nature of the complaint and the simplicity in the method of its treatment I think worthy of record.

Early in the month above mentioned I was summoned by the American mission to see a certain Giorgis, native of Luxor, on the Nile, Upper Egypt. He was en route for Cairo accompanied by his aged father, there to seek advice and treatment at the hands of some European surgeon. Hearing from the Rev. Dr. Hogg, chief of the American mission in Egypt, that there was an English surgeon at hand, the father and patient begged that I might at once be called in.

Appearance of patient on visit.—The patient, aged eighteen, was tall and greatly emaciated, wore an extremely anxious expression, face mottled, conjunctivæ slightly if at all jaundiced, voice feeble—in short, much debilitated.

History of case.—Six months ago he had an attack of dysentery; this finally became chronic. In the early part of January, 1882, the patient began to complain of pain in the region of the liver, associated with fever, sometimes absent, but always returning, especially in the evening, accompanied by perspiration. He sought advice, and was frequently blistered over the seat of pain. Later on, inability to retain food, which was shortly vomited after taking it. Difficulty in breathing was also noticed; breathing was labored, "thick" as he called it. Prostration went on, and stools to the number of three or four per diem were passed. The temperature was now taken (102° F.); pulse 90. On inspection the abdominal region showed distinct swelling at the epigastrium, and slightly to the left of the middle line. Palpation could not detect fluctuation, but made out an annular hardness on the surface of the tumour, with a depressed centre, easily felt through the abdominal walls.

Diagnosis.—Taking into consideration the history of the case—viz., attack of dysentery some months previously, and now in existence as chronic; presence of a tumour; remittent nature of the fever—I concluded it was one of liver abscess situated in the left lobe.

Exploratory examination.—A fine exploratory trocar and cannula (made by Collin et Cie., Rue de l'Ecole de Médecine, Paris) was inserted at the most prominent seat of the tumour, where I was of opinion adhesions had set up with the abdominal parietes. On withdrawal of the trocar I waited anxiously a few minutes, and was pleased to see a thick creamy chocolate-colored pus appear.

The patient and his father seeing my statements verified by the exploratory examination, no longer mistrusted, but implored me to open the abscess at once. I promised to do so next morning. The question was (a) aspiration, or (b) free incision. The first was not possible, as there was no aspirator. The second, free incision at the seat, where I was confident adhesions had formed, seemed to specially commend itself, aided by the Lister spray. Having no spray apparatus, I adopted a method that would minimize the danger of septicæmia—i.e., insertion of a moderately large-sized trocar and cannula. The night preceding the operation the patient was very feeble after walking to my house from the American mission; felt sick, and complained of the old pain in the hypogastrium. Temperature 104° F.; face flushed, and large beads of perspiration over the forehead. I gave the patient some milk, beaten up with an egg and an ounce of whisky. Sent him to bed in my own house, his future hospital. 8 A.M.: The patient passed a restless night; temperature 102° F. The dressings having been prepared—viz., cotton-wool, saturated in 1 in 20 carbolic acid lotion, and some folds of Lister's antiseptic gauze, with oiled silk—I carefully sponged the abdominal surface with 1 in 20 carbolic lotion, selected the point of annular hardness, raised up the skin, and made an incision, in order to render penetration of trocar and cannula painless. I then took out of a solution of 1 in 20 carbolic acid lotion the trocar and cannula, drove them well into the tumour, and withdrew the trocar. Immediately more than two pints of healthy pus, mixed with liver débris, came away. No more pus coming, the parts were carefully sponged with 1 in 20 solution of carbolic acid, tied in cannula, and placed a piece of oiled silk round it at the orifice of the wound, to obviate any absorption of pus; carbolized cotton-wool was placed round to prevent any filtering of pus at the edges of the dressing; over the whole the Lister gauze was placed, and kept *in situ* by a large towel passed round the body and fixed at the side by

three safety pins. The patient expressed himself much relieved, and shortly after took some milk beaten up with egg and whisky. 8 P.M.: Dressing removed; a few ounces of pus had oozed out of cannula. I applied a fresh dressing after cleaning the parts carefully in 1 in 20 carbolic acid lotion. Temperature 103° F.; sweating on forehead slight; no pain, no sickness; had had milk and some chicken broth. The usual dressing was continued twice daily, the pus still continuing healthy. The cannula remained in twelve days without causing any irritation save a slight blush at the point of insertion. Attention was paid to the diet, and stimulants in the shape of claret were given. The discharge had now almost ceased; the swelling disappeared, and one morning the cannula was found two-thirds out and no discharge visible. I removed the cannula, replacing it by a drainage-tube previously dipped in 1 in 20 carbolic acid solution. Examination of the cannula showed the part that was in the abscess to be discolored by the bile acids. Temperature never varied from 99° A.M. to 101° P.M.; pulse 75 to 80. The appetite was good, and food in the shape of milk, eggs, and chicken broth was partaken of with relish. The breathing became free, and the sickness ceased from the day the abscess had been evacuated. Third week: The dressing tube was now difficult to introduce, and no discharge visible; still I could detect a slight return of swelling, there was a rise of fever, and an outbreak of perspiration over the forehead. I reintroduced the trocar and cannula, previously dipped in a 1 in 20 carbolic lotion, withdrew the trocar, and about three ounces of pus, mixed with liver débris, came away. This was the last discharge in any quantity. The case went on rapidly well, and in twenty-three days the patient left cured, restored in flesh and strength—a different person to what he was when first seen.

About this time I saw in THE LANCET some reports on the use of nitrate of silver in enema in a case of chronic dysentery. At the end of the second week I gave an enema of twenty grains of nitrate of silver to three pints of tepid water, without any effect. Then an enema later on of forty grains to three pints of water. Stools were less. Finally I gave sixty grains of nitrate of silver to three pints of water, and although the fluid was retained about four minutes it caused no pain. After this stools, three, two, and one, of more solid consistence, were passed, and before the patient left he had not more than one stool daily, and that healthy in appearance. All through the pus was free from smell and quite healthy.

CASE OF DIABETES; DEATH THIRTY HOURS AFTER FIRST VISIT.

By ED. GEO. WHITTLE, M.D. Lond., Etc.

SHARING in the general sympathy which the harsh censure of Dr. Blades has evoked from the profession, I am induced to send you the following report.

On Monday, June 25th, I was called to see a man whom I found lying helpless in bed, with his feet hanging over the side and uncovered, as though he had failed in an attempt to get back. He looked about thirty-five years of age, muscular, spare, but not emaciated; his hands and feet were cold and cyanosed; his breathing was laborious, rapid, and deep; he could answer questions, but so slowly and with such evident effort, that I put no more than were needed to ascertain that he had his mental faculties. The pupils were equal; there was no paralysis, but when the eyelid was raised, it fell back sluggishly. Chest walls were

highly resonant, and the respiration was everywhere loud, harsh, and bronchial, expiration being almost as loud and long as inspiration. Heart healthy. Mucous membrane of lips and eyelids red. Tongue dry and brown. Throat dusky red, with vesicular eruption on soft palate. Pulse 140; temperature 97.8°. Urine (none saved) reported to be healthy in appearance; micturition normal. There was neither oedema nor anæmia. The case was clearly one of diabetic dyspnoea, running rapidly to a fatal issue. He soon became unconscious, passed his urine in bed, and died on the evening of the next day. I certified without having examined the urine.

The following is the history as obtained from his wife. Had always been healthy and temperate. A year ago he was treated for an attack of diarrhoea, but had had no medical advice since, nor had he missed a day's work (shoemaking). On June 19th, a week before death, he had sore-throat. On the 21st his wife wished to send for a doctor, but he said there was no need, as his throat was getting better. For some few weeks he had occasionally complained of fatigue, which he attributed to the hot weather. His sight was slightly impaired. This, he thought, was due to sitting too closely at work. He worked as usual on the 23rd (Saturday), but in the evening felt tired and drowsy. The next morning he felt as well as usual, but his wife induced him to remain in bed for the sake of rest. He had no symptoms causing anxiety to himself, and it was only on account of his throat that his wife wished him to have medical advice. On the 25th he arose at 6 A.M., and his wife observed that his breathing was short while dressing. About 1.30 P.M. I saw him in the condition above described.

Remarks.—Having the advantage of the knowledge derived from a study of Dr. Blades' case and a paper read by my friend, Dr. E. Mackey, in which the diagnosis between hysteric, uræmic, and diabetic dyspnoea was ably pointed out, I was saved all trouble in diagnosis. To remove all doubt, however, I drew off some urine after death. It contained albumen and sugar in abundance. I am not ashamed to confess that had this man consulted me on the Friday evening before his death he might possibly have left me with his glycosuria undetected. Very few men in general practice examine the urine at a first consultation as a matter of routine; but unless this rule be observed, anyone may overlook an obscure renal affection, accepting the suggestion of the patient that his malaise is due to overwork, confinement, heat of the weather, etc. Are we to be held almost criminally responsible in such cases when the inevitable and natural sequence occurs without its having been prematurely announced? Are we who have the most complex and inconstant phenomena of disease to interpret never to be forgiven an oversight? We cannot avoid them. He who asserts that he cannot err must have had but little experience in the practice of medicine, and I should be sorry to trust myself to his infallibility. Are not most cases of glycosuria, as of albuminuria, already chronic when they first come under notice? Is it not often impossible to assert when they began? The above case will be classed by many as "acute diabetes"; but if I assert that the man may have had glycosuria for many years, who is to prove the contrary?

Brighton.

—The Brazilian Government has awarded a gratuity of £3,500 to Dr. John Baptist Lacerda for his discovery of the antidotal virtues of permanganate of potash in relation to snake-poisoning.

THREE CASES OF CHRONIC OSTEITIS OF THE LOWER ENDS OF TIBIA AND FIBULA.

By R. W. GREENISH, F.R.C.S.,

Late House-Surgeon, Ashton-Under-Lyne Infirmary.

THE somewhat unusual occurrence of three patients with chronic osteitis of the same bones in a hospital together, and some points connected with the treatment, have induced me to place these cases upon record; and I have to thank Messrs. A. Hamilton and W. H. Hughes, surgeons to the institution, under whose care the patients occurred, for permission to do so.

CASE 1.—E. N., aged seventeen, cotton weaver, was admitted into the Ashton Infirmary, under the care of Mr. W. H. Hughes, on Sept. 1st, 1880. She stated that six years before admission she injured the right ankle by falling with the leg doubled under her; the ankle felt weak for a fortnight or so, but became quite strong again till three years ago, when it began to feel tired, and since then has been steadily getting worse. The ankle has been larger than the other for two years, and for twelve months has been so bad that she has been unable to put the foot to the ground. Nothing of importance in previous or family history. Patient was thin, otherwise healthy. On the right leg there was a marked enlargement of the lower two inches of the tibia, which was fully half as large again as that of the left side; it was hot to the touch and extremely tender; the soft parts in the neighborhood were somewhat swollen, and below the tip of the inner malleolus there was a fluctuating swelling. The lower end of the fibula was also much enlarged, and extremely tender. The pain was of a dull aching character, and much worse at night. For the first five weeks the patient was kept in bed and an evaporating lotion applied; from half a grain to a grain of opium was required every night to obtain sleep. On Oct. 24th an incision was made over each malleolus down to the bone. On the 26th the patient was free from pain.—Nov. 11th: Pain had gradually reappeared, and is now as severe as previous to operation.—Dec. 22nd: This morning the lower ends of both tibia and fibula were trephined, an ordinary cranial trephine being used; on the tibia a hole three-quarters of an inch deep was made, the bone being so soft as only to be removed in pieces; on the fibula a cylinder of bone an inch in depth was taken away; the bone appeared rather more dense than normal cancellous tissue. No cavity was reached. Dressed with carbolic oil.—Dec. 26th: No pain.—Jan. 1st, 1881: Pain returning. On Jan. 7th pain was as bad as before the operation, and on Feb. 17th it was noted that the pain was not constant, being some nights quite absent.—April 4th: Pain very severe every night. The fibula is still tender, but the tibia only on very firm pressure.—24th: An incision was made this morning over the fibula, and several holes were made with an Archimedean drill.—May 7th: The pain not so severe as previous to the last operation, and is still tender over the fibula and between the bones in front.—June 24th: The patient was discharged, her condition being about the same as described in the last note, requiring morphia nearly every night. From the present house-surgeon, Mr. Payne, I now hear that the patient was readmitted in September, and had the fibula gouged, after which she was almost well, having only slight pain in the tibia. The measurements of the ankle were interesting. On Nov. 6th, 1880, the right measured 10 in. in circumference, as against 8 in. for the left; on Feb. 17th, 1881, the right measured 9½ in.; April 4th, 9 in.; showing a

decrease of 1 in. On admission some trials were made with Sequin's thermometer to ascertain the hottest part of the affected ankle, with the result that over the fibula 6° were registered, against $4\frac{1}{2}^{\circ}$ over the inner malleolus and $3\frac{1}{2}^{\circ}$ in front of the ankle.

CASE 2.—E. B.—, aged twenty-one years, weaver, was admitted on March 20th, 1881, under the care of Mr. Hughes. Eight years ago she sprained her left ankle and was laid up one year with it. She got better, but still had pain in it after a long journey. Two years ago the pain began to get worse, which she attributed to having to stand longer hours at her work. Had worked up to the time of admission, but often only two or three hours a day. Patient was to all appearance in perfect health. The lower two inches of tibia and fibula of the left foot were enlarged, the tibia being quite half as large again as on the right side. Measurement gave one inch increase, and Sequin's thermometer showed $\frac{3}{4}^{\circ}$ greater heat. The pain was so severe as to require morphia every night. As rest in bed and counter-irritation produced no improvement after a month's trial, it was decided to trephine both tibia and fibula, as in the previous case. After the operation the patient was quite free from pain, and when last seen, seven weeks later, there had been no return.

CASE 3.—H. W.—, aged sixteen, piercer in a cotton-mill. Ankle has been bad seven weeks, but the pain did not commence till a fortnight later. Can give no cause for it. The pain is severe, but only at night. The patient is fairly healthy looking, but has enlarged submaxillary glands. The lower three inches of tibia of left side are enlarged to nearly double, and somewhat tender to pressure; fibula is also enlarged, but not to the same extent. Sequin's thermometer showed 1° to $1\frac{1}{2}^{\circ}$ more warmth for the affected ankle. On March 29th, 1881, an incision was made antiseptically along inner malleolus down to the bone. After the operation the patient still complained of pain, though it was not so bad.—April 26th: Measurements showed a circumference two inches in excess of the right. On April 30th an abscess appeared over the lower end of the fibula, which was subsequently opened and healed without any trouble. On June 8th there was a diminution of half an inch in the size of the ankles; no pain. By June 27th he was able to walk without any pain. The subsequent history, however, showed that the relief was only temporary. In November both bones were trephined, after which he was again free from pain.

Cases in which an abscess or abnormal cavity has been found, on trephining a bone for chronic disease, are not uncommon. Thus out of 34 cases that I have been able to collect¹ in which this operation had been performed, one of these two conditions was found in no less than 30 of the number, while in four only could no trace of either pus or cavity be seen; of the 30, pus was found in 22, and a simple cavity in 8. It is, of course, impossible in the cases I have reported to assert positively the absence of a minute abscess, as this might very well have been overlooked; still it must have been very small, as nothing of the kind was noticed during the operation, and no subsequent discharge of pus took place. An interesting point in these cases seems to be the complete, though temporary, nature of the relief obtained from simply incising the periosteum; this is, I think, to be attributed to the transudation, which takes place through the bone, between the medullary cavity and the exterior; this would relieve the tension inside, but would cease as soon as the

surface became covered with granulations. Whether any operation short of trephining would have given sufficient relief is doubtful, and to judge from the first case it is probable that linear osteotomy, as recommended by Mr. Erichsen, would have been only of temporary service.

One point in which these cases differ from those that I have seen reported is the fact that both bones were affected, and to a nearly equal degree, so as to require an operation on both. In only one were there any constitutional symptoms that might be held to account for it; in both the others could the disease be traced to an injury. Bearing on this is a fact which I have noticed in compound wounds of the ankle—viz., that in all the cases I have seen, four in number, where the injury was limited to one side of the joint, there has occurred an abscess on the opposite side of the joint, and which in three healed without any trouble. In the third case, given above, a simple incision over the tibia was followed by an abscess over the fibula. These cases are too few to allow of any conclusions being drawn; still I think they point to some sort of relation existing between the two epiphyses, possibly through the blood or lymphatic channels, so that disturbances in the one may be transmitted to the other, similar perhaps to the periostitis which is so often seen as a result of osteo-mylitis.

London, N.W.

REMARKS ON A CASE OF SO-CALLED HYSTERIA.

By J. B. FOOTNER, F.R.C.S. Eng.

ABOUT eight months ago, a well-nourished though somewhat anæmic young woman, unmarried, aged twenty-five, came to me for advice. She said that she had recently lost the use of her right thumb, and that her right arm was weaker than the left. She could not account in any way for this. About a year previously she had had sores on the right wrist, which, she said, took a very long time to heal. Apart from this her general health was fair, with the exception of some slight dyspeptic derangements. On examining the right arm, it was not found to be wasted as compared with the left; the muscles of the ball of the thumb were, however, distinctly so, probably from disuse. I treated her by the application of the interrupted current to the muscles of the arm and thumb, and gave her arsenic internally. The arm and thumb soon began to improve under this treatment.

About a month after her first visit she informed me that some sores similar to those which she had had a year ago had broken out on the back of her right hand and wrist. These sores presented a peculiar appearance, quite unlike any normal pathological process. They were about three-quarters of an inch in length and one-quarter of an inch in breadth, longitudinally oval. They resembled very much the appearance produced by a blister with the cuticle entirely removed, and no sign of it left, but only a bare raw surface bathed in serum. There were next to no traces of inflammation. The sores were four in number, each of similar size, shape, and appearance, and in the long axis of the limb. I ordered the application of zinc ointment.

She returned after a few days. The sores were no better, and had evidently been irritated. Having no doubt of this latter fact, it seemed to me the best plan would be to cover the sores with strapping extending continuously from below the situation of the sores to above them, as one straps

¹ Reported by Gosselin, Duplay, Porter, Trélat, and Morris.

an ulcer of the leg. This was done, and as she could not get at the sores they quickly healed. The strapping was continued for a fortnight afterwards. The ulcers were very soon reproduced, and also another of exactly similar appearance longitudinally over the insertion of the right deltoid. Strapping was again applied, and continued for four weeks, in the hope that by this time the patient would have forgotten about the sores. After this, for a week or two no ulcerations appeared; but soon she came again, with similar productions round the mouth just bordering on the lips. It was manifestly impossible to apply strapping here, so lunar caustic was freely rubbed over the raw surfaces, hoping that the pain would act as a deterrent, and it did. She continued free from sores after this. Her right arm and thumb are now as strong as the left.

Quite recently she has reappeared with sores on the same wrist as before, for which I am adopting the same treatment. Had this been a hospital case I should probably have been able to discover how the sores are produced; but as she has a father a chronic invalid and a mother just recovering from hysterical paraplegia and aphonia (a bad nervous family history, be it remarked), it was useless to expect any assistance from them, and quite possibly they would not have believed that their daughter was the originator of the sores. I think the best course was to endeavor to outwit the patient.

A very interesting case at the North-West London Hospital of a somewhat similar character is reported by Dr. T. Colcott Fox in *THE LANCET*, a short time since. In this case the girl confessed she had produced the sores partly with her nails, but mostly by continual rubbing with the tops of her fingers. It seems probable that the cause in my case is similar. Her right arm being weak, it can be readily imagined that she would use her left arm to produce these phenomena. She is not naturally left-handed.

Tunbridge Wells.

SCARLET FEVER IN ITS RELATION TO THE PUERPERAL STATE.

By J. T. BURGESS, L.R.C.P., L.R.C.S. Edin.

THE two following cases are interesting, and, I trust, worthy of record as illustrating a connection between the scarlet and puerperal fevers. They at the same time throw some light upon the questions relating to the period of incubation and to the vitality of the contagious principle of the former disease. Lastly, they painfully demonstrate the fearful responsibility that devolves upon the medical practitioner towards his lying-in patients during the time he is in attendance upon scarlatinal cases.

On Nov. 20th, 1882, Mrs. A—, aged twenty-two, residing temporarily in an isolated cottage in a sparsely populated district, was delivered of a first child. The labour was tedious, and eventually was terminated with forceps, the child being stillborn. The mother, however, progressed satisfactorily until Saturday, Nov. 25th, when she became somewhat feverish, and complained of sickness and diarrhoea. The next day (26th) the throat was sore, temperature 102° , and a slight rash was noticed on the upper parts of the body. This, during the next few days, became of a bright uniform scarlet, ran the usual course of a scarlatinal eruption, and was followed by free desquamation. Thus far no other complication had arisen, but on Wednesday (29th) a change for the worse occurred: the temperature, which had become

almost normal, rose to 103° , the body became tympanitic, lochia slightly offensive, and intellect clouded. A hospital nurse was at once sent for, and the next day a consultation was held with a neighboring practitioner. Symptoms of exhaustion, however, such as muttering delirium, picking at bedclothes, dry brown tongue, etc., set in, and the tympanites increased. Patient sank on Sunday morning, Dec. 3rd, thirteen days after delivery, the temperature, as taken by the nurse shortly before death, having reached 106° . The origin of the poison in this case was at first difficult to discover. There had been no recent case of scarlet fever in the neighborhood, and I failed to trace any exposure to infection on the part of patient, nurse, or medical attendant. The following is the only solution of the problem, which, after most careful inquiry, presents itself. The patient, upon marriage, was compelled to make temporary use of a cottage which had been empty for some time, and was condemned to be pulled down. The occupants of this cottage, who left it twelve months previously, had all suffered from scarlet fever, and the house had never been disinfected. The bedroom in which my patient was confined had to undergo a certain amount of preparation immediately before the event came off, and amongst other things, in order that the fire-place might be available, a quantity of old sacking was removed from the chimney. To this disturbance I am inclined to attribute the setting free of scarlatinal poison.

Whilst in attendance upon the above, I was called upon, Dec. 1st, to attend M. G—. This patient resided seven miles distant from the previous case. There had been no scarlet fever in her village, nor, as far as could be ascertained, could she have had communication with anyone suffering from that disease. M. G— was twenty-two years old, unmarried, and was prematurely delivered in the early morning of Dec. 2nd of a small weakly child which died during the day. About 11 A.M. the patient had a slight convulsive seizure, to which no importance was attached, as the girl had frequently shown symptoms of hystero-epilepsy during the two previous years. On Monday Dec. 4th, however, a severe rigor took place in the afternoon, followed by a feverish state at night. A dose of castor oil was administered, after which a troublesome diarrhoea persisted for about a week. On the 5th the throat became sore, and the feverish state continued. On the 6th I was called up at midnight, and found the patient delirious and more feverish, the throat much inflamed, but no appearance of rash. On Saturday evening (8th) the patient was decidedly worse. Irregular patches of dull red eruption were visible on various parts of the body, delirium had increased, the abdomen was greatly distended, and exhaustive symptoms were becoming prominent. During the next week there was very little change, except that desquamation manifested itself and went on freely. The urine, though at first scanty, was passed in fair quantity, but was slightly albuminous. The diarrhoea ceased, and it became necessary to administer aperients. All this time the body remained much distended and painful in the hypogastric region. On the 16th the patient complained of pain in left side of thorax, which was easier on the 17th, but worse on the 18th, when the respiration was 38, pulse 158, and temperature 103° . There was some dullness at the left base and a slight rubbing sound above, probably pleuritic. The next two days saw symptoms somewhat better, but on the 21st there was a decided change for the worse. Pneumonia and the greatly distended abdomen were together telling upon the respiratory function, respiration being

48, pulse 174, and temperature 104° 6". The skin was pale, lips livid, and face anxious-looking, though the delirium had passed away. After again rallying on the 22nd, the patient sank from exhaustion on the 25th. On the 17th, a younger sister in the same household, who had been in close attendance upon the patient, became feverish. On the 18th rash appeared, accompanied with slight sore-throat, and during the next few days she passed through a mild attack of scarlatina.

That the foundation disease in both these puerperal cases was scarlet fever can scarcely admit of doubt. The clinical history of the first case was well nigh typical, and any shade of hesitation about the second was dispersed by the appearance of the disease in the younger sister. Had this second case stood alone, the real nature of the foundation disease might possibly have been overlooked, owing to the irregularity of the eruption both as regards time and appearance, notwithstanding the presence of sore-throat and subsequent desquamation. The more important complications appeared to take the form of serous inflammations, and to be exaggerations of the after-consequences rather than of the primary symptoms of the disease. If we accept the theory that the first case received its contagion from the cottage itself and on the day of confinement (Nov. 20th), we find a period of five days to have elapsed before the first manifestations of symptoms. In the second case, supposing the medical attendant to have conveyed the infection at the time of parturition, the period of incubation was only three days. In the young girl's case it is difficult to state any definite period of incubation, since it is impossible to fix the exact date upon which she received infection. In the absence of other explanation the first case tends to prove that the vitality of the scarlatinal germ may, under favorable circumstances, continue for at least twelve months, a period much beyond its usually allotted span. It is needless to add that, as soon as the suspicion of the nature of the second case dawned upon me, I at once gave up attending puerperal cases and continued to do so till a month after the death of the patient. During that time I thoroughly fumigated all clothing, instruments, etc., and submitted myself frequently to disinfectant baths. I am thankful to say that, on renewal of midwifery practice, no further calamity has occurred.

Spillsby, Lincolnshire.

MALARIOUS CHOLERA.

By HENRY BLANC, M.D., M.R.C.P. Lond.,

Surgeon-Major, Her Majesty's Indian Army.

PERNICIOUS malarious fevers have not received in this country the attention they deserved, and by most English authors they are either entirely overlooked or the possibility of their existence merely mentioned. In the official Nomenclature of Diseases, the "*fièvre pernicieuse*" of the French is made synonymous with *febres pestiferæ singularum regionum*, and the explanation given in the column of definitions shows that these fevers are not clearly understood. Pernicious fevers are there said to belong to the class of remittent fevers, but this is not the case, and the difference between a malignant remittent fever and pernicious fever is very considerable. Pernicious malarious fevers are essentially of the intermittent type, leaving during the intermission some stray symptoms of the pernicious attack, sufficient in most cases to greatly obscure the diagnosis. We know that the ordinary intermittent fever may prove dangerous in

many ways: to the young by convulsive attacks, to the old and weak by exhaustion, to some by rupture of the spleen, to others by the excessive elevation of temperature and consequent paralysis of the heart. In all such cases we have not to deal with a pernicious fever, but with an ordinary intermittent, in which the action of one of the stages is excessive or the individual is unable to resist the violence of the morbid action. The true pernicious fever personifies (if I be allowed to use that expression) some other disease—apoplexy, tetanus, meningitis, pneumonia, cholera, etc. The special symptoms show themselves either at the first or second paroxysm or, more rarely, at a later date, increasing in intensity and danger with each returning paroxysm; so much so that if the presence of the pernicious fever be not diagnosed at once, it is seldom that the patient recovers from the second attack; never, as far I am aware, from the third. Pernicious fevers are more frequently seen in some localities than in others; but in large epidemics of malarious fevers, irrespective of locality, some cases are generally met with, and doubtless many deaths returned as due to pneumonia, meningitis, cholera, etc., would have been entered under the name of intermittent fever were this exceptional type of fever more generally known and its protean forms even suspected when dealing with sudden and violent sickness in a malarious locality. Malarious fever prevailed to a greater extent at the Yerrowda Central Gaol during 1875 than at any previous time since 1866, the date when the locality was first inhabited. From April, 1875, to March, 1876, the period during which I have been in charge of this gaol, no less than 1,653 cases of intermittent fever, 93 of remittent fever, and 10 of pernicious fever, were admitted into the gaol hospital. The ten cases of pernicious fever consist of 1 apoplectic, 1 tetanic, 2 congestive, and 6 choleraic. The first four mentioned have been already well described by Continental authors, hence I will limit myself to those affecting the choleraic form, as such cases have not been, as far as I am aware, previously recorded, and also on account of their special interest to Indian medical officers, this form of malarious poisoning being so much like cholera.

I endeavored to ascertain if any case of pernicious fever had occurred in previous years at Yerrowda, but the inquiry was surrounded by great difficulties; however, I found that in November, 1874, a fatal case of cholera had occurred. It is during November and December, the drying-up season, that malarious fever prevails here to a considerable extent, and it was during that season, in 1875, that most of the cases of pernicious fever were observed. On reading over the notes of that case of cholera (?) I was struck with its analogy to the cases of malarious cholera, and my assistant, Mr. Daniel Benjamin, a very able and experienced man, and who had attended the fatal case of cholera observed in November, 1874, states that it was entirely like the malarious cholera we were then observing. Evidently the able medical officer, at the time in medical charge of the gaol, had been puzzled by the appearance of this stray case of cholera, and unable to find a better explanation he attributed its occurrence to the patient "lying on the cold stone floor," a cause of cholera as yet scarcely accepted. Vomiting at the outset of an attack of intermittent fever is a phenomenon commonly seen; purging, although less frequently met with, is occasionally witnessed, and some degree of collapse is sometimes observed during the cold stage when this period is intense and prolonged; but these accidental symptoms are seldom combined, and they are pathologically as different from a case of pernicious malarious fever of

the choleraic type as an ordinary attack of vomiting and purging is from true cholera itself. In this country, where cholera lurks everywhere and knows no season, it is of great importance that the existence of a disease, the outward manifestations of which are so similar, should not be ignored. Treatment in the two diseases is very different, and non-interference, which now-a-days is almost the best course to adopt in true cholera, would be followed by very fatal results in malarious cholera; moreover, a more extended knowledge of this disease will doubtless explain many of the strange cases of cholera, whose appearance seems unaccountable, and apparently contradict the influence of human intercourse and the rôle played by choleraic discharges on the development and spread of Asiatic cholera.

CASE 1.—Sawlai Ramma, a Hindoo, under a seven years' sentence, of which half had been spent at Yerrowda, about thirty-five years of age, of a weakly constitution, was admitted into the gaol hospital on November 30th, 1875. The patient says that at 1 p.m. on the previous day he had an attack of intermittent fever, but it was not very severe, hence he did not apply to be admitted into the hospital. Since about noon to-day he feels very ill, and during the last half hour he has been purged four times. The motions are watery, contain some mucus, and are slightly tinged with blood. He vomited several times, first some food, and afterwards some watery matter; the skin is moderately warm; pulse weak, small, infrequent; tongue dry and coated; and he complains of slight abdominal pain. 5 p.m.: He has been purged five times and has vomited twice since last report; the discharges are watery and copious; the stools contain a little mucus. He complains of great thirst, of a burning sensation in the epigastrium, of severe cramps in the lower extremities and in the abdomen. The countenance is anxious and pinched, the voice husky, the skin cool; temperature in axilla 97.4°; the pulse filiform, 84; respiration hurried, 36; the extremities and the tip of the tongue are quite cold and the urine suppressed. 7 p.m.: He is apparently sinking; pulse hardly perceptible; tongue cold and clammy; features shrunken; great restlessness; but no vomiting or purging since the last report. 9 p.m.: Reaction setting in; pulse felt at the wrist; tongue somewhat moist and still cold at the tip; temperature in axilla 98°; urine suppressed. 10 p.m.: Good reaction; pulse weak, no cramps; no purging or vomiting; temperature 98.4°. He spent a good night, and towards morning passed a few ounces of high-colored urine, free from albumen. There was no return of the paroxysm. The following mixture during the attack was prescribed; half a drachm of chlorodyne in an ounce of camphor water, repeated every second hour; also frictions, hot-water bottles to extremities, sinapisms, turpentine stupes, spoonful of arrowroot and brandy. Twenty grains of the hydrate of chloral were given when the reaction had fairly set in. An hypodermic injection of five grains of sulphate of quinine was made early the following morning, and repeated at 9 a.m. Quinine was continued for several days, some also being administered by the mouth.

CASE 2.—Ajoo Kesra, under sentence for life in the Yerrowda gaol two years ago, aged about forty-five, general health good; was frequently in hospital on account of intermittent fever. On August 8th, 1875, he was admitted into hospital. 4 p.m.: The paroxysm of fever began at 10 a.m., with rigor; the last stage set in early, from which he was still suffering when, at 4 p.m., he was suddenly seized with vomiting and purging; the dejecta were abundant and watery, at first tinged with

bile, afterwards slightly with blood; tongue dry; complains of thirst and headache. Temperature in axilla 101°; pulse frequent.—9th, 8 a.m.: Vomiting and purging very frequent during the night; the discharges are watery, occasionally tinged with bile or blood; pulse small, weak; features shrunken; skin shrivelled; urine suppressed; temperature in axilla 98°. 5 p.m.: Passed a pretty good day; towards 4 p.m. vomiting and purging returned; pulse very weak; extremities cold; no cramps; passed some urine towards noon. Temperature in axilla 100°; pulse frequent, 112.—10th, 8 a.m.: Purged six times and vomited twice during the night; evacuations quite watery, not tinged with bile or blood. Since the morning he seems much improved. Pulse 80, regular; temperature in axilla 98°; passed some high-colored urine this morning. The patient quickly improved from this date; there was no return of the choleraic symptoms or of fever, the reaction was quiet, and he seemed to pass at once from severe illness to convalescence. On Aug. 18th he was discharged well. The treatment was the same as in Case 1. The second day, beyond the hypodermic injection of quinine, ten grains of the salt were given by the mouth. The quinine was continued for several days after perfect recovery.

CASE 3.—Goabye, a Chinaman, under a fifteen years' sentence in Yerrowda since ten years, a tall man of a weakly constitution, was admitted into hospital for intermittent fever on November 20th, 1875; he had suffered from two attacks previous to admission. The paroxysm sets in daily at 10 a.m. with rigor, and subsides at 4 p.m. with slight perspiration.—22nd, noon: He is suddenly seized with vomiting and purging; within an hour he passed three copious watery motions tinged with bile; he vomited four times during the same interval, the vomited matter being watery and abundant, at first tinged with bile, afterwards quite clear. He complains of a painful feeling of sinking at the epigastrium and of severe cramps in the lower extremities; eyes sunken; countenance anxious; features shrunken; great thirst; skin cool and moist. Temperature 98.1°; pulse weak, 98; respiration somewhat hurried, 30. 2 p.m.: Has passed two watery motions in bed; no vomiting; skin cold and clammy; tongue cold at the tip; pulse hardly perceptible; cramps in the legs very severe; eyes deep set; features shrunken; skin shrivelled; urine suppressed; voice husky. Temperature in axilla 97.2°; breathing hurried, 40. 4 p.m.: Slight reaction is setting in; skin moderately warm; countenance anxious; pulse felt at the wrist but weak and slow; tongue dry; no purging; cramps less severe; complains of great thirst; urine suppressed. 5 p.m.: Improving; passed some dark-colored urine. Temperature 98.2°. 8 p.m.: Beyond considerable weakness feels well. Temperature in axilla 98.4°; pulse 82, soft and small; thirst less urgent. There was no return of fever or of choleraic symptoms. The convalescence was rather slow. He was discharged on the 28th. Same treatment as in Case 1.

CASE 4.—Toolsee Sewa, undergoing a sentence of seven years at Yerrowda since two years, of a good constitution, age about thirty, was admitted into the gaol hospital on December 8th, 1875, suffering from quotidian intermittent fever. He had an attack on that day, beginning at 9 a.m. with rigor, and subsiding at 3 p.m. with free perspiration. He had suffered previously from several attacks of intermittent fever, and had been treated for that disease in September and November of the same year.—9th, 4 p.m.: The paroxysm began as usual at 9 a.m. with rigor; at noon he felt very sick, and vomited some watery matter; since then he vomited freely four times and passed copious watery

stools, sometimes tinged with bile, others of a slightly reddish tinge. The pulse is small, weak, frequent; countenance anxious; eyes rather shrunken; tongue cold at the tip; urgent thirst; complaints of severe cramps in the legs, of a burning heat in the epigastrium; voice husky; temperature in the axilla 99.2°; urine suppressed; breathing hurried, 32. 7 p.m.: Vomited only once since last report. Pulse improved; extremities not so cold; no cramps; urine still suppressed; temperature in axilla 98°.—10th: Passed a good night; no return of vomiting or purging; skin moist; temperature in axilla 98.2°; pulse well felt, 76, small and compressible; has not passed any urine. 2 p.m.: Doing well; pulse 84; temperature 98.6°; respiration 20; passed a small quantity of urine of a deep amber color, specific gravity 1024, slightly acid, no albumen. He continued to improve, and was fairly convalescent when, on the 17th, he had a return of intermittent fever, beginning with rigor at noon and subsiding at 4 p.m. with profuse perspiration. Large doses of quinine were again administered, and since then he had no return of fever. He was discharged well on January 29th, 1876. The same treatment as in Case 1.

CASE 5.—Purrage Poonja, undergoing a seven years' sentence, at Yerrowda since four years, age about thirty-two years, of a good constitution, had suffered from intermittent fever previously, but is now free from it, and had been transferred to the surgical ward, some boils having broken out on his legs.—August 13th, 7 a.m.: At midnight he was seized with vomiting and purging; during the night he vomited and purged four times. The evacuations were copious, watery at first, tinged with bile, afterwards clear; he looks tired; the features are drawn; the eyes somewhat sunken; the skin cool; the extremities cold; temperature in axilla 97.3°; pulse very small and weak, 84; complaints of slight cramps; has not passed any urine. 5 p.m.: No return of the vomiting and purging; reaction pretty good; pulse 92; temperature in axilla 100°; great thirst; had passed a small quantity of dark-colored urine; complaints of much weakness. 14th, 7 a.m.: No return of vomiting or purging; features more natural; pulse equal, regular, 88; temperature in axilla 100°; has passed water freely. 5 p.m.: Doing well. The case was a mild one; the recovery was rapid; he was discharged well on Aug. 17th. The treatment was the same as in Case 4.

CASE 6.—Teepia Laddo, undergoing a seven years' sentence, at Yerrowda since three months, aged about thirty years, of a weakly constitution, was admitted into hospital at 4 p.m. on December 1st, 1875, presenting the following symptoms:—He was suddenly seized with violent purging and vomiting, and previous to admission he had already passed several copious, colorless watery stools, the vomited matter being at first tinged with bile, afterwards quite clear. The countenance is anxious, the eye sunken, the voice hoarse, the skin clammy and cold; temperature in axilla 97.2°; pulse very small, weak, and frequent, 120. Complaints of great thirst and of severe cramps in abdominal muscles; slight cramps in the lower extremities; breathing hurried, 36. 4 p.m.: Has been purged and vomited several times; temperature in axilla 98°; pulse very weak, less frequent, 108. General symptoms the same; urine suppressed.—2nd, 7 a.m.: No vomiting since last report; passed a semi-liquid stool this morning, bilious-looking. Urine still suppressed; skin dry and slightly warm; temperature in axilla 99.3°; pulse weak, 88; tongue brown and dry; no cramps, but great abdominal tenderness; great thirst; urine suppressed. 4 p.m.: Has passed water freely, of a deep amber color; specific gravity 1020, acid, containing no albumen; tem-

perature in axilla 100°; pulse stronger, but easily compressible, 92. No return of vomiting; passed a bilious motion. He appeared much better the following day, the choleraic symptoms not returning; but abdominal tenderness persisted. The tongue was at times dry and furred. A bilious mucous diarrhoea, occasionally containing specks of blood, set in; the pulse remained somewhat above the normal, and was hard and small; the temperature in the axilla varied from 99.3° to 100°.—11th, 7 a.m.: Passed a restless night. Had three motions during the day, and two at night. The dejecta are semi-liquid, scanty, bilious, containing some mucus, but no blood. Complaints of pain in the abdomen, which is increased by deep pressure, whilst a moderate pressure is not complained of. No relish for food. Temperature in the axilla 98.2°; pulse soft and small, 92. 4 p.m.: Towards 11 a.m. a slight exacerbation set in. Temperature at the time of report 100°; pulse 104. The two following days his condition remained very much the same. Towards the evening of the 13th he had a return of the choleraic symptom, but blended with those of the severe abdominal lesion from which he was suffering. At 7.30 a.m. on Dec. 13th we read in the notes of the case: "Had one copious evacuation just now, very offensive, of a dark-brick color, evidently containing much blood intimately mixed with the discharge; a little mucus floats over it; the pulse cannot be felt at the wrist; the countenance is anxious; the face pinched; eyes sunken; voice weak; tongue cold at the tip; extremities cold; no cramps; respiration hurried; temperature in axilla 98°. At 9 p.m. a slight reaction took place, leaving the pulse very weak and small; the urine still suppressed."—14th, 7 a.m.: Passed a copious dark-red motion, similar to that of the day before, but even more offensive; abdomen slightly distended, and very painful even on slight pressure. Temperature in axilla 98°; pulse very weak, 92. The eyes are sunken; the extremities cold; he is perfectly sensible, and complains of abdominal pain. Died at 3 p.m.—Treatment: During the stage of collapse the treatment was the same as in the other cases. On the disappearance of the choleraic symptom, quinine both by the mouth and hypodermically was freely given as in the former cases. Against the abdominal symptoms the following treatment was adopted: Fomentations; small doses of castor oil, with tincture of opium; Dover's powder at bedtime; seven parts of belladonna liniment to one of chloroform liniment applied to the abdomen on spongio-piline, cold water enema, etc. The diet consisted of milk and yolk of eggs; a little arrow-root or sago in beef-tea; brandy was given with eggs during the last few days.

Necropsy, fifteen hours after death.—Weather cool. Rigor mortis fully developed. Head: On opening the skull the large vessels are seen distended by a pinkish serous fluid, whilst the capillary vessels are well defined and of a dark-black color. Brain: The grey substance is of a pale-rose color superiorly; of a slatish tint, getting darker towards the inferior part of the brain. White substance of a rose color; some serosity escapes on section; many of the puncta vasculosa are of a dark color, like small grains of powder, more numerous and darker towards the centre of the brain; they are well marked on the floor of the lateral ventricle. These are with difficulty removed by gentle friction with the knife; under the microscope they seem to consist mostly of an irregular, sharply defined, granular substance. The left ventricle contains about a drachm of clear serum, the right somewhat less. Chest: The external appearance of the lungs is very remarkable, being covered

with extensive dark-black patches and lines; the base and inferior margin of the lungs are almost uniformly black; the lungs are orepitant; some engorgement exists in the inferior lobes posteriorly, and more marked in the left lung. Heart healthy, small; a small soft black clot is found in the right auricle. Abdomen: The abdomen is considerably distended; on opening the cavity, the omentum is seen rolled up and of a dark-brown color; the peritoneum contains no fluid nor any signs of recent inflammation, except around the omentum; the large intestine is considerably distended and of a dark-slate color; in parts this dark coloration is intense. On examining the large intestine the mucous membrane is found in many places to be the seat of small deep ulcers, looking as if punched out; the largest are about half an inch in diameter. These ulcers are surrounded by a circle of fine black lines formed by capillary vessels distended by a black substance which under the microscope appears to consist almost entirely of black granular matter. Several of these ulcerations extend to the serous layer. In the transverse colon several of the ulcers have perforated the bowel, which is only protected by the omentum adhering intimately to it by a thick layer of plastic lymph. On separating this layer with great care, the transverse colon is seen to be cribbled with numerous small rounded perforating ulcers, all presenting around them the peculiar ring of closely packed and beautifully defined dark minute capillary vessels. The appearance of the small intestine is normal, except some patches here and there of a darker hue; no ulcerations are found in it. The stomach also presents some patches of a darkish color, but is the seat of no ulceration; its mucous membrane is easily torn, and appears swollen. Liver: Weight 3 lb. 4 oz. Posteriorly towards the base, and at the extremity of the right lobe, it is of a dark-brown color, but only superficially; with this exception the appearance of the liver is normal. On section it appears moist, and gives issue to a certain quantity of serous fluid, and by pressure this fluid is readily obtained. The gall-bladder contains a couple of ounces of dark-brown bile, thick and ropy; abundant flakes of cholesterine are found suspended in it, adhering to thick mucus. Spleen: Weight 14 oz., small; the capsule is shrivelled, and apparently of normal consistence and coloration. Kidneys: The cortical substance is of a dark-slate color, more marked in the left kidney, where the appearance is remarkable; otherwise healthy. Some blood taken from the mesenteric veins and examined under the microscope reveals the presence of free granular pigment, some contained in what appears to be large hyaline cells.

All medical men residing in India have but too often occasion of attending cases of cholera; nevertheless, when I witnessed my first case of malarious cholera, I remained awhile under the impression that I had to deal with a case of real cholera. No symptom appeared to be wanting. Vomiting, purging, anxiety, rapid breathing, loss of voice, pulse weak or imperceptible, skin shrivelled, eyes sunken, cramps, coldness of the surface, etc., all the symptoms characteristic of cholera, were present. Still there are differences, and these are of great importance as assisting us in diagnosing between the two diseases. In malarious cholera the vomiting and purging are less frequent, less distressing, and these symptoms cease at an early date. The alvine discharges contain generally some bile, or are tinged with blood, or are like dirty water, or almost clear, but never presenting the whitish appearance so well known as rice-water stools. The cramps in the cases I have observed have been limited to the abdominal muscles and

lower extremities. A third point of great moment is the rapid reaction, or rather the almost total absence of reaction, the patient passing from a state of deep collapse to one of convalescence in the space of a few hours, and with a return of all the choleraic symptoms should the following paroxysm not be checked. The influence of treatment is also well marked. In India we are well aware of the danger of administering stimulants and opium during the collapse stage of cholera; in the sideration produced by malarious poisoning these two remedies are indicated and are followed by the best results. Again, the value of quinine points to the intimate nature of the disease; in five cases out of six this drug acted favorably, and no return of the dangerous paroxysm took place. The fatal case afforded us an insight into the pathology of the disease, and nowhere are the differences and distinction between the two forms of cholera better marked and ascertained. In malarious cholera post-mortem reveals a condition of intense melanæmia; a separation of the blood pigment, the blocking up of the capillaries by this altered substance, the presence of a rose-colored serous fluid in some of the large bloodvessels, and of a dark thick fluid in others.

In malarious cholera, if we take the fatal case here recorded as a guide, we find that the morbid action acts with greater intensity on the circulation of the alimentary canal, the stasis of pigment in the capillary circulation of the large intestine producing partial necrosis of the intestinal coats, manifest in this case by numerous small deep ulcers in the ascending and transverse colon, surrounded by a perfect ring of obliterated capillary vessels. In another case of pernicious fever which ended fatally, and which was entered under the name of "congestive," the localization of the disease did not exist as in this case of malarious cholera, while the symptoms during life were those of congestion of all-important organs, not limited to the digestive tube. As a comparison I extract the following from the notes of the post-mortem examination of the cases just mentioned: "The grey substance of the brain is of a dark-brown color; the white substance is dirty-looking and cribbled, with black spots. Externally the lungs are quite black, only here and there a few spots are of a normal color. On section this dark coloration is seen to permeate the lungs almost completely. The muscular tissue of the heart is of a uniform brown color. The inferior margin of the liver is intensely black, its superior aspect being dotted with black spots. The gall-bladder contains some two ounces of dark-black bile, ropy and full of cholesterine scales. The spleen is small, of a dark-slate color, and having a fleshy appearance. The large intestine is here and there deeply injected, showing dark circular rings, but no ulcerations; the mucous membrane is somewhat swollen in the centre of the rings. The kidneys are of a dark-slate color. The vessels of the brain and of the internal organs are distended by dark-black thick blood; superficial blood-vessels empty, or containing pale rose-colored serum." In malarious cholera, melanæmia, the result of intense malarious poisoning, is doubtless the primary and essential cause of this peculiar disease; the collapse, the disordered condition of the circulation, and of the digestive organs are due to the altered condition of the blood and to the obliteration of the large capillary circulation of the intestinal canal by modified blood pigment.

I wish to call attention to the condition of the spleen. In the fatal case it was found shrivelled, but apparently of normal consistence and coloration. In all cases of pernicious and remittent fevers examined after death I have found the

spleen almost normal in size, although not necessarily healthy. I believe that the alleged constant increase of volume of this organ in malarious fever is an error, and that the pathological condition of the spleen in certain forms of malarious fevers requires further investigation. According to the observation I have been able to make, it appears to me that enlarged spleens are more generally found among the inhabitants of certain malarious localities than of others, and as a rule this condition shows itself when malarious fever has been contracted after drinking water obtained in malarious localities. For instance, the inhabitants of the Gheer, a forest district in the province of Kattiawar, contracted rapidly enormous spleens after a few paroxysms of fever only; and it is a fact well known to travellers in that district that a residence in the Gheer is not followed by fever if the precaution be taken of carrying a supply of drinking water whilst crossing or dwelling in that forest. Large spleens are also met with when the cold stage of intermittent fever is intense and prolonged. Among the 1,756 cases of malarious fever which I have attended during the past ten months, I have generally found this to be the case, and I now look upon a moderately enlarged spleen as a favorable symptom, having seldom met with this condition in the 93 cases of remittent fever or in the 10 of pernicious fever treated during that period.

OCCASIONAL RECORDS IN THE SCIENCE AND PRACTICE OF SURGERY.

By OLIVER PEMBERTON, F.R.C.S. Eng.,

Senior Surgeon, Birmingham General Hospital, and Professor of Surgery in Queen's College.

LOOSE BODIES IN THE KNEE-JOINT.

It must be accepted that our knowledge of the exact mode in which "loose bodies" form in joints is, to say the least, at this day uncertain. Practically our experience arises only from what happens in the knee; for although met with occasionally in the elbow and even the hip, they so seldom call for interference, and are comparatively so unimportant, that further reference to their presence elsewhere than the knee is unnecessary. That their origin in early adult life is in the main traumatic, I for my own part entertain little doubt. The pursuit of football may be fairly charged with establishing abundant proofs as to this. Thus, a few years since, I saw a gentleman of much muscular power, who, previously to encountering the struggle of the game on a given day, had sustained no injury to or had had any disorder of the knee whatever. He had fallen during the fight, and being unable to rise was carried off the field, and I was called to see him a few hours after the occurrence. When I examined the knee I found a con-

Tabular Statement, showing the Weight, Appearance and Condition of the Spleen in Malarious Affections.

<i>Name of Disease.</i>	<i>Weight of Spleen.</i>	<i>Appearance and Condition of Spleen.</i>
1. Remittent fever.....	14 oz.	Normal on section.
2. " ".....	8 oz.	Small, shrivelled, normal.
3. " ".....	12 oz.	Shrivelled; hard, dark-brown color; cuts like the liver.
4. " ".....	12 oz.	Normal.
5. " ".....	9 oz.	Shrivelled, rather firmer than normal.
6. " ".....	16 oz.	Capsule shrivelled, moderately firm, deep brown color.
7. Remittent fever and melanæmia.....	21 oz.	Dark color towards convex surface, elsewhere of a light-brown color, fleshy, hard and resistant; contains dark-black blood.
8. Remittent fever and melanæmia (chronic case).....	2½ oz.	Shrivelled; looks like a piece of raw muscle; firm; no splenic mud.
9. Malarious dysentery.....	6 oz.	Normal.
10. " ".....	7 oz.	Carnified; no splenic mud; of rich brown color.
11. Pernicious fever (congestive).....	10 oz.	Dark-slate color, gorged with black blood; easily torn.
12. " " ".....	7 oz.	Small, very soft; contains black blood.

In Cases 1, 6, and 7 there is a previous history of repeated attacks of quotidian intermittent fever, and the slightly enlarged spleen existed in that condition previous to the fatal illness. On the other hand, the peculiar condition of the bile in cases where melanæmia, even in a slight degree, is present, is very characteristic. Generally the gall-bladder is somewhat distended, and contains from two to three ounces of dark-black bile, very thick, ropy, full of small bright scales of cholesterine, and gives a slight acid reaction. This condition was well marked in the fatal case of malarious cholera, in two of the congestive forms of pernicious fever, and in cases of remittent fevers, where the fatal course was rapid.

Poona.

—In the Canadian Dominion and Provincial Houses at present in session there are sixty members of the medical profession, a representation of about 2 per cent. Half of these are in the Dominion Parliament, seven in the Senate, and twenty-three in the House of Commons. Nearly all represent constituencies of the maritime provinces. Eight possess English, twelve American, and the remainder Canadian qualifications.

siderable effusion had taken place within the joint, so as to render any exact judgment as to what had happened impossible. The effusion subsided with rest and he was able to walk; but in a few weeks came to me and said something moved in and outside the joint and had nearly thrown him down once or twice in walking. On examination I readily detected a movable body, about as large as an almond, situated just above the level of the patella on the inner side. I pointed out to him the desirability of removal, but he preferred a supporting case and I saw no more of him. After forty years of age the rheumatic diathesis exercises a chief influence in the production of the "loose body" leading to that typical calcification seen so frequently in the joint structures of aged rheumatic people. Assuredly my own experience leads me to the conclusion that injury is the chief factor in causing a chipping or breaking off of the joint surface, and that as time goes on the loose body thus produced is found to present appearances according to its age and, as it were, to the extent of the wear and tear in movement it has undergone: at one time being cartilaginous or fibrous, or osseous or mixed, as the case may be, the ultimate shaping and structure of the body being doubtless greatly influenced by the predominance of the rheumatic habit.

Those curious in the investigations as to other and widely different modes of origin, would do well to refer to the ninth chapter in Mr. Barwell's treatise on diseases of the joints, and it must never be forgotten that Hunter's view as to the changes that blood effusions may assume, and so develop into these bodies, has always been regarded as a practical solution of the origin of many, and it certainly, in my judgment, adds great weight to a belief in the doctrine of a traumatic origin for the greatest number. The inquiries of Poncet, based on histological considerations, whilst admitting a traumatic origin for these "arthrophytes," strive to establish a distinction between these and those that have once been pedicled or attached, to the effect that the true traumatic ones never show any remains of a hilus or of any pedicle. I am unable myself to add to the value of these observations, but the subject of such a distinction is filled with interest for future verification.

CASE. *Long-standing Loose Body in Knee; Operation for removal; Treatment of Wound by Lister's Dressing; Recovery without Suppuration.*—J. L., aged fifty-five, a railway guard, was admitted into hospital on Nov. 10th, 1880, on account of pain and swelling in the right knee. The patient was a strong, healthy-looking man. He stated that he had never injured the joint, nor had he been laid up with gout or rheumatism. For some time the knee had been giving way, feeling less strong, being occasionally swollen, and on and off for twenty years he had been aware of the presence of a movable body, which occasionally absolutely prevented the use of the limb. On examination



Fig. 1.

Concave surface, lined by thin yellow covering, terminating all round in an elevated irregular margin, lightly and delicately fretted like a lace edging, and having the hardness and appearance of very white bone.

the joint was seen to be larger than natural, due evidently to an increase in synovial fluid. There was no thickening, and no pain, save in movement. On the outer side, between the patella and the condyle, was felt, resting, a large substance, oblong in shape, irregular, thick, and freely movable. He thought that another, and smaller, substance had shifted about on occasions, but that the one described, and which alone presented at that moment, was the cause of all his trouble. On the 24th, "rendered safe by Listerism," I made an incision directly over the body, of two inches and a half long, opening the synovial bag to the same extent. Extrusion was not immediate, as in some cases, by expulsion, owing to the fringed edges of the body catching the lining-membrane. To overcome this the handle of the scalpel was needed to turn it edgewise, when it readily slipped out. Synovia to the extent of a few drachms flowed through the wound, which was at once closely

sutured without the insertion of a drainage-tube. In the after-progress the wound healed by the first intention without suppuration, there being no rise in temperature and no constitutional disturbance of any kind. All dressings were discontinued in fourteen days, and he left the hospital, wearing his support, on Dec. 24th. I saw and examined him on the 4th inst. He was well in health, and moving about with a hinged case as guard at a level crossing. The affected knee was but a little larger than its fellow.



Fig. 2.

Convex surface, of the same appearance uniformly as the margin in Fig. 1, but fretted all over, and without any yellow lining.

To Professor Tilden, F.R.S., and Professor Haycraft, of Mason's College, I am indebted for a chemical and microscopical examination.

Prof. Tilden reports:—"Weight of the whole nearly 99 grains. It yields 65.3 per cent. of white ash, consisting of carbonate and phosphate of lime."

Professor Haycraft:—"The part examined consisted entirely of cartilage. This was not unlike the calcified rib of an aged person, the matrix of the cartilage being (especially near the cells) filled with ossified fibres. It is surrounded by a membrane which is clearly fibrillated, and of distinct thickness, but containing no stainable cells. It is probably a membrane of lymph which has deposited on the cartilage. Its thickness is about 1/300 of an inch on an average."

There remains but to remark on the peculiar shaping of this body, the like of which I have not previously experienced. The need of the insertion of a drainage-tube for the first twenty-four hours must be determined by the amount of fluid in the synovial bag, and by the chance of blood passing in from the wound. As a rule a drainage-tube is advisable. Lastly, I ask, after six and thirty years' dealing with surgery of all kinds, what confidence should I have had in opening this man's joint at fifty-five years of age without danger to life or limb, but for that system of dressing the wound for which we are indebted to Joseph Lister?

Birmingham.

ON THE FORCED FEEDING OF CHILDREN.

By J. SCOTT BATTAMS, M.R.C.S.,

Resident Medical Officer, East London Hospital for Children, Shadwell.

I VENTURE to offer a few practical remarks on the above subject because this method of introducing food and remedies into the stomach has a very distinct value in a variety of conditions. It is, I believe, too little used both in adults and children. My own short experience being chiefly limited to children, I have not touched on the subject as it

affects adults. We have in adults the rectum and lower bowel as an alternative route for introducing food, and their great power of absorption, especially of peptonized food, is well proved. The ease with which nutrient enemata are given and the little irritation they cause, when properly prepared and administered, will always make rectum feeding popular, even in cases where some other method might with advantage be substituted. In children, on the other hand, whatever absorptive power may be possessed by their lower bowel is more than counterbalanced by their greater reflex excitability. It is almost impossible to continue nutrient enemata for many days; they reject them, however constituted or introduced. And both in adults and children food absorbed from the lower bowel can never long be substituted for food that has undergone the natural digestive processes. Of course, I exclude cases where the stomach is not available. I would not be thought to advocate or justify a resort to any artificial means when it is possible, by a combination of tact, kindness, and firmness, to introduce a sufficiency of food by the natural method and route. Those whose experience in treating children is largest will know best how difficult or impossible the task often becomes. The remarks lately made in *THE LANCET* concerning forced feeding in lunatic asylums will never, I trust, have to be made in the case of children's hospitals. Children may very rarely seem obstinate as lunatics in the matter of food; but their obstinacy nearly always has its origin in physical, and not mental, conditions. Refusal to take a sufficiency of food from sheer obstinacy must, I think, be very rare. To use any method of forced feeding in such a case would generally indicate want of judgment on the part of the surgeon, and an absence in the nurse of most essential qualifications. The methods of feeding I advocate can barely be called "forced." In any large children's hospital, however skilled the nurses, and however numerous in proportion to patients, there will always occur cases where some such method of feeding is plainly indicated.

I pass on now to consider the various methods of forced feeding at our disposal, briefly mentioning their several advantages and disadvantages, and indicating the class of cases in which each method finds its special application. Finally, I shall venture to enumerate some of the conditions in which forced feeding might possibly become a more or less valuable resource.

Methods of Forced Feeding.—Under this head I have nothing original to advocate. The methods are fairly well known, I believe, even though not as frequently and intelligently used as they might be.

1. *Œsophageal Tube by Mouth.*—This is the method I least advocate. It is not as generally useful as, and is, as a rule, more difficult to apply than, any other method. In any plan of forced feeding one cannot expect much co-operation from a young child. The most patient and experienced know how difficult it often is to get a glimpse of a child's throat even. Now, their power to resist in this method is greater than any other; and what with violent struggles, spitting, and attempts to bite the operation is not easy, and it leaves the patient distressed and exhausted. Moreover, it is in diseased conditions of the mouth and throat that forced feeding is often most usefully employed, and no less important is it to avoid the irritation caused by frequent manipulation. There are, of course, cases where it is easy and safe to feed this way. In such cases indiarubber or French catheters are probably the best Œsophageal tubes to use.

2. *Nasal feeding.*—(a) By pouring food down the

nostril. (b) By nasal tube carried to the back of the pharynx. (c) By a tube passed through the nose into the Œsophagus or stomach. The first and second methods require that the several links in the chain of reflex mechanism for deglutition shall be intact. If this be so, then when fluids are allowed to flow along the floor of the nose to the pharynx involuntary acts of deglutition occur. In applying the first method, the child should be in the recumbent posture and the head held firmly, if necessary. For administering the food I generally use a glass syringe or indiarubber enema bottle. About an inch or more of drain-tube should be slipped over the nozzle of the syringe, and the tube should be placed only just inside the nostril. The food should be slowly injected, allowing regular intervals for breathing. Sometimes the child succeeds in spluttering some of the food from the mouth or ejecting it from the nostril. This may be owing to the too rapid administration of the food. Should this not be the cause then by closing the other nostril or the mouth for a moment the child will probably swallow, being "out of breath." A funnel with a piece of indiarubber tube attached would also answer the purpose. I always strive to use the simplest materials and those most commonly to hand. Warm fluids are less irritating than cold. If medicines of an irritating nature are also given they should be well diluted. I have not found that bland fluids such as milk or milk and egg cause anything but the slightest irritation either in myself or in children. "Watering at the eyes" sometimes occurs. If for any reason we do not wish the fluid to be injected to come in contact with the Schneiderian membrane, then we could use the second method; here a soft tube is passed through the nostril as far as the back of the pharynx before injecting.

The first method of forced feeding as far as my experience goes is the best in the largest number of cases. It causes a minimum of irritation, and an obstinate child finding it cannot resist these reflex acts of deglutition, often ceases all attempts to do so. It is the simplest method also, and has the fewest attendant risks. And the fact that it does not excite any great resistance in the child is a great recommendation. I had lately to perform tracheotomy on a strongly-built child of three years, comatose as much from diphtheritic as from carbonic acid poisoning. After the operation no pulse returned to the wrist and his color did not improve. On attempting to give him hot brandy and milk he clenched his teeth and would have struggled violently. On giving it through the nose he swallowed without resistance.

The third method is one I have had occasion to use rather frequently. It is chiefly indicated in cases where food passes into the glottis, or where the necessary conditions for deglutition are imperfect or abolished. It is not so easy to apply as the first method, and causes more irritation. The mucous membrane of the nose, though very tolerant of fluids, is not so accommodating towards anything solid. But in many cases in which I have used it sensibility has been blunted or abolished. On the other hand, even when this has not been the case, I have fed in this manner for days and weeks together with very little evidence of discomfort from the child, and with no apparent local damage. A case is on record in which an adult for stricture of Œsophagus wore a tube passed through the nostril for ten months. After many trials upon myself and others I find a vulcanized indiarubber catheter the easiest to pass, and the one which causes least irritation. The catheters I have always used bear the name of "Jacques" as patentee; they are extremely well

made and stiff enough not to kink. In young children a No. 7 is probably the most useful size. I generally inject the food by means of a glass syringe or indiarubber enema bottle. But as the end of the catheter is not easily slipped over the nozzle of the syringe, I unscrew the nozzle of an ordinary brass dressing syringe, slip the end of the catheter over its tapering end, and over its screw end place a piece of drain tube of sufficient size to admit the nozzle of the syringe. The catheter should be well oiled or smeared with vaseline before passing it into the nostril. It should be passed by slight pushing movements to the back of the pharynx, where it often causes some slight retching. As the tube passes down the œsophagus to the stomach, these signs of irritation cease. It is known to be taking the proper course by the slight amount of obstruction met with, and also by the length of tube passed. When the stomach is reached air and liquid food are often forced out at the end of the catheter. It is often more easily passed through one nostril than the other, and the erect posture is sometimes more favorable to its passage than the recumbent. When the catheter has entered the œsophagus or stomach, and signs of irritation have passed, the food should be injected slowly, taking care not to introduce air. On withdrawing the catheter, which should be done rapidly, it is important to pinch the end, so that no fluid may trickle into the glottis and cause cough and possible vomiting. The catheter is more likely to pass into the mouth than the larynx, and then, besides the sensation of obstruction, the child retches a good deal and soon opens its mouth, and the tube may be seen curled up. Cough and retching favor its passage into the mouth. The catheter seldom finds its way into the larynx; should it do so, cough and dyspnoea are excited, and even if these signs were absent the length of tube passed would be a fairly certain indication as to whether the catheter had passed into the larynx and trachea. When the tube is passing easily down the œsophagus, the whole length may be played out without any sensation of resistance. On the other hand, should the catheter pass into the larynx, it soon meets with obstruction before even half of it has passed.

This last method of feeding—viz., by a catheter passed through the nose into the stomach—is exceedingly useful in cases of tracheotomy for diphtheria, in which a few days after the operation food enters the larynx, and is coughed up by the wound. Whatever the etiology of this condition may be, it is, I think, quite distinct from diphtheritic paralysis, though I have seen a case in which it was followed after an interval of three weeks by such paralysis.

Out of twenty-five children on whom I performed tracheotomy, three had this complication. They were fed in this manner, one for nearly a month, another for three weeks, and one for a week; the last only recovered. Such a condition is generally transitory, and feeding by pulped or thickened food suffices. Where it persists, forced feeding by some method is obviously the only way to prolong or save life. In such cases in my experience there is considerable prostration, often a great tendency to diarrhoea and vomiting, and the wound shows little inclination to heal. There is therefore the greater need not only for food and stimulants, but also for remedies. Much gentleness in passing the tube and judgment in the matter of food are required in such cases. The tube is especially apt to pass into the larynx, and is seen through the wound. In two of my cases "watering" at the mouth occurred when the tube had reached the stomach; and in one child the saliva was swallowed, passed into the larynx, and

appeared at the wound. To avoid vomiting, the food should be bland, easily digested, and not too much in quantity. The children objected very little to this method of being fed, no local disturbance was caused, and the nurse passed the tube as easily as, or more so than, I did.

The conditions in which Forced Feeding may be useful.—I am unable to indicate very precisely all the conditions in which some method of forced feeding may be either optional, justifiable, or imperative. I can only say that in the East London Hospital, where children are admitted from birth to puberty, we have found more suitable cases than one might imagine. Take, for instance, a child with diphtheria in whom the throat and mouth are extensively implicated; such a child swallows with great pain and difficulty, and may even refuse to swallow, though great thirst be a concomitant symptom. The more or less routine treatment of such a case consists in the application to the throat at intervals of remedies more or less irritating. The child is also expected to swallow remedies that are at least unpleasant. The great importance of a due supply of food and stimulants is not lost sight of; hence the child is not only disturbed by the forced application of remedies, but at frequent intervals a minimum of food has also to be supplied. In such a case if I were compelled to adopt any routine plan of treatment, it would be something as follows:—The application to the throat, every two or three hours during the day, of glycerine and boracic acid, the brush being first moistened. This is not unpleasant, and the child soon allows it to be applied without much opposition. No harm comes from swallowing this application, and, as far as my experience goes, I prefer it to any other. As the local condition improves, the number of applications can be diminished. Then, as to food and stimulants, one must be apt in resource both as regards the quality and quantity of the former and not too fearful in one's administration of the latter. Should the difficulty of giving it be great, then I would feed by the nose. If medicines are given, then those I think should be chosen that can be administered with the food. Quinine, ammonia, and Fellow's syrup I have found generally well taken and retained in this manner. Quinine or liquid extract of bark in coffee and milk might also be tried. Large doses of iron and chloride of potash often cause vomiting. But in the presence of a grave disease the remedies for which are so numerous and diverse as to shake one's faith in any of them, one's trust, I think, should be mainly placed in a judicious administration of food and stimulants.

There are many other conditions in which we might be glad to avail ourselves of the nasal route to the stomach either for the administration of food or remedies. I have roughly enumerated some of them as follows:—

1. In conditions of the throat and mouth in which, either from mechanical causes or from great pain, it is difficult or impossible to administer food by the mouth—viz., in severe tonsillitis or ulceration; in anginose and malignant forms of scarlet fever; in severe cases of thrush and those horrible cases of cancrum oris; in injuries to the throat and mouth from corrosives and boiling water, or after injuries from violence or serious operations.

2. In convulsive and allied states this is the method by which we can administer both potent remedies and food. In uræmic convulsions I have once or twice given bromide of potassium by the nasal tube. In infantile convulsions, from whatever cause arising, we can thus quickly give an emetic, purge, chloral, or food. In tetanus and hydrophobia medicines and food can seldom be given

by the mouth, but when given per nares the patient has no control over the administration. In one case of trismus neonatorum I fed the child in this manner with its mother's milk every few hours for two days, giving chloral at the same time.

3. In cases of insensibility more or less pronounced. Thus in the later stages of tubercular meningitis, all hopeless though the case has then become, we may still prolong life a little by forced feeding. In cases of cerebral hæmorrhage or great shock, we might be glad under certain conditions to administer a diffusible stimulant and food. In any child where insensibility is sufficiently deep to abolish all reflex action, of course the tube should be passed into the stomach either by the nose or mouth. The passage of fluids into the glottis might under such conditions be instantly fatal.

4. In cases of narcotic or other poisoning in children I have only once had occasion to use the nasal route to the stomach. It is certainly no easy matter in the majority of cases of poisoning in adults to apply the stomach pump, on account of their struggles. And there would be the same difficulty in passing an œsophageal tube in some strong children, even though their resistance be more easily overcome. In such a case one might more easily pass a tube through the nose into the stomach, draw off by syphon action or by suction its fluid contents, wash out the stomach if necessary, and inject some antidote or remedy. One drawback to such a method would arise from the blocking of the tube by solids too large to pass. In some cases of poisoning, where emetics are indicated, they can be administered per nares, with a rapidity and certainty that are not always obtained when they are given by the mouth.

5. In cases of paralysis, as after diphtheria or from brain disease, where the child cannot swallow, the œsophageal tube is often the only way to administer food and avert starvation.

6. In cases marked by extreme prostration, as in enteric fever and typhus. In the "typhoid state," from whatever cause arising, there will sometimes occur a case in which the demand for food and stimulant is urgent, the difficulty of administering it is very great, and the necessity for not distressing the patient most important. During the late epidemic of typhoid, a girl of four years was under Dr. Donkin's care at the East London Hospital. High temperature and much diarrhoea were present, and her voice became hoarse soon after admission. She was a perfect fury in the violence of her resistance to all attempts to feed her, and the end was only attained as she became exhausted. During the last week of her life I fed her almost entirely by the nose with only the slightest show of resistance, though she still battled violently against attempts to feed her by the mouth. Urgent dyspnoea came on, and she dropped back dead just as I was about to perform tracheotomy. In infants in a state of collapse I have frequently used the tube either by the nose or mouth to inject stimulants or food. The spark of life is too feeble in such cases to run the risk of quenching it by fluids passing into the glottis. The number of infants admitted into this hospital too feeble to suck is very large. As a rule, spoon feeding is sufficient, only a very little food being given at a time, and that carried well to the pharynx. I have found a syringe, and a small piece of drain-tube used in the same manner very convenient. The food may also be trickled down the nostril as before described.

I may perhaps seem to over-estimate the importance of the subject on which I have written, and to underrate the difficulties attending the ap-

plication of the methods I have mentioned; but looking back through only a short experience I know I have seen many a child's life prolonged, and some lives, I honestly believe, saved by a timely resort to forced feeding. To add a few hours to the ebbing life of some poor child is no great achievement I know, but more than once I have thus been enabled to give the parents a chance of seeing the last of their little ones, a matter of no small moment in a children's hospital; and apart from all considerations for the friends and our own deep responsibility in the matter, it is thus we help to serve the highest and best interests of our hospitals. The silence of most of our standard authorities on the subject of forced feeding, and the fact that scores of practitioners during a long professional life have had no practical experience of it, seem sufficient excuse for my imperfect remarks.

Note.—The glass syringe with a piece of rubber tubing slipped over its nozzle is a very useful apparatus for administering food by the mouth. In the infant's ward in the East London Hospital there are always five or six children being fed by this means since I first introduced it. The sister of the ward, whose skill and devotion make her opinion valuable, says it is one of the simplest and most useful little devices for feeding the sick with which she is acquainted. After operation for harelip all our infants are now fed by this means. It may in many cases with advantage be substituted for the feeding-bottle, spoon, glass, feeding-cup, and other sick room utensils. The tube should be lightly placed between the lips and the fluid very slowly syringed into the mouth. With a syringe in each hand and two babies placed side by side, I have fed them in this manner simultaneously. It is equally useful in the case of adults. A patient can thus be fed without the least change in his position whatever that may be. Take, for instance, a heavy man prostrated by some painful illness; in such a case any movement may be as injurious to the patient as it is painful. What is the not uncommon process of feeding in such cases? A heavy, helpless patient is raised by some fragile nurse, with pain to the one and discomfort to both, to a more or less constrained position; beef-tea is presented to him in a feeding cup or open glass; he gulps down a portion, and the remainder probably runs over him; he falls back, thankful the operation is over, and neither party looks forward to its repetition with pleasure. Now, with a syringe and tube the same amount of fluid may be gently syringed into the patient's mouth without the least change of position on his part; he need not even trouble himself to suck. The child may feed the man; it becomes the very poetry of sick feeding.

ON REFRACTURE OF THE PATELLA.

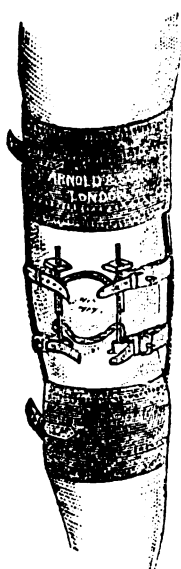
By H. PARSON, M.R.C.S., L.R.C.P. Ed.,

Assistant Medical Officer, Royal Surrey County Hospital.

PERHAPS the following particulars of a case of refracture of the patella, together with a description of the appliances used during the treatment may be of interest to some of your readers.

In December, 1874, Mr. — fractured his left patella at the junction of the upper and middle thirds. In October, 1880, he fractured the same bone at the junction of the middle and lower thirds; and in August, 1882, he refractured the left patella at the seat of the last injury—viz., at the junction of the middle and lower thirds. This last accident occurred August 6th whilst staying at Amsterdam. He was seen by a local surgeon who

applied suitable splints, and the patient started for England on August 8th, reaching his home on the 9th. I was called in on the 11th and found considerable swelling over the joint with about three-quarters of an inch of separation between the fragments; the amount of separation which existed directly after the accident I could not ascertain. The lower fragment was small and very movable. He was wearing a leather splint with side supports to which were strapped two semilunar soft leather pads. By drawing the pads together and fastening them I got the fragments into close apposition, and the patient continued to wear this contrivance until the primary inflammation had subsided. I then devised the appliance of which an illustration is here given, and which is manufactured by Messrs. Arnold & Sons of West Smithfield. It consists of two semilunar pieces



made of some round, narrow, unyielding material, shaped to fit the edges of the lower and upper fragments. One piece slides on the other and admits of closing and separating them by means of screws and without any other movement; so that, when adjusted and firmly strapped to the side supports of a suitable splint prepared for it, the upper and lower pieces are perfectly rigid one with the other. It is then almost impossible for the patella to slip out of position. The semilunar pieces being narrow, they form grooves for themselves behind the fragments, and have a tendency to run under the bone instead of over-riding as most other appliances do; thus the pieces are kept firmly in good position in their proper plane and have no tendency to tilt. This apparatus was applied about the end of the third week from the date of the accident, and the patient removed to the couch.

At the end of the fourth week he came down stairs with assistance, and went out in a Bath chair. At the fifth week he walked round the garden with the aid of sticks. At the seventh week he walked a mile with one stick. At the end of the eighth week he returned to business, walking to and fro, that is, two miles daily. He could walk well wearing the appliance, and experienced very little inconvenience, and to the best of my knowledge the fragments never slipped once during the twenty weeks that he wore the splint. The pressure was relieved at times by small tufts of cotton-wool, and by wearing an old splint at night, but during the latter part of the time nothing was worn at night, thus abrasions from continued pressure were avoided entirely.

The patient now walks well, and is not particular as to distance, but still wears a contrivance to support the knee-cap and limit the movements of the joint. The advantages claimed for the appliance are these:—

1. As soon as the primary inflammation has subsided and the apparatus firmly and properly adjusted, the patient can begin to move about, and in a short time follow his usual business pursuits.

2. The long confinement to bed is avoided; thus the patient retains his health and strength, and the condition is more favorable to the repair of tissues.

3. Easy adjustment of fragments and the keeping of them in good position, without fear of slipping when the patient is walking.

4. The slight movement of knee in walking prevents a stiff joint, and keeps up sufficient activity in the parts to complete the union.

Lastly, but not least, as far as the patient is concerned, the reduction of the "doctor's bill," as he will require much less attention.

I consider the case here mentioned to be a good test case for trying the merits of the invention; for if the surgeon can secure a good union in a refracture and under such adverse circumstances, surely the results will be far superior in the case of primary fracture.

Guildford.

THE THERAPEUTICAL DRINKING OF HOT WATER; ITS ORIGIN AND USE.

By EPHRAIM CUTTER, M.D. New York.

THE therapeutical drinking of water at a temperature of blood heat to 150° F. having become popular enough to call for an allusion to it in *THE LANCET*, as a valuable American contribution to medicine, and since it seems to be used at random from the directions of its distinguished introducer, I have thought that the origin and proper use of hot water should become history. The practice dates back to 1858, when Dr. James H. Salisbury, of this city, concluded a series of experiments on feeding animals to ascertain the relations of food as a cause and cure of disease. Besides swine, he experimented on men. These he took in companies of six healthy laborers, placed under military discipline, which he enforced himself. He also ate and drank as they did. The men were kept on single articles of food, coffee, and water. Among these articles were beans, beef, bread, chicken, crackers, fish, lobster, mutton, potatoes, rice, turkey, oatmeal. The blood, urine, and feces of the animals were carefully examined microscopically and chemically daily without any preconceived idea to develop, but simply to ascertain facts and develop ideas from those facts. In this manner he went through the whole range of food to show the permanent value when lived on exclusively and singly. Among other things, he found that the fermentations of food, and the products of these fermentations, were the chief primary factors in producing the diseases which arise from unhealthy alimentation. With the idea of removing these diseases by removing their causes, he employed hot water in order to wash out the saccharic, acetic, butyric, hydrosulphuric, and lactic acids, and sulphide-of-ammonium fermentation-vegetations (yeasts), from the stomach and intestines. At first he tried cold water on his men to remove these products of fermentation, but the cold water caused distress, pain, and colic, so he increased the temperature of the water. Lukewarm water made them sick at the stomach, and excited peristalsis upward. The temperature of the water was increased to hot—110° to 150°. This was well borne, and afforded a feeling of agreeable relief, which thousands since testify to. The hot water excites normal downward peristalsis of the alimentary canal, washes down the slime, yeast, and bile through its normal channels, washes out the liver and kidneys, and the bile is eliminated through the bowels, and not through the blood *via* the kidneys. It was some time before the proper times of administration, and proper number of ounces of hot water, and the proper number of ounces to be drunk at meals could be settled in order to obtain the best results.

These directions may be found published in connection with the Salisbury plans for the treatment of consumption, Bright's disease, diabetes, fibroids, sclerosis, and colloid diseases. At the risk of repetition, and for the sake of a more thorough understanding of the subject, these details will be plainly and simply given.

1. *Directions for using Hot Water according to the Salisbury Plans.*—The water must be hot, not cold or lukewarm. By hot water is meant a temperature of 110°–150° F., such as is commonly liked in the use of tea and coffee. This is to excite downward peristalsis of the alimentary canal. Cold water depresses, as it requires animal heat to bring it up to the temperature of the economy, and there is also a loss of nerve force in this proceeding. Lukewarm water excites upward peristalsis or vomiting, as is well known. In cases of diarrhoea the hotter the better. In cases of hæmorrhages the temperature should be at a blood heat. Ice water is disallowed in all cases, sick or well.

2. *Quantity of Hot Water at a Draught.*—Dr. Salisbury first began with one half pint of hot water, but he found it was not enough to wash out, nor to bear another test founded on the physiological fact that the urine of a healthy babe sucking at the breasts of a healthy mother, the best standard of health, stands at a sp. gr. varying from 1015 to 1020. The urine of the patient should be made to conform to this standard, and the daily use of the urinometer tells whether the patient drinks enough or too much hot water. For example, if the sp. gr. of the urine stands at 1030, more hot water should be drunk, unless there is a loss by sweating. On the other hand, should the sp. gr. fall to 1010, less hot water should be drunk. The quantity of hot water varies usually from half to one pint, or one pint and a half at one drinking. The urine to be tested should be the *urina sanguinis*, or that voided just after rising from bed in the morning, before any meals or drinks are taken. The quantity of urine voided in twenty-four hours should measure from forty-eight to sixty-four ounces. The amount will, of course, vary somewhat with the temperature of the atmosphere, exercise, sweating, etc., but the hot water must be given so as to keep the specific gravity to the infant's standard—to wit, 1015–1020. The urinometer will detect at once whether the proper amount of hot water has been drunk, no matter whether the patient is present or absent. Another test is that of odor. The urine should be devoid of the rank urinous smell so well known but indescribable. It should be like the babe's urine, free from odor, and deposit on cooling, and the color like that of champagne. The Salisbury plans aim for this in all cases, and when the patients are true and faithful the aim is realized.

3. *Times of taking Hot Water.*—One hour to two hours before each meal, and half an hour before retiring to bed. At first Dr. Salisbury tried the time of half an hour before meals, but this was apt to be followed by vomiting. One hour to two hours allows the hot water time enough to get out of the stomach before the food enters or sleep comes, and thus avoids vomiting. Four times a day gives an amount of hot water sufficient to bring the urine to the right specific gravity, quantity, color, odor, and freedom from deposit on cooling. If the patient leaves out one dose of hot water during an astronomical day, the omission will show in the increased specific gravity, as indicated by the urinometer, in the color etc. Should the patient be thirsty between meals, hot water can be taken any time between two hours after a meal and one hour before the next meal. This is to avoid diluting the food in the stomach with water.

4. *Mode of taking the Hot Water.*—In drinking the hot water it should be sipped, and not drunk so fast as to distend the stomach and make it feel uncomfortable. From fifteen to thirty minutes may be consumed during the drinking of the hot water.

5. *Length of Time to continue the Use of Hot Water.*—A period of six months is generally required to wash out the liver and intestines thoroughly. As it promotes health, the procedure can be practiced by people in health throughout life, and the benefits of cleanliness inside be enjoyed. The drag and friction on human existence from the effects of fermentation, foulness and indigestible food, when removed, give life a wonderful elasticity and buoyancy, like that of the babe above alluded to.

6. *Additions to Hot Water.*—In case it is desired to make it palatable, and medicate the hot water, aromatic spirits of ammonia, clover blossoms, ginger, lemon-juice, sage, salt, or sulphate of magnesia, are sometimes added. Where there are intense thirst and dryness, a pinch of chloride of calcium or nitrate of potash may be added to allay the thirst and leave a moistened film over the parched and dry mucous membrane surfaces. When there is diarrhoea, cinnamon, ginger, and pepper may be boiled in the hot water, and the quantity lessened. For constipation a teaspoonful of sulphate of magnesia, or half a teaspoonful of taraxacum, may be used in the hot water.

7. *Amount of Liquid to be drunk at a Meal.*—Not more than eight ounces. This is in order not to unduly dilute the gastric-juice or wash it out prematurely, and thus interfere with the digestive processes.

8. *The Effects of Drinking of Hot Water as indicated are:*—The improved feelings of the patient. The *fecæ* become black with bile washed down its normal channel. This blackness of *fecæ* lasts for more than six months, but the intolerable fetid odor of ordinary *fecæ* is abated, and the smell approximates the odor of the *fecæ* of healthy infants sucking at healthy breasts; and this shows that the ordinary nuisance of fetid *fecæ* is due to want of a proper washing out and cleansing of the alimentary canal from its fermenting contents. The urine is as clear as champagne, free from deposit on cooling, or odor, 1015 to 1020 sp. gr., like an infant's urine. The sweat starts freely after drinking, giving a true bath from the centre of the body to the periphery. The skin becomes healthy in feel and appearance. The digestion is correspondingly improved, and with this improvement comes a better working of the machine. All thirst and dry mucous membrane disappear in a few days, and a moist condition of the mucous membrane and skin takes place. Ice-water in hot weather is not craved; and those who have drunk ice-water freely are cured of the propensity. Inebriety has a deadly foe in this use of hot water.

9. *Summary of General Considerations on the Therapeutical Drinking of Hot Water.*—(a) Foundation for all treatment of chronic diseases. (b) Excites downwards peristalsis. (c) Relieves spasm or colic of the bowels by applying the relaxing influence of heat inside the alimentary canal, just as heat applied outside the abdomen relieves. (d) Dilutes theropy secretions of the whole body, and renders them less adhesive, sticky, and tenacious. (e) Inside bath. (f) Dissolves the abnormal crystalline substances that may be in the blood and urine. (g) Necessary to have the hot water out of the stomach before meals. (h) Its use is to wash down the bile, slime, yeast, and waste, and have the stomach fresh and clean for eating. (i) Promotes elimination everywhere. (j)

If objection is made, it must be remembered that we are 75 per cent. water. (c) The gas that sometimes eructates after drinking hot water is not formed by the hot water, but was present before, and the contractions of peristalsis eject it, or sometimes it is the air that is swallowed in sipping, as horses suck air. The amount of gas contained in the alimentary canal is larger than most are aware of, and yet it is not excessive, as it takes some time to eruct a gallon of gas from the stomach. This time can be tested by submerging a gallon jug filled with air under water and observing how long it will be in filling with water. (l) Some physicians have advised against hot water on the ground that it would burn the covering off the stomach. If this is so, then a denudation of the lining of the stomach for twenty-five years is compatible with a state of otherwise perfect health with no sign of illness for that period of time, and is also compatible with the numerous cures that have occurred under the use of hot water as a foundation during the past twenty-five years. Again, the same physicians drink tea and coffee at the same temperatures, and this act belies their warning and shows their inconstance and want of consideration before speaking. (m) These dicta about the therapeutical drinking of hot water were founded on physiological experiments at the outset, verified in pathology and based on the experience derived from the treatment of thousands of cases since 1858.

Personal Estimate of the Founder of this Practice.—"If I were confined to one means of medication I would take hot water." It may be added that he has drunk hot water for twenty-five years.

Corroboration of the Writer.—The writer testifies that his own personal experience and observation corroborate the truth of these statements of the Salisbury plans.

New York, 1883.

AUTOPSY ON A CASE OF PROLONGED VOMITING.

By H. WHEATLEY HART, M.R.C.S.

THE following case, recently under the care of Mr. Wm. H. Rix, surgeon to the Tunbridge Wells Infirmary, will, I think, be read with interest.

Mrs. E. J—, aged fifty-eight, had suffered more or less for twenty years from this distressing symptom, the characters of it being that frequently after food she suffered from a sense of pain and heaviness somewhat above the pit of the stomach, which continued until vomiting ensued. This, however, was not always so, as sometimes during a period of two or three days she would be tolerably free from both pain and sickness. On physical examination of both chest and abdomen, no signs had been discoverable; the urine contained no albumen, and the normal functions, except those of taking food and digestion, had been carried on well. The patient died on July 29th from gradually increasing anemia and inanition.

At the post-mortem the pleura were found firmly adherent throughout, but the lungs presented no signs of pressure; the pericardium was also intimately adherent where it met the chest-wall, and also to the whole of the surface of the heart; the left ventricle and aorta were considerably dilated; there were several bronchial glands much enlarged, and in a condition of calcareous degeneration. The mucous membrane of the stomach was fairly normal, with the exception of an area of undue vascularity along the lesser curvature; the organ itself was somewhat shrunken, while the cardiac

orifice was excessively contracted, only just admitting the little finger, and that with difficulty; there was, however, no thickened or indurated tissue around the contraction. The œsophagus was enormously dilated above this point of stricture, containing a large quantity of grumous fluid. It occupied a position to the right of the vertebral column, lying in the hollows formed by the angle of the ribs. At the spot where the dilated œsophagus came in contact with the diaphragm it was bent on itself nearly in the form of a right angle, forming a curve as it passed from the right side of the chest to the opening in the diaphragm on the further side of the mesial line. On removing the organ its shape was found to have a remarkable resemblance to an ordinary stomach; it had a gross cubical capacity of twenty-five fluid ounces, and the muscular tissue was found to be very much hypertrophied. The kidneys were slightly granular, but the other organs fairly normal.

The point of interest is that such a partial stricture should have caused so enormous a dilatation above it, and the strong probability is that it was due to the adhesions, existing in the thorax, undergoing gradual contraction, and so causing a deviation of the œsophagus from the direct line at its passage through the diaphragm, and thus was produced a dragging on this structure against the tendinous fibres of the diaphragm, converting a canal, the comfortable patency of which is so necessary to health, into a condition of obliquity and stenosis, varying according to the movements of the diaphragm and the contents of the thoracic cavity.

Tunbridge Wells.

DIPHTHERIA; ITS ETIOLOGY AND TREATMENT.¹

By ALFRED CARPENTER, M.D. Lond., etc.

THE etiology of diphtheria is still a disputed point. There are many reasons why this is to be regretted, the most important being that treatment must be empirical until its causation is determined with certainty. Intimately associated with causation are the sequelæ which follow upon its incidence, and no explanation will be satisfactory which does not thoroughly elucidate their occurrence. The latter may be divided into two sections: those which are immediate, and those which probably follow in the relation of cause and effect, but which are at present seldom associated in the minds of the medical attendant with the preceding diphtheritic condition. I propose to show the intimate relationship between these classes of cases, and to point out that treatment to be effectual must be based upon rational lines, and be followed out on those lines to the termination of the case. Without asserting that diphtheria and potato disease are in any way allied to each other, except by analogy, I have been struck by the similarity of the effect produced in both diseases. The breathing passages are impeded. There is a similar train of results, though in the opposite direction. In the one case carbonic acid cannot get into the plant to allow of the evolution of oxygen; and in the other oxygen fails to get admission to the blood-current, so as to allow of the oxidation of carbon in the various tissues of the body. There is in both cases suffocation and rapid death when the disease is immediately severe. If the course of the disease is not so rapid, and death does not arise from asphyxia, the nutritive fluid

¹ A paper read in the Health Section, British Medical Association, Liverpool, August 1st, 1883.

becomes altered by something intimately connected with the causation of the disease, and which leads to death either by paralysis or by failure of nerve power in the human body; whilst in vegetable life it arises from simple loss of power to assimilate the juices upon which the life of the plant depends. There is a blighted state produced by which the crop is destroyed sooner or later in the course of the season. If both these dangers are escaped, the fruit is permeated by a mycelium which produces seed of its own: the evil day is postponed; but when the store is opened in midwinter a large portion of the crop is found to be invaded by processes similar to necrosis, and which may be likened to the sequelæ of diphtheria. Even those potatoes which seem sound are permeated by mycelium, or have so-called resting spores in their buds only waiting for seasonable opportunities to develop into new growths, which will inevitably destroy the potato, and prevent any healthy production from that part of it which is so affected. The causation of one kind of potato rot is recognized as produced by a fungus called *botrytis*, or *peronospora infestans*, one of the genus *mucidines*, or *hyphomycetous fungi*. They form the commonest moulds upon decaying vegetable substances, and include some parasitic families which produce great destruction in vegetable matters. Their germs are always present almost everywhere, and only want a forcing bed in which they can develop, and then their effects are immediately manifest. There is great doubt in the minds of some men as to the capacity of parasitic life either to injure plants or animals which are in vigorous health. It is possible that this doubt has a sound basis, and that we may agree with my great teacher, John Simon, "that a contagium of a given disease, such as small-pox or measles [I here interpose diphtheria and potato rot] has no more power to influence the unprepared body than yeast has to ferment alcohol, or to turn pure water into beer." I am now inclined to think that this is so, and that in the absence of some impurity in the blood of the animal or the juice of the plant—that in the absence of some material which is the sequence of the act of living, and which material has not been properly excreted out of the system—the germs which set up parasitic diseases would fail to find a pabulum in which they could increase and multiply, and that they would be starved, so as to ultimately abort or dwindle away to nothing, and thus fail to establish a colony in their victim. I have taken up this view for a variety of reasons. It is true it is not indubitably established that infectious disease, such as diphtheria, is the result of filth in the home or in its surroundings, but the presence of the disease in the great majority of instances is intimately associated with decomposing excreta in some form or other. I have therefore come to the conclusion that when it fails to be proved to be so associated from the absence of any such visible cause outside the body, it is because the excreta have not passed away from the blood of the recipient, and that they are still within the curtilage of the human dwelling-house—that is, within the living precincts of its producers.

The connection of filth diseases with human excreta is a recognized fact. Diarrhœa, cholera, and enteric fever are certainly associated with human filth; a relaxed throat with diphtheritic exudation is also recognized as intimately connected with similar states, so that a person so affected cannot be cured whilst residing in a given dwelling house in which the air is impregnated with the results of sewage decomposition. He must move into a purer atmosphere before the diseased state of his mucous membrane can be remedied.

And why? He is like a man well able, under ordinary circumstances, to swim if naked; but his head is just under water because of heavy boots or other weight loading him beyond his swimming powers. The impure air acting like the boots, prevents that healthy assimilation of food by the aid of which he would recover power to resist the influence of the fungoid germs which irritate his mucous membrane; just as some men are from so-called peculiar idiosyncrasies unable to resist the influence of the pollen of some kind of grasses and become subject to hay fever, whilst others do not feel them in the least, and are not so affected.

I do not assume that the excreta of a human being retained within his own body are necessarily hurtful simply from retention. That is disproved every day of one's life, but I contend that it is impossible for an excretory organ to be defective for some time and to fail in its complete and regular duty without some minute particles of organic impurity being retained in the fluids of the body in a condition which is foreign to their ordinary state. The blood is placed in that form which is analogous to what obtains in the sufferer from hay fever, when a person so situated is exposed to the germs upon which diphtheria depends for its production, he becomes the victim of that disease. If he was not in that particular condition, he would not be affected by diphtheria any more than the majority of us in this room would be affected by hay fever if we joined a hay-making party. This view of the case will explain why we occasionally find diphtheria in exceptionally clean and healthy neighborhoods. It will explain its hereditary tendencies and the so-called idiosyncrasies of those who appear to be especially prone to its ravages. I have reason to believe that temperature has much to do with its sudden development. That whilst it is certain that ranges of hills in open country are liable to its incidence as much probably as less elevated spots, that it arises at clusters of cottages entirely away from sewers or a general water supply, and seems to arise *suo sponte*; yet it does at times follow lines of sewers in a way that shows that intimate connection with drainage which is suggestive of cause and effect; it is also propagated by milk-sellers, as is shown by evidence which cannot be disputed. It is not more prevalent in hot seasons, but, on the contrary, it seems more general in the colder months, producing greater mortality during or soon after sudden violent reductions of temperature than at other times. I have always found that its development has been associated either with washing-day, when hot water has been allowed to flow into the cesspool or drain, or that there has been a communication between the sewer and some steam-engine or other source of hot water, which has elevated the temperature of the sewerage to blood-heat. It is to this point that I wish to direct the attention of those who are inquiring into outbreaks of diphtheria. The connection of tub-night with croup is not unknown; I believe it was in Edinburgh that, some forty years ago, at a conference of medical men, it was discovered that Saturday night was the night upon which the majority of the attacks of so-called croup took place among the poor, and that it was shown to be intimately connected with the Saturday night tubbing with which the Scotch were then accustomed to treat their children, the steamy condition of the rooms in which they slept bringing into sudden activity the germs upon which I believe the disease to depend for its development. That a particular form of micrococci or germ is always present in diphtheritic exudation, and that this germ is capable of setting up the disease, have been established upon a sound basis. The germ has been

cultivated in the vitreous humor of the eyeball, it has passed through several generations, and the operator has ultimately been able to reproduce the same disease in another animal in a way which shows its complete identity. These micrococci are excessively minute, probably less than 1-30,000th of an inch in diameter. They have a life history of their own, and though not identical with botrytis or peronospora, they must have reproductive organs, they follow the life history of the algae, as well as being endowed with some of the properties of the fungal tribes, and have probably resting spores as well as ordinary spores, both kinds developing together. From analogy we may assume that the resting spores are much less destructible than the ordinary spores, and are capable of preservation under conditions which enable them to reproduce their kind whenever the conditions arise which are required for the purpose.

What are these conditions? (1) The presence of certain forms of excreta; (2) of an elevated temperature, not much below blood-heat, but below that requisite for the coagulation of albumen; (3) of an atmosphere saturated with moisture, and probably also with (4) an excess of carbonic or some other acid in the air, by which the growth of the germ is determined; and (5) some other meteorological or electric manifestation at present entirely unknown. If these states coincide, the resting spore becomes active, it finds material which it can assimilate, and the disease is set up, commencing in the mucous membrane of the throat, that being the very place in which we find moisture, warmth, and CO_2 . The way in which such actions do take place is manifest from the fact that the spores of a mushroom cannot be cultivated unless they have been in contact with the mucous membrane of some of the equine tribe. So diphtheritic germs (like the pollen of plants which fall upon the stigma of an appropriate carpel), as soon as they touch such a mucous surface, at once put forth all their vigor; an invisible mycelium is put out, a change takes place in the character of the fluids of the part, the disease arises and runs its course, and passes through the changes which indicate its presence. A felt-like mass forms in the throat, the patient dies asphyxiated, or the blood is so altered by the action of the micrococcus that the blood-corpuscles no longer perform their duty, and oxygen gradually ceases to be assimilated. This leads to failure of action in certain nerve centres, and paralysis may result. The micrococci have a life history of their own, a definite course to run; they are expelled by some of the excretory organs, and those which escape expulsion die in the course of time, leaving behind them spores similar to resting spores, which may set up sequelæ in an unexpected manner and at unexpected times. Returning to the conditions, let me say that as regards the character of the excreta this must be peculiar; that as scarlatina probably has its origin when apparently arising *suo sponte* in the blood of animals which are not in a healthy state, and which is undergoing decomposition, so the diphtheritic germ has its apparent origin *de novo* from morbid matter produced in the tissues of animals. It is probable that the excreta of vegetable feeders do not furnish germs which could develop into diphtheritic micrococci. That if a right condition be present the cells are hatched, and they then are capable of extension by so-called contagion, but that even then it is requisite that the recipient shall be in a state fitted to receive it, and like to the carpel of a fruit ready for the pollen which is peculiar to it, otherwise the cell fails to find fitting pabulum for its extension and the development of its reproductive organs. An elevated tem-

perature is necessary, together with an atmosphere saturated with moisture. I conclude that this is so, because I have always found the coincidence in first outbreaks, and the consensus of opinion points to the necessity for moisture or dampness whenever the disease is epidemic. I go also to analogy for support in this view. The potato disease spreads more rapidly in the damp atmosphere which is found among the rank vegetation of overgrown haulms on those days on which the sun is obscured by clouds and the air itself close, full of moisture, and the temperature high. Sunlight and dryness soon remove the incidence of potato blight. The latter, however, does not require the elevated temperature which is requisite for the hatching of diphtheritic spores, but the warmth of a day in which thunderstorms abound is sufficient for the purposes of promoting potato disease. That carbonic or some other gaseous acid must be present is probably the case, because it has been shown that minute fungi grow much more rapidly and much more luxuriantly in such an atmosphere. It is probable that water which is free from carbonic or some other acid in solution will not be able to propagate even typhoid germs for want of the necessary pabulum, which accounts for the fact of certain waters, apparently free from suspicion of the presence of any infective principle, suddenly developing such a tendency from having lost their power of neutralizing the CO_2 for want of lime sufficient for the purpose, or of discharging it into the atmosphere. In this case typhoid germs rapidly multiply in the water, and disease is spread by its means, and so it is that diphtheria suddenly springs into great activity. There is a rapid fall of temperature, lasting for a day or two; the managers in a given school, or other places similarly situated, are not prepared for the change; fires are not lighted, but the cold and usually damp air is shut out, and the atmosphere of the school becomes highly charged with CO_2 ; and if it should happen that a child with an infectious throat is present, the disease spreads as rapidly as potato rot spreads on a favorable day. If there are the excreta of such people in the sewer, the admission of large quantities of hot water forces out a steaming air into the closed-up premises from the defective drain. But how will this explain the sequelæ which so frequently follow upon diphtheritic mischief? I mentioned the fact that potato rot is known to be propagated by the agency of resting spores. These are spores or germs which are shut up in a very resistant envelope which enables them to retain their vitality in adverse circumstances, so that heat, if it be not much above 212° , and cold even at zero, will fail to destroy them. These spores may by analogy be fairly assumed to exist. The ordinary spores are evacuated from the system as the patient recovers, but the resting spores remain in contact with the lining membrane of the bloodvessels, or they are carried by the blood-current into some of those parts of the body which usually act as filters and retain matters which are foreign to the blood-current. Perhaps they attach themselves to lining membranes such as is on the valves of the heart; they may there as they develop set up actions such as ulcerative endocarditis, then being detached from the valves as they increase in size they irritate the membrane, and being carried on by the blood-current they produce emboli at the spot to which they are carried. There they multiply sooner or later, and the sequences of the disease appear as if they were separate and independent diseases, and as such are often registered among the causes of death, totally independent of the preceding diphtheritic condition.

I have the history of a considerable number of.

cases in which inflammations of different organs have come on a few weeks after the patient has suffered from a moderately slight throat affection which has not been recognized as diphtheria, but which has been coincident in point of time and place with true diphtheritic attacks, that I have been inclined to look upon the so-called inflammations as having been caused by diphtheritic emboli, and have treated them accordingly. That I now advise that course in the majority of cases in which the inflammatory attack appears to be idiopathic—that is, if it has not been preceded by some known chronic diseased state of the suffering part.

The treatment has been the use of ammonia as the proper stimulant, so as to reduce the acidity of the blood, for I have generally found these cases in constitutions which are either rheumatic with the lactic acid diathesis, or gouty with an excess of lithic acid in the constitution. I have generally given alkalies, as lithia or potass in combination with it, and when there has been an elevated temperature, which has indicated excessive chemical action in the invaded part, I have given the sulpho-carbolate of soda with the greatest possible benefit. This salt reduces temperature most likely by its antiparasitic power, for as soon as a few doses have been given the fever subsides, and the patient is much relieved; but if the medicine be left off too soon there is certain to be a relapse. This is very disappointing, and if the practitioner is disheartened and tries another remedy the patient will probably die; but if he continues the sulpho-carbolate he will ultimately destroy all the developing resting spores in the tissues of his patient, and lead him on to a perfect recovery. It is curious how in these cases organ after organ becomes involved in the disease; it is also curious, but highly satisfactory, that the congestions or embolisms follow one another in point of time, otherwise there would be very little chance for the patient to recover. I would urge the practitioner to continue the sulpho-carbolate in small doses, first with the ammonia, and after a time, with quinine, avoiding altogether the mineral acids, as such appear to allow of a more rapid development of resting spores and a further relapse. As regards the local treatment of diphtheria, I have been accustomed to treat it on scientific principles, and attack the disease just as my gardener attacks the oidium upon grapes and parasitic diseases upon vegetables generally. I apply the powder of washed sulphur to the throat very frequently, blowing it into the fauces, and applying it by means of a brush with a little glycerine or honey, alternating the application with a little sulphurous acid in solution. It is not a painful application, it destroys the mycelium and the ordinary spores which produce the disease; if this is done quickly, so that the growths do not penetrate to the deeper tissues, no resting spores will find admission to the body, and there will be no following sequelæ. I have also been accustomed to advise that creasote be kept in the room, so that the air may be placed in that condition which diminishes, if it does not destroy, the growth and development of hyphomycetous fungi.

— A LETTER has been sent to the Home Secretary by the Presidents of the College of Physicians and of the College of Surgeons, in obedience to a request made at a recent meeting of the Association for the Advancement of Medicine by Research, informing Sir William Harcourt of the almost unanimous feeling of the Fellows and Members of the two Colleges against the Bill for the Abolition of Vivisection.

LAPAROTOMY FOR INTERNAL STRANGULATION; WITH REMARKS ON THE OPERATION.

By BENNETT MAY, B.S., F.R.C.S.,

Surgeon to the Queen's Hospital, Demonstrator of Operative Surgery at Queen's College, Birmingham.

I HOPE that this record may be found to embody points of interest in the clinical history, diagnosis, and treatment of this form of intestinal obstruction, and may thus add another link to the chain of evidence which is rapidly accumulating on the subject.

On Saturday, Sept. 23rd, 1882, I saw Mrs. E— for the first time in consultation with her medical attendant, Dr. Jackson. She was forty-one years of age, the mother of four children, and furnished the following history. On the previous Monday morning, whilst dancing a little grandchild up and down by its hands, and necessarily straining somewhat in the act, she suddenly felt an acute pain in the lower part of the abdomen, became faint, and vomited the contents of the stomach. She had a small evacuation of the bowels the same evening, but it was quite limited to the contents of the lower intestine, and with that exception nothing either fecal or gaseous had since passed. Everything taken into the stomach had been rejected, though sometimes she enjoyed an interval of eight or ten hours without sickness. She had an anxious, pained expression, but there was no shock or symptom of peritonitis; pulse 90, full and strong; tongue furred and creamy; abdomen was distended and tympanitic, but not painfully tense, and no tumour or marked inequality could be found in it. Pain, which was never absent, recurred in frequent paroxysms, specially referred to the left of the umbilicus. As she said, pressing the spot with her hand, nothing could pass there; she wanted something moved from there. Vomiting was taking place in large quantities, but at long intervals, the vomited matters being intestinal, but not fecal in odor. Further inquiry elicited that she had suffered from pain after food and constipation for several years; she was subject to flatulent dyspepsia, pain in the abdomen, and at times experienced great difficulty in getting an action of the bowels. Her daughter said that at these times she would remain as long as half an hour at stool, returning from it quite ill and faint. It was positively established, however, that within twenty-four hours of the seizure she was quite well and passed a well-formed motion. The urine was being secreted in greatly diminished quantity. On the 21st she was seen by a physician, who prescribed morphia subcutaneously with ice, and indicated the probable need of an operation. This treatment gave considerable relief, and calmed both pain and sickness.

On the 24th the patient's condition was much the same as on the previous day, but the vomit was slightly fecal. To the left of the umbilicus an inflated intestinal coil caused the abdomen to look more prominent at that spot than elsewhere, but there was no tumour or dullness. The patient being under the influence of ether, I explored the rectum, and my first impression was that the obstruction might lie there, for the finger appeared to enter a cul-de-sac and on withdrawal was smeared with bloody mucus. However, after injecting a pint of warm water all feeling of obstruction had disappeared, and it was shown that the blood and mucus were due to piles, from which she suffered. She retained in all three pints of fluid, which shortly regurgitated unchanged.

While injecting, I auscultated along the course of the colon back to the cæcum, but was not sufficiently conversant with this test to distinguish the gurgling from the ordinary intestinal sounds produced by increased peristalsis. The history and examination seemed to warrant the following conclusions:—1. That obstruction set in suddenly during straining, and had existed for six days. 2. That it was complete as regards the intestinal contents. 3. That it was situated in the small intestine. 4. That hitherto there was no symptom of peritonitis or arrested circulation. 5. That medical treatment was unable to afford relief. The diagnosis appeared to lie between intussusception, strangulation by a band, and volvulus. Against the former there was the patient's age, the absence of tumour, and tenesmus, and I regarded the symptoms as decidedly too subacute for twisted intestine. It was necessary also not to overlook the possibility of sudden culmination of symptoms in a case of chronic disease, such as contraction of the intestine by bands, adhesions, or chronic stricture. Her age and the previous history of difficult defecations gave probability to this view, but it again appeared negatived by the fact that within twenty-four hours of seizure she was in excellent health and passed a normal motion. An operation was recommended, and, consent having been given in the afternoon, was performed on the 24th of September. In this I was assisted by Dr. Jackson, who administered ether, and by Mr. A. F. Hawkins. The abdomen was opened by median incision sufficiently to admit three fingers, but as the cause of obstruction could not be felt, the wound was enlarged sufficiently to admit the hand. At first no progress could be made amongst the dilated intestinal coils, which welled up and obstructed every movement of the hand; but by continuing the search towards the left colon I was able to identify that part of the large intestine by its attached mesocolon. The intestines were not allowed to prolapse through the wound, and no attempt was made to follow the continuity of their distended coils, such being evidently too difficult, tedious, and dangerous to be of practical value. Finding the colon empty, I carried the hand gently downwards and across the pelvis, exploring more fully the seat of pain below the umbilicus, and here I was soon arrested by something which there was no difficulty in making out to be a strong cord-like band buried in a loop of small intestine. By manipulation and gently pressing back the surrounding intestines, it was brought to the surface and fairly exposed to view. It was then seen to be situated at the back of the abdominal wall, to the left of the sacral promontory. The band appeared to be one of the appendices epiploicæ from the sigmoid mesocolon, which instead of floating free in the abdominal cavity had become attached by its loose extremity to the peritoneum near the sacral promontory, thus forming an arch or ring about an inch and a quarter in diameter, the plane of which was horizontal in direction. Into this trap there had slipped from above a loop of the ileum, the whole length of which would be from eight to ten inches. This portion of intestine was pale, flaccid, and empty, whilst on the other side of the ring the coil towards the duodenum was greatly dilated and of deep red color. At the point of constriction the intestine was grooved by the band, but was not ulcerated or inflamed. There was no peritonitis, the abdomen containing a little pale serum only. I am not able to verify the exact nature of the band, but it was a hollow tube, and in all probability a diverticulum from the neighboring intestine, seemingly the sigmoid flexure whence its larger end appeared to spring. The smaller end was lost in the mesentery or peritoneum at the back

of the abdominal wall. The average thickness was a quarter of an inch, and its condition was noteworthy. It was frayed and ulcerated on the surface from its own tension and the compression to which it had been subjected. It was divided between a double ligature, and the collapsed intestine filling up soon righted itself. No further exploration or replacement was made, the abdomen being closed by sutures after the little necessary cleaning.

Sept. 25th.—Has been perfectly relieved by operation; all sickness and pain gone; pulse 104; expression good.—26th: Improvement maintained; abdomen much reduced in size; pulse 96; flatus freely passed.—27th: Up to to-day every point has been satisfactory, but there has been no action of the bowels. She complains of a little pain at the right side of the wound, which has healed. As the discomfort might be due to fecal accumulation and flatus, a large enema was given, which brought back some liquid fecal matter, but gave little relief.—28th: She complains of fixed pain to the right of the umbilicus, and there swelling which had disappeared, has returned slightly; pulse 104; no sickness; restless and anxious-looking.—29th: Pain and swelling increasing. A copious enema brought away a large quantity of liquid fecal matter, which also continued to escape from her during the day, and though the abdomen generally was relieved, there was no relief to the part in question; pulse 110, with increasing anxiety and depression.

Oct. 1st.—Symptoms more severe, indicating approaching collapse. Fæcal matter and flatus continued to escape from the rectum, but without relief to local pain. She died on the following day, the ninth from the operation.

Unfortunately it was only possible to make an examination of the wound. On removing the stitches it was found that a coil of small intestine to the right was much inflated and of deep red color, and it was further seen to be in this condition from the twisting of a loop of the ileum on its own axis. At the angle of bending the intestine was in a state of local gangrenous enteritis. There was no mark of groove or furrowing by the band, and all that could be seen of this was some shrivelled discolored tissue. Peritonitis was not general, but was intense at the angle of torsion. It is difficult to understand the mechanism of this twisting. It did not exist at the time of operation, and symptoms did not appear for a day or two afterwards. Presumably it occurred during spontaneous movements of the loop which was liberated, but I do not think this portion of intestine identical with that which afterwards became twisted. I think this latter was much more probably the part next to the band, on the duodenal side. There was more congestion and distension here than elsewhere. As the rectification after division of the band appeared complete and satisfactory, I did not consider it necessary or prudent to subject the intestines to more extended examination. I cannot call to mind any point I should wish to retrace, but I certainly do regret not having reopened the abdomen.

Referring to the subject of diagnosis, it is striking to notice how far the symptoms coincide with such as we should expect to exist under the conditions revealed at operation. The sudden seizure whilst in good health, and during straining, coincides with the moment when the intestine became entangled, and the localized pain indicated the region; the previous attacks of constipation and illness were probably due to occasional entanglements in a similar way, though in all these previous ones spontaneous replacement took place. The state of the intestine, rather pale

and empty, with the general subacute character of symptoms, is explained by the size and thickness of the band, which was not tense enough to arrest the circulation of the gut. But before operation diagnosis was little more than speculation. The only point which did appear to be well established was the fact of the obstruction being in the small intestine, but even this was problematical. On one occasion I encountered a stricture of the large intestine in a patient in whom the symptoms appeared to point equally strongly in the same direction.

Granted, however, the condition diagnosed, the necessity for early operation appears almost as great and urgent as in ordinary external strangulated hernia. But there is one preliminary measure I should wish to adopt under similar circumstances—it is that of inversion of the patient. It appears just possible that in this position the loop might have withdrawn either by gravitation or peristaltic movements. The condition of the band, frayed and ulcerated, also gave indication of a possible method of spontaneous relief—viz., the giving way of these structures by their own tension and the pressure to which they are subjected. Though this form of obstruction, the true internal hernia, in which the bowel is constricted by the edges of a natural or acquired orifice, is that for which laparotomy is most typically applicable, the success hitherto achieved has not been brilliant. One triumph, such as that recorded by Mr. Alder Smith,¹ ought to go far towards vindicating the operation. Other successes are recorded, and many of the fatal cases have been under circumstances which rendered operation almost hopeless.

In performing the operation of laparotomy for obstruction the surgeon will find it of the greatest value to have a method or system of proceeding. The difficulties that meet the operator are peculiar and distinct, and arise from the great tension within the abdominal cavity and gaseous distension of the intestines. As almost to the last it remains uncertain whether it is to be completed by artificial outlet, it is certainly advisable to select for the incision any part of the abdominal wall which may be indicated by well-marked or suspicious tumour. I had great inconvenience on one occasion from not doing this, but generally there will be nothing to contraindicate the median line as the best point of section. The wound should be just large enough to admit the hand, and through it a systematic attempt is to be made to explore the cavity. At first nothing can be distinguished amid the distended coils which well up and obstruct every movement of the hand. Fortunately most forms of obstruction are close by, and readily accessible. Congenital bands and diverticula are mostly situated on one side or the other of the sacral promontory, and within easy reach of the hand. It is convenient to explore this region first, carrying the hand into the pelvis, and, if nothing is found, to feel for some portion of the intestine, which is readily identified, as the descending colon or the cæcum. The large intestine can always be identified by its attached mesocolon, and its condition, whether full or empty, is a further index to the position of the obstruction. As the cæcum receives the stress of the accumulation in cases of obstruction in the large intestine, the remainder being often nearly empty, this portion is to be specially explored, and if found empty the hand passed from it over the ileo-cæcal valve on to the small intestine, where a gall-stone, if impacted, would

be readily detected, and the tumour formed by an intussuscepted intestine would certainly be felt.

The exploration in many cases will have been conducted thus far without escape of the abdominal contents. In some cases, however, room cannot possibly be made for the hand except by displacement of intestine or by an amount of pressure which it would not be prudent to subject the inflamed intestine to. Under these circumstances, or if the cause of obstruction remains unrevealed after exploration, the present method of search had better be abandoned, and an attempt made to follow the continuity of an intestinal coil. Before withdrawing the hand, however, the operator can readily explore the ordinary hernial apertures if there is the slightest suspicion of their being engaged. It is of the greatest importance to avoid prolapse of the contents, as it is often found impossible to replace the tympanitic intestines. In a case in which I experienced this the difficulty was owing to the fact that there was no cavity to put them in. The abdomen having been freely opened had ceased to be a cavity, and could not retain the intestines until this was remade by closing up the wound. Then the difficulty was overcome, and the intestines were gradually replaced. The attempt to relieve the tension by puncture is both useless and dangerous, as an opening large enough to emit gas permits leakage of the liquid contents. To follow the continuity of an intestinal coil, search is to be made for a portion that is collapsed. This will be found in the pelvis, at the lowermost part of the cavity. It is hopeless to follow the inflated intestine. The subject is dwelt upon and explained at length in an instructive case reported by Mr. Kingston Fowler, but he errs in concluding that no record has hitherto been made of it. More than one instance will be found in recent contributions to the medical journals and societies; and in March, 1883, I drew attention to it in the *Birmingham Medical Review*. If a band is discovered its division should be made between a double ligature. The intestine is to be dealt with on the same principles that guide us in ordinary hernia. If simply furrowed by the band and discolored, it is to be liberated and the abdomen closed. If clearly ulcerated and hopelessly damaged, the injured portion is to be brought out at the lower angle of the wound for an artificial opening. Supposing the operator finds the case to be one of constriction by adhesions of a chronic nature, causing angular bends and constrictions, he should be very sparing in his efforts at their separation. The intestine in these cases is easily torn; but, apart from this danger, there is a probability of failure owing to the fact that a second band may, and frequently does, exist, and escape the operator's search, or that the intestine is permanently constricted. The abdomen has frequently been reopened for this cause, and a second obstruction found. These are essentially cases for enterotomy, which was the appropriate operation from the first if a diagnosis could have been made, and by it the surgeon will probably require to complete his proceedings.

This patient's death under the circumstances was very grievous, as a case presenting conditions more favorable to recovery can hardly be looked for, and I would ask my readers to regard the untoward termination as an exceptional and accidental incident. Such it appears to me, and for the sake of the future of the operation I would rather dwell on the indications for treatment which were met by the operation and the early promise of success which this afforded.

Birmingham.

¹ British Medical Journal, May 26th, 1883.

A Mirror

OF

HOSPITAL PRACTICE,

BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendia, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ST. GEORGE'S HOSPITAL.

SUTURE OF THE MUSCULO-SPIRAL NERVE SIX MONTHS AFTER ITS COMPLETE DIVISION, WITH ENTIRE RESTORATION OF ITS FUNCTIONS ABOUT TWELVE MONTHS AFTER OPERATION.

(Under the care of Mr. PICK.)

IN THE LANCET a few months since Mr. Holmes narrated the history of a case of suture of the musculo-spiral nerve five months after its complete division. In the remarks which follow, Mr. Holmes alluded to a patient under the care of Mr. Pick on whom an operation very similar to the one reported had been performed. The operation was thought to have failed, and the boy was discharged, having apparently derived little, if any, benefit from the treatment. Through the kindness of Mr. Coltart, of Epsom, under whose care the patient was in the first instance, an opportunity has recently occurred of examining the case, and it is found that complete recovery, with perfect restoration of the functions of the nerve, has taken place. An account of the case will therefore be of interest, especially as it resembles Mr. Holmes's case in the fact that a long period of time elapsed before any decided improvement took place.

William C—, aged thirteen, was admitted into the hospital on Sept. 21st, 1881. The history he gave was that six months prior to admission he received a stab from a pointed, half worn out table knife in the left arm, some little distance above the elbow-joint. The wound was dressed at home, and healed in about a fortnight's time. The boy was not seen by any medical man. According to his own account and also that of his mother, he was able to use his hand and arm as well as ever after the accident. Of this both the boy and his mother are quite positive. Shortly afterwards he began to notice slight dropping of the left wrist. At first he was able to extend the fingers, but in time all power of extension was lost and the wrist permanently flexed. Gradually the forearm became wasted and cold, and the loss of power more complete.

On admission there was found to be a cicatrix about four inches above and a little behind the external condyle of the left humerus. It was about three-quarters of an inch in length, and was not adherent to the bone or deeper parts. The humerus beneath seemed to be a little irregular and bossy, and pressure on the spot was attended with pain. The muscles of the forearm were wasted, especially the supinators and extensors. The wrist was dropped, the fingers flexed, and there was no power of extension. There was a sensible diminution of temperature over the forearm as compared with the other side. In the clefts of the fingers supplied by the radial nerve the temperature, as indicated by an ordinary clinical thermometer, was two degrees lower than in a corresponding position on the right side.

On Oct. 6th, 1881, an Esmarch's bandage was applied, and an incision about two inches long

was made just below the cicatrix and in the course of the musculo-spiral nerve. The nerve was readily exposed. It was found to be completely divided, the ends being separated for about half an inch, and merely connected together by a little cellular tissue. The upper end was bulbous and enlarged, the lower end wasted and bound down to the subjacent bone. The latter was freed by dissection. Both ends of the nerve were refreshed (the bulbous neuroma being removed), and were sewn together with fine catgut suture. The wound was dressed antiseptically.

After the operation the boy complained of severe pain for about six hours. This, however, suddenly ceased in the evening of the day of operation, and he passed a good night. The wound was some time in healing—in fact, it was not completely healed for about a month. At the end of a fortnight there seemed to be some power of extension returning, but it was very slight. The boy stated that sensation was much greater than before the operation; but it was believed that he rather exaggerated his feelings in this respect, in dread least another operation should have to be performed. There was no doubt, however, that the temperature of the limb gradually increased, for on his discharge from the hospital no difference could be detected upon comparing the two sides of the body.

The patient was kept under observation till Dec. 23rd, when he was discharged with instructions to show himself at the end of three months. At this time the wrist was still dropped, but he could move his fingers slightly, and it was thought by some that the extensors were a little more developed than upon his admission. The supinator longus had not improved in the least, but had dwindled down to a mere cord, which could be pinched up with the finger and thumb.

Nothing more was seen or heard of the boy until July of the present year, when he was sought out and sent up from Epsom by Mr. Coltart for inspection. The functions of the nerve are now completely restored. Sensation is perfect, and all the movements of extension of the wrist and fingers are performed as well on the one side as the other. The muscles on the injured side are not quite so fully developed as on the sound side, but then it must be remembered that the injury was in the left arm, and that he uses the right one principally in his daily work. He seems to be unable to give any accurate idea as to when the improvement first became obvious to him, but from his account it would appear to be probable that there was no very marked change for at least twelve months after the operation. The bulbous end of the nerve, which was removed at the operation, was subjected to microscopic examination, and it was found that the enlargement was principally due to increase in the perineurium, but also partly to connective tissue growing up between the nerve bundles. The growth had caused the tubules to be pressed together, the axis cylinder having been completely atrophied.

ROYAL UNITED HOSPITAL, BATH.

FIVE CASES OF TYPHOID FEVER TREATED BY COLD BATHS, FOLLOWED BY SALICYLATE OF SODA; REMARKS.

(Under the care of Dr. H. F. A. GOODRIDGE.)

FOR the following notes and remarks we are indebted to Mr. M. W. H. Russell, resident medical officer.

CASE 1.—Henry D—, aged ten years, was admitted into George ward on January 26th, 1883.

He felt quite well until four days before admission, when his appetite failed and he had headache and general lassitude. The following day the bowels became loose and he developed a cough. He rapidly got worse, cough and diarrhoea persisting.

On admission the temperature was 103° F., the pulse 124, small and feeble, and respiration 32. Patient fairly nourished. Has flushed face, cough, weakness, complete loss of appetite and diarrhoea. Stools very loose and pale. Is very drowsy and stupid. Tongue, clean tip and edges, dorsum furred. Heart irregular, sounds feeble; no bruit. All over lungs abundant sonoro-sibilant rhonchus. No expectoration. Abdomen: convex, tympanitic; abundant gurgling with tenderness in right iliac fossa. Three rose papules on the belly and one on the back. Splenic area of dullness increased, lower edge of organ not felt. Evening temperature 102.6°. Urine, sp. gr. 1020, acid, free from albumen.

January 27th.—Cough has been very troublesome. The patient has been in a torpid condition during the night, and has voided urine into the bed. There are no fresh spots. Wandered towards morning; 4 p.m., temperature 104.2°; patient placed in bath and left in for fifteen minutes; temperature of water 68° F. The effect of the bath on the pulse was marked. During the first five minutes the beats were so small as to be almost imperceptible, but during the latter ten minutes of the bath they were noticed to gain considerably in tone and volume, so that on removal from the water the pulse was decidedly stronger than before the patient was put into it. An hour afterwards the temperature was 101° F.—28th: Patient had two baths yesterday and has had two more to-day. He has to a great extent shaken off his stupor and has had no more wandering since the second bath.—31st: Several more spots have appeared. Bowels open twice daily; stools light and loose. Has daily two or three baths. The average fall of the temperature after each bath is 2° F.

Feb. 3rd.—Still requires bathing. Tympanites diminishing; cough improving; less apathy; tongue moist; pulse 96, small.—9th: Stool partly formed to-day. Bears baths very well. Cough almost ceased. Rhonchus disappearing.—12th: To-day, the twenty-first day of illness, the temperature for the first time dropped to normal. Evening temperature 101.4°.—13th: Temperature remains between 98° and 100°; ordered ten grains of salicylate of soda thrice daily. The temperature never rose again after this, and the lad made a slow but uninterrupted recovery. The salicylate was continued until March 2nd, when it was given up. He had altogether twenty-eight baths.

CASE 2.—Charles S—, aged thirteen, admitted into George ward on Jan. 26th, 1883, was quite well until six days ago, when he got headache and lost his appetite. Next day he felt too ill to work. On the third day of the illness diarrhoea came on, and has continued since.

On admission the temperature was 102.6°; pulse 116, soft. A well-grown, muscular boy, with headache, lassitude, loss of appetite, cough, pain in the belly, and diarrhoea. The tongue was coated with dirty brown fur, the tip and edges being red and dry. Over the chest scanty snoring rhonchus, with fine crackling over the bases. Blowing systolic pulmonary murmur and sharp second sound. Abdomen slightly distended; tenderness and gurgling in right iliac fossa; skin dry and hot; tache marked; spleen not felt. Half a dozen typhoid spots over the abdomen and back.

Jan. 28th.—Spots still appearing; splenic dullness enlarged; has required bathing three times.—30th: Slight nose-bleeding this morning. Spots

coming out in profusion. The temperature has not risen above 102° since the 28th.—31st: To-day (the eleventh day of the disease) the temperature dropped at 8 a.m. to 99° F. Bowels open once this afternoon; stool loose and clay-colored; contained a round worm. Ordered three grains of santolin.

Feb. 2nd.—The temperature at 8 a.m. was 98.4° F. Bowels open; no more worms. Ordered ten grains of salicylate of soda three times a day. The temperature never again rose above 100° F., and the patient convalesced rapidly. Continued taking salicylate until Feb. 24th.

CASE 3.—Thomas F—, aged twelve, admitted Jan. 26th, 1883, into George ward. Was quite well on the 23rd, and took his meals heartily. Next morning felt ill, vomited, and lost appetite. Yesterday the bowels were very loose, and patient developed a slight cough.

On admission the temperature was 102.6°, pulse 124, respiration 24. Complaints of cough, thirst, headache, loss of appetite, and diarrhoea. Sonoro-sibilant rhonchi all over the lungs. Distension of abdomen, no gurgling; tache marked; no spots; area of splenic dullness not enlarged.

Jan. 28th.—Two spots found this morning on the abdomen. Tongue dry and furred; tenderness and gurgling all over the abdomen; bowels open freely; loose clay-colored stools. Spots continued coming out until Feb. 6th. Patient had altogether eighteen baths. On Feb. 12th, the twentieth day of illness, the temperature fell to 97° F., and he was ordered ten grains of salicylate of soda thrice daily, for three weeks. He recovered well and quickly.

CASE 4.—George M—, aged fourteen, admitted into George ward on Feb. 6th, 1883. Came in on the sixth day of illness. Temperature 102.4°, pulse 104, respiration 36. Distension of abdomen, with tenderness and gurgling; spleen felt projecting an inch and a half below the ribs. No spots all over chest; sonoro-sibilant rhonchi.

Feb. 7th.—About a dozen rose-colored spots have appeared. Had four baths to-day; after each bath the temperature falls to about 101° F., where it remains for about two hours, after which it rapidly rises again to 104°.—8th: Fever still high; five baths to-day. Abundant whistling râles over the chest. Pulse 116. Ordered two ounces of brandy daily.—10th: Five baths yesterday and four to-day. A little faint and blue after the last three baths; given a teaspoonful of brandy after each; typhoid stools.—12th: Gums are bleeding and are decidedly spongy.—14th: Gums still oozing.—23rd: Has had altogether thirty-four baths. To-day the temperature has dropped for the first time to normal. Ordered ten grains of salicylate three times daily for fourteen days. Made a good recovery.

CASE 5.—James P—, aged twelve, was admitted into George ward on February 6th, 1883. He came in on the third day of illness. A weakly, strumous-looking boy. Tongue coated with a creamy white fur, clean tip and edges; face flushed. Abdomen slightly distended; tache marked. Slight tenderness and some gurgling in the right iliac fossa. One rose spot in the right flank. The lower edge of the spleen can just be felt below the ribs. Breath sounds clear. Temperature 101.8°; pulse 112.

February 7th.—Quite a crop of spots have appeared during the night. Bathed three times.—10th: Spots continue to appear. The one noticed on admission is fading. The patient has had ten baths so far.—12th: Tongue clammy; lips and teeth covered with sordes. Given a weak solution of permanganate of potash to rinse his mouth. Bowels open about once a day, loose stools. Two baths yesterday and one to-day.—15th: One bath

yesterday.—18th: A tender reddened swelling over the right angle of the jaw.—22nd: Since the 18th the temperature has kept steadily between 101° and 102° F. The gums are to-day spongy and bleeding. The temperature has dropped to 97.2°.—23rd: The bleeding from the gums continues, and in addition this morning the patient is losing blood from the nose and left ear. The urine passed is as dark as porter and contains a large percentage of blood; bowels not open. Ordered a mixture containing ten grains of tannic acid and twenty minims of liquid extract of ergot, to be taken every four hours, with ice to suck. The temperature has risen again to 101°. 8 P.M.: Bleeding continues from gums and a little from the nose, it appears to be a general oozing. The gums are spongy and fungating. Bowels open once this afternoon; stool contained about half a pint of blood. There are no purpuric spots or patches about the body.—24th, 8 A.M.: Temperature 102°; sponged; the urine still contains a large amount of blood; oozing from the gums abating; bowels open twice during the night, each time stools contained blood. Ordered two grains of acetate of lead, ten minims of dilute acetic acid, water to half an ounce, every four hours. Two lemons daily.—25th: Still oozing from gums; bowels open three times, stools largely made up of blood; urine like porter. The temperature was maintained at 101°.—26th: Gums almost ceased bleeding; bowels open three times, blood diminishing; urine still highly charged with blood. The temperature was 99.6° at 8 A.M.; pulse very small and weak; hardly perceptible. Patient blanched.—27th: Bowels open twice, small quantity of blood each time; very slight oozing still from the mouth; less blood in urine. The temperature 98.6°.—28th: All bleeding ceased; patient takes nourishment and stimulant well. Repeat mixture three times a day. The temperature remains normal.

March 3rd.—Has rallied well during the past three days; fed every fifteen minutes. Omit mixture.—6th: No further loss of blood. The lump over angle of jaw noticed before has remained in abeyance until to-day; it is now painful and fluctuates distinctly; bowels open once, stool loose, no blood.—7th: Abscess over jaw lanced and about two drachms of pus evacuated. Ordered five grains of citrate of iron and quinine three times a day. Patient has progressed uninterruptedly since, and is now quite convalescent.

Remarks.—The foregoing cases present several features of interest, both clinical and therapeutic. The patients were all boys under fifteen years of age, were attacked much about the same time, and were all inmates of a neighboring industrial school, where, being under constant supervision, the onset of the disease was ascertained with tolerable accuracy. Cases 3 and 5 were admitted on the third day, Case 1 on the fifth, Case 4 on the sixth, and Case 2 on the seventh. The spots were plentiful, and appear in each case on or before the seventh day. In Case 3 they appeared on the fifth day, in Case 1 were present before the fifth day, and in Case 5 there was an indubitable typhoid spot visible on admission, the third day of illness. This latter is an exceptionally early appearance even for a child. In three of the cases there was bronchial catarrh of considerable severity. Case 2 was a mild one; its chief point of interest was the presence of the round worm, a by no means unreal element of danger, as evidenced by a former case of Dr. Goodridge's, where perforation appeared to be directly due to the presence of such a parasite. The most important clinical point was undoubtedly the occurrence of scorbutic symptoms in two of the cases. Mild in Case 4,

they were in Case 5 sufficiently severe to seriously threaten his life. This is a complication which, so far as I can discover, is of considerable rarity in the annals of typhoids. In both cases it appeared at a fairly advanced period of the fever disease—in Case 4 on the twelfth day after the fever, which had been very severe, had spent its force, and in Case 5 as late as the nineteenth day of the disease. In this latter case, the hemorrhage being severe, its onset like an ordinary typhoid hemorrhage was signalized by a sudden drop in the temperature. This, however, quickly rose again, whilst the hemorrhage was still going on, and transcended its former height. Suspicion was directed to the dietary of the school: but this on investigation was found to contain an abundance of antiscorbutic elements. To advert to some points in the treatment. The diet in all these cases was restricted to iced milk. They were treated strictly antipyretically, and the only antipyretic used was cold water; no drugs. The temperatures were taken every four hours; and whenever 103° F. or higher was registered, the cold bath was called into requisition. Sponging with ice-cold water for ten minutes was employed whenever the temperature stood between 102° and 103°. An hour after each bath the thermometer was used, with an average result of showing a drop of two degrees in temperature. The efficacy of the baths in keeping the temperature down is amply shown by the charts, more especially in those cases which had the advantage of early treatment. In Case 4, where the pyrexia had obtained a good start, their effect was less well shown at first, though after having once broken the neck of the fever (in this case on the fourth day of treatment), they succeeded in making it fairly tractable. Some of the other good effects noticed after baths were (1) the almost invariable bracing-up of the pulse after the first rude shock was over; and (2) the banishment of delirium. The baths were well borne in Cases 1, 3, and 4, not appearing to exercise any baneful influence on the severe bronchial symptoms. As soon as the temperature had once spontaneously dropped to normal, the patients (with the exception of Case 5, who was deemed too prostrate) were placed upon salicylate of soda, after the plan of Prof. Immermann, as advocated by Dr. Cayley, in his Croonian Lectures on Typhoid, and practiced by him in his wards. This was done with the original view of guarding against relapse, to which accident, it is shown, the cold bath treatment rather predisposes. In two cases it slowed the pulse to 60; but no other depressant or toxic symptoms of the drug were noticed. The patients took it well, and thrived whilst taking it. The exhibition of this drug during early typhoid convalescence appears to be a valuable addition to the bathing treatment, influencing in a distinctly favorable manner the number of relapses. One valuable property the salicylate possesses is to check the ravenous cravings for food in early typhoid convalescence, and thus diminish the risk of indiscretion in diet. A point worthy of note in Case 5 was the happy way in which the acetate of lead checked the hemorrhage after the ineffectual administration of other drugs.

ST. THOMAS'S HOSPITAL.

UNUNITED FRACTURE OF PATELLA; OPERATION; CURE.

(Under the care of Mr. SYDNEY JONES.)

For the notes of this case we are indebted to Mr. W. H. Battle, surgical registrar.

J. P—, aged twenty-eight, a laborer, was admitted on Sept. 7th, 1882, and left the hospital, cured, on Feb. 2nd, 1883 (149 days). Seven months

previous to admission he fell down and fractured his left patella. The knee was put up with strapping and kept on a hard splint for eight weeks, during six of which he remained in bed. He resumed work as a laborer about the ninth week. The knee was fairly strong until four months before admission, when a piece of iron fell across the same knee. This, it would appear, produced acute inflammation of the joint, and from that time he was unable to walk. His general health was good.

On admission it was found that the left patella had been fractured transversely, the fragments being separated by an interval of two inches; there appeared to be very little fibrous tissue between them, and they could be approximated fairly easily. The fracture had crossed the bone about the middle, and the outline of the condyles could be plainly distinguished. There was no fluid in the joint. The leg was fairly muscular, but not large; the patient could not, however, walk more than a few steps. His general health was good. The urine contained no albumen.

Oct. 11th.—The exact distance between the margins of the fragments was two inches and a half. Mr. Sydney Jones decided to bring the fragments into apposition by operation. This he did in the following manner:—Ether having been administered, an incision about six inches in length was made along the front of the joint, in the middle line, and in the long axis of the limb; the skin was reflected to each side and the fragments exposed. These were found connected by means of thick fibrous tissue. This was separated from the fragments, and a thin transverse section taken from each fragment. The synovial membrane of the joint was thickened, but the joint itself was otherwise healthy. An attempt was now made to approximate the fragments, but they could not be brought into close contact. The expansion of the fascia of the thigh to the quadriceps extensor muscle and sides of the upper fragment was then divided on each side to the extent of about an inch upwards; but this did not prove sufficient; accordingly the rectus muscle was subcutaneously divided about three inches above the patella. The fragments did not come well together until the posterior edge of each had been removed. Two holes were drilled in each fragment from the anterior surface to the middle of the cut surface of the fragment, and two sutures of thick copper wire covered with silver were inserted, and the two portions of the patella completely brought together. Three turns were taken in each suture from within outwards; lateral incisions were made, and drainage tubes placed in each. The wound was closed with silk sutures and antiseptic dressing applied. The spray was used throughout the operation. The limb was placed on a straight excision splint, strips of flannel soaked in plaster of Paris being applied along the front and the whole carefully bandaged. Three hours after the operation there was found to be slight hæmorrhage; the wound was redressed, and the limb elevated. Evening temperature 99° 6". Patient was very restless during the night, and had two hypodermic injections of morphia. Next morning he was in a good deal of pain, and had vomited several times. Morning temperature 100° 2", evening 102° 4"—13th: Another restless night. The wound was dressed in the afternoon, and a collection of blood-stained fluid was found above the upper border of the patella. The top stitch was removed and a fresh tube placed across the joint under the patella, being brought out through the lateral opening; the smaller pieces were not replaced. Morning temperature 101° 2", evening 102° 2".—20th: The wound was redressed on the 15th and again today, when all the remaining sutures were re-

moved. The wound was firmly united, excepting in the upper part, where there was a small collection of pus; the puncture made for tenotomy had to be opened up for a similar reason. The morning temperature on the 15th was 102°; 17th, 100° 4"; 19th, 98° 4"; 20th, 99° 4". Evening temperature: 15th, 102° 2"; 17th, 101° 8"; 19th, 100° 2"; 20th, 100° 8".—24th: As the wound when dressed appeared to be irritated by the carbolic acid dressings, eucalyptus was substituted. The collection above the upper fragment is quite gone. The temperature has been lower until this evening, when it is 102° 4".—27th: Wound redressed.—31st: Wound redressed. There was some puffiness to inner side of the patella.

Nov. 11th.—Wound redressed on the 4th, the 8th, and again to-day; the upper part is now healed. Short drainage-tubes placed on each side. General health good. Since the 24th the temperature in the morning has risen from 98° to 100° 2"; in the evening 99° 8" to 101° 8".—24th: Wound redressed; the leg was removed from the excision splint and placed on a MacIntyre; the wire sutures were removed; there was close union between the fragments of the patella. Forty-four days after operation the drainage-tube on the outer side of joint was removed.—29th: Wound redressed, and all the drainage-tubes removed; there was a good deal of discharge in the dressings. Before the 26th the evening temperature was nearly always between one and two degrees higher than in the morning; since then (with one exception, 25th, 100°) it has not exceeded 99°.

Dec. 22nd.—Antiseptics discontinued. There are still two discharging sinuses on the inner side of the patella. The leg was put up in a posterior plaster splint, the foot being left free. The temperature has been normal since the 3rd (13th, P.M., 100°). The patient's general condition is good.

Jan. 4th.—Slight rise of temperature, due to the formation of an abscess on inner side of the patella; this was opened on the 5th, and a considerable quantity of pus evacuated. The other sinuses had quite healed.

When the patient was first allowed to get up there was cedema of the leg and feet, but as he got stronger this disappeared, and he was able to do without a bandage, which he at first used. When he left the hospital he was able to walk a short distance without the aid of a stick, and the joint was capable of considerable flexion. The union between the fragments was quite firm, and the patient was much pleased with the increased usefulness of the leg, and as he was inclined to persevere in his efforts to get increased flexion of the joint, there was every prospect of his having an almost perfect limb.

GUYS HOSPITAL.

DISTENSION OF FRONTAL SINUS; INCISION; DRAINAGE; CURE.

(Under the care of Mr. BRYANT.)

For the notes of the following case we are indebted to Mr. Linnell.

Eleanor P—, aged twenty three, was admitted on Jan. 13th, 1882, into Lydia ward. She had always been weak, and always irregular in her menses. In childhood she had measles and small-pox. She had been in the hospital under the care of Mr. Forster for diseased bone in the foot six years ago. Mr. Forster excised the ankle, and afterwards amputated the leg. The stump never really healed, and about three or four years ago she knocked the stump and the skin gave way, so that the bone became exposed and remained so.

On admission, the patient looked fairly healthy. The stump was conical, and fairly riddled with shallow sinuses, and was scattered over with patches of dried serum. There was considerable pain. At the inner corner of the right eye was a bilobed swelling, first noticed five years and a quarter ago. The swelling was painful, and the pain increased when hot fomentations were applied. After its first appearance it had more than once disappeared, and had not generally given any pain until a fortnight ago, when the external lobe showed itself for the first time. The skin over the second lobe was of a reddish yellow color, tender, and very sensitive. The lobe did not diminish on pressure, nor did it apparently infiltrate the skin. There was fluctuation between the two lobes. There was no epiphora.

On Jan. 27th an oblique incision was made over the orbital tumour, when a semi-purulent sanious discharge escaped. A ridge of bone was felt leading into a cavity, which proved to be the frontal cell. A spiculum of bone was removed with the bone forceps and a chisel, and a drainage-tube was passed from the cavity down the lacrymal duct into the nasal cavity and through the nostril. The angular artery was twisted. The cavity was next syringed out with iodine water, when a thick clotted purulent discharge escaped. This fluid was rather glutinous; it contained some columnar ciliated cells looking quite fresh, but the contents were chiefly degenerating pus cells and débris, and many large granular mucous corpuscles. The edges of the wound were stitched together with carbolized catgut.

Feb. 15th.—Wound healed. There is still fulness internal to the line of incision, and upon squeezing something was felt to flow into the nose. There was no epiphora. The movements of the eyeball were good.

On Feb. 27th she was discharged convalescent.

On June 1st, 1882, she reappeared in the ward, when the orbit was natural, the sinus having closed.

This case had very much the appearance of an orbital exostosis, and its true relation was not recognized until a free incision had been made down to the bone. In the last vol. (xxv.) of the Guy's Hospital Reports Mr. Higgins has published some cases of the same kind.

MONTGOMERYSHIRE INFIRMARY.

CASE OF PAROTITIS FOLLOWED BY ORCHITIS AND MENINGITIS; HIGH TEMPERATURE; RECOVERY.

(Under the care of Mr. MONRO.)

For the following notes we are indebted to Mr. G. H. Healy, house-surgeon.

W. B—, a lad of fifteen years, of considerable aptitude for mathematics and other brain work, and of nervous temperament, was admitted on August 2nd, 1882. Previous to admission he had had an attack of mumps, from which he had apparently recovered, but upon returning from a short walk he felt much depressed and feverish, had a rigor and was obliged to take to his bed. The temperature next morning was 101.2°, with slight frontal headache, brown tongue, hot dry skin, and hard rapid pulse, but no vomiting. Temperature in the afternoon 105°, rising in the evening to 106°, with low muttering delirium and tenderness of scrotum. A saline mixture and a purgative were given.

On Aug. 4th the temperature remained the same. There was impaired resonance of the base of the right lung. The scrotum was much swollen,

and very painful, the delirium continuing and increasing towards night. Aconite in small doses was added to the mixture, and cold was applied to the head. The scrotum was poulticed and supported.—5th: Temperature, morning 106°, evening 107.2°. Pupils much dilated and insensible to light; increased delirium; patient very restless, rolling his head from side to side; bowels costive. Wet sheet packing was applied, which had the effect of lowering the temperature to 105°; and a purgative enema was given, which did not act. The orchitis appeared to be subsiding.—6th: Temperature, morning 105.4°, evening 106°. The patient had violent delirium towards evening with muscular twitchings on the left side. His head was shaved and blistered, and, as the bowels had not acted, he was given croton oil, and at night a dose of bromide of potassium, and had ice applied to the head.—7th: Temperature, morning 105°, evening 105.4°. Delirium was very wild and maniacal. He was given bromide of potassium every three hours with henbane. The bowels not having acted, an enema was given, and the patient passed some very hard, dark, and offensive stools. Six leeches were applied to the temples.—8th: Temperature, morning 105°, evening 105.4°; the pulse thready and fluttering and tache cérébrale well marked. The patient was in an extremely prostrate condition, had apparent difficulty of deglutition, and would not try to take his medicine, getting very excited at the sight of it. Subsequently coma set in. Nutrient enemata were given of essence of beef, eggs, and brandy in small quantities. Sinapisms were applied to the back of the neck, the cardiac regions, and the calves of the legs. He was very restless during the night, but improved somewhat towards morning, but slept very little.—9th: The temperature fell to 103°, but the delirium became extreme, patient requiring several people to keep him in bed. He was able, however, at times to recognize faces, and expressed great aversion to some; made violent efforts to bite the hands of those holding him, and was most impatient of the restraint placed upon him, begging to be let loose and asking the attendants to put their fingers in his mouth that he might, as he said, show that he did not intend mischief. He could not swallow, and shouted at the top of his voice when asked to try to doze. The pulse was hardly perceptible after these paroxysms and prostration very great. Nutrient enemata were with difficulty continued. The head was again blistered and ice subsequently applied. The orchitis had disappeared.—10th: Temperature morning and evening, 102°. The patient having passed a wretched night was calmer in the morning, and took nourishment in small quantities when pressed. Essence of beef and iced champagne were given by the mouth. The pulse became stronger subsequently. The bowels being obstinate, olive-oil enemata were given, which acted but caused considerable pain, the fæces being very hard and requiring mechanical removal.—11th: The patient had passed a better night with but little delirium. He was quite sensible, and took nourishment well, and generally had much improved. Pulse better, and temperature nearly normal.

From this time the patient continued to improve daily, the head symptoms disappearing gradually, but he continued for some days in an extremely prostrate condition, and required great care in nursing. In a fortnight, however, he was able to get up, and although he still had a weak pulse and considerable dilatation of the pupils, he had otherwise much improved, could assimilate plenty of nourishment, and, in consequence, with tonics and iron with strychnia in small doses, he

was in a condition to be discharged shortly afterwards.

The patient has been under observation since his discharge, now more than six months ago. He suffered for a considerable time from difficulty in walking, his gait being unsteady and incoördinate; as also in speaking, making impulsive efforts to utter his sentences as quickly as possible, with incomplete enunciation of the words. He had also marked agraphia. His pupils continued to be dilated, and mentally he was subject to much excitement when spoken to. The electric current was used to the muscles of the throat, and phosphorus, valerianate of zinc, iron, quinine, extract of malt, and cod liver oil were prescribed. At the present time he is almost as well as before his illness, and gains rapidly in physique.

It may be remarked that the temperature in this case was higher than is usual in meningitis. There was also little headache and an absence of vomiting. Yet the symptoms generally pointed to metastatic meningitis which occasionally, though not much referred to in standard medical works, follows parotitis. It is also worthy of note that it did so in the case of a boy of more than ordinary mental activity and excitability, which possibly may have had something to do with its occurrence. The patient's brother had an attack of mumps at the same time without a bad symptom.

LEICESTER INFIRMARY.

NOTES ON A CASE OF HYDROPHOBIA PRESENTING SOME PECULIAR SYMPTOMS; NECROPSY; REMARKS.

(Under the care of Dr. COOPER.)

For the following notes we are indebted to Mr. C. J. Bond, F.R.C.S., house-surgeon.

A healthy agricultural laborer, aged fifty-six, was bitten by a large retriever dog, on Jan. 20th, 1883, on the left hand. The wound, or at least one of the scratches, continued in an inflamed discharging state for some time, and, in fact, was only soundly healed fourteen days before admission. The man, however, paid but little attention to it, and went about his work as usual until April 16th, when he began to get rather nervous and fidgety about his hand. On the 19th, on getting up in the morning to go to his work, he felt pain in his chest and some difficulty in breathing, and also in swallowing, and he also vomited; this nervousness and pain on swallowing increased on this and the following day, and he was admitted into the infirmary on the morning of April 21st, when his condition was noted as follows:—The patient is a strongly made, florid man. He lies quietly in bed, and answers questions quite rationally. He does not attach any importance to the bite, which shows no signs of redness or inflammation, and has apparently no suspicion of the nature of his disease, though he expresses himself as feeling very ill. Although generally quiet, the noise of falling water poured out, out of his sight, causes him to set up in bed; his face assumes an anxious, frightened look, the respirations become quick and snatchy, and he implores that no fluid may be given him. When a glass of water is put into his hand and he is asked to drink, he seems agitated, says that he is not afraid of it but cannot drink; he raises the glass a little, then shudders and pushes it away, complaining at the same time of pain at the epigastrium and base of chest. As he lies quietly in bed the respiration is from 16 to 20 per minute; pulse 110, varying somewhat in force and frequency from time to time, the occurrence of a period of excitement increasing its frequency and lessening its force, and producing irregularity in

the rhythm, and intermission occasionally occurring. He is able to open his mouth widely and keep it so when asked, the pupils are equal, and react to light, there are no spasms in the sense of any tonic contraction of any muscle or group of muscles, and the temperature at this time, 11 A.M., is 98°. Urine acid, sp. gr. 1025; no albumen. 6.30 P.M.: After several unsuccessful attempts patient has now passed over half a pint of urine, which contains a trace of albumen. The act of micturition caused no spasm or inconvenience to the patient. 7.30: Patient is now very restless and seems in a jovial mood, he tries to shake hands, kicks off the bedclothes, and as the attacks (that is, the feeling of agitation and oppression, the hurried breathing, and the quickened pulse) come on, he grasps the hand of a bystander, saying that he is thus much relieved; he very frequently spits out frothy saliva very energetically, as though afraid to retain it in his mouth. 12.30 (midnight): Patient has changed considerably, sits up in bed almost constantly, is still conscious and wishes to see his friends; his face has, however, a very anxious and, at times, a startled expression, and he is constantly spitting out a mixture of frothy, blood-stained mucus and saliva on to the floor, refusing to spit into any vessel. Respiration is now more frequent, and accompanied with bronchial and tracheal râles, and temperature has risen to 99.2° in rectum.—22nd, 11 A.M.: The mental condition of the patient is gradually more resembling that of mania. His face is flushed; the conjunctivæ suffused. He is much less sensitive at the approach of strangers, and pays no attention to the sound of falling water, though he still refuses to drink. Water, poured into his mouth, causes no spasm, and he occasionally swallows saliva; the plantar reflexes are abolished; knee-jerk present in both legs, and both testicles are much drawn up. The constant spitting of mucus and saliva continues, though the former is not now blood-stained. The respiratory sounds are clearer, and there is occasional vomiting of a green, bile-stained fluid. The temperature is now, noon, 104.4°. 3 P.M.: Patient is now unconscious; his face is very dusky; the vomiting of this green fluid is almost constant; pulse very quick and feeble, but regular. At 3.15 P.M. respiration ceased while patient was in the act of vomiting. The temperature in the rectum, forty-eight minutes after death, was 107° F., and rigor mortis was well marked two hours after death.

At the post-mortem examination it was found impossible in this case, as in previous ones, to associate each symptom with a definite pathological lesion. The blood was found coagulated, not fluid as usually described; little or no endocardial blood-staining, so common in septic diseases, and no change which could be called specific was observed by the naked eye in any organ, except that on making sections through the spinal cord and medulla; the latter and the cord as far as the lower cervical region appeared softer and redder than in the dorsal and lumbar regions. Microscopical examination of the blood at various stages of the disease (by Koch's method) showed nothing abnormal beyond division of the nuclei in the leucocytes and some round deeply stained refractive bodies aggregated together, which might or might not have any specific importance. Examination of the saliva during life, and from a fresh section of the gland immediately after death, showed nothing beyond the usual organisms associated with that secretion when obtained from the mouth. Sections of the sublingual gland stained with logwood showed marked injection of the organ, with numerous granular bodies among the epithelial cells, which resembled leucocytes. Sections of the hardened medulla and cervical cord certainly

showed an injected condition of the grey matter, with numerous granules and extravasation of leucocytes around the vessels, as described by Dr. Gowers. Further, considerable difficulty was experienced in hardening the medulla and cervical portion of the cord in Müller's fluid; not so in the lumbar region.

Remarks.—In order to correctly estimate the value of the cerebral symptoms in this, as in any case, it is necessary to remember that the patient was a strong, steady farm-laborer, a man in whom the nervous system (as in most men of that class) was previously to the disease in a condition of very stable equilibrium; and although apparently a little nervous about the bite before his illness, he ceased to attach any importance, or to allude to it, after his admission. Regarding the disease as due to some poison acting on the central nervous system, it would seem that in the order of time the respiratory centre was the first to be affected by it, then the cardiac, and, finally, perhaps the vomiting centre. Further, the irregularity and intermission of the pulse, so marked in the early stage, quite passed away before death, and, though cerebral function was much exalted at times, the mental dread of water also quite passed away. Bearing on the selective action of the poison on the medulla is the fact that there was no great radiation of stimulus, no tetanoid spasms, the most marked fit merely resembling the action of a person when getting into a cold bath, together with a superadded emotional condition as though an impression were produced on the respiratory centre like that produced by cold affusion; how far the mental state is one of association or of distinct cerebral poisoning yet remains to be proved. Another feature is that the temperature, said to be usually raised one or two degrees, though normal on admission, rose gradually to 99·4° in twelve hours, to 104·4° in twenty-four hours, and was 107° in the rectum forty-eight minutes after death.

Any detailed description of the treatment adopted has been purposely avoided, for this case, like every other, shows that we have not yet discovered any specific for hydrophobia; at the same time the patient was evidently saved a large amount of mental dread and pain from the administration of chloral and morphia in large and frequent doses, the former by rectal injection, the latter by hypodermic injection.

MANCHESTER WORKHOUSE, CRUMPSALL.

NOTES ON A CASE OF HYSTERICAL (?) HEMI-ANÆSTHESIA IN A MAN.

FOR the following interesting notes we are indebted to Mr. C. B. Voisey, M.R.C.S.

W. M.—, a strong and powerful-looking man, was admitted on March 8th, 1883, in such a weak-minded and melancholic condition that it was some days before anything like a rational history could be elicited from him. The history was as follows:—For the last sixteen years he had been a carpenter, serving with a brigade of artillery in India. Up to three years ago he had always enjoyed good health, but had been a constant and free drinker. He stated that he had never had syphilis. During the Afghan campaign he received a bullet wound on the right side of the sagittal suture, extending from the coronal suture in front to the lambdoidal suture posteriorly. The wound healed rapidly, but was complicated six weeks later by the formation of an abscess, which was opened antiseptically under chloroform, but he does not know whether any bone was removed. On being discharged from hospital he drank

heavily, and in one of his bouts of intoxication he lay down in a marsh, where, becoming insensible, he was picked up and transferred to the hospital suffering from sunstroke. He remained under treatment for three months, and ever since had been troubled with pain and lightness in the head, numbness and weakness in the right side. Whilst in India he had had dysentery, slight attacks of liver complaint and ague. He left India and returned to England in December, 1882, and was subsequently received into Netley, whence he was discharged in January last. From that time, up to a few weeks ago, he had been travelling up and down the country, spending the money he had saved, until about a month ago he was drinking in a public-house in Manchester and was there seized with some kind of fit, and thence taken in an insensible condition to the Manchester Royal Infirmary, and afterwards transferred to Workhouse Hospital.

On admission to the workhouse he was in a very low desponding state of mind, and from the very few remarks he made, it was gathered that he contemplated suicide. On March 10th the patient complained of very great and constant pain over the eyebrows, and suffered from anorexia. It was also found he was suffering from anæsthesia of the right side, which involved the face, neck, trunk, arm, and leg, but sensation was not quite lost in the sole of the foot. Taste was lost in the right half of the tongue, and there was partial deafness and complete loss of smell on the same side. The right side of the tongue, right half of the fauces and the mucous membrane of the right cheek were likewise anæsthetic. The fields of vision of both eyes were much restricted, but especially so in the right, which was also achromatopsic, the patient asserting that everything appeared white. The left eye was not so much affected as the right, but although the man was able to distinguish that blue and yellow were dissimilar colors, he was unable to recognize the individual colors properly. There was no optic neuritis, and the pupils were equal, contracted, and responded to light. The right, or affected side, was paler than the left, and did not readily bleed when pricked. The patient himself ran a large needle nearly through the whole thickness of the forearm without blood flowing. The temperature in the right axilla was 96·2° F., in the left 97·8° F. The power of distinguishing between heat and cold was lost on the anæsthetic side. The tendon reactions were normal, and there was no ankle clonus and no paralysis. Up to March 15th the patient's condition had continued unchanged so far as the nervous symptoms were concerned. He was still very despondent, and had persistently refused to take solid food. His breath was very offensive; the tongue was covered with a brown fur; and the bowels were constipated. On March 18th the patient was seized with bilateral convulsions; but the nurse is convinced he was not completely unconscious at any time during the attack. After the fit had passed off it was found that hemiplegia had developed in the right, or anæsthetic side; but the face and tongue were not implicated in the paralysis. Motor power reappeared in the arm and leg at the end of two days, the patient remaining thereafter in much the same condition as he was before the fit. On the 21st, aphonia had become developed, and the voice was reduced to the faintest whisper, although articulation was still perfectly distinct. On March 23rd, the faradaic current was applied to the affected side and over the larynx, as aphonia was still present. The patient objected to this treatment, and after struggling in vain to prevent the application, he shouted lustily, having suddenly found the use of his voice; but on discontinuing the cur-

rent the aphonia returned. The same evening, after being told that the electricity was to be applied in the morning, he attempted suicide by strangulation, but was prevented by the timely interference of the nurse. The current was applied on the 24th, but on the 25th the patient suddenly recovered his voice before the application was renewed. On the 27th tactile and thermic sensation returned in the whole of the right side, except the face and upper part of the neck, but analgesia persisted, and the special senses were still affected. He afterwards complained that the left extremities were heavy and numb, and on pricking the skin with a needle it appeared that the left side was less sensitive than the right. The temperature, too, was more nearly equal on the two sides, being 97.4° F. in the right, and 98° F. in the left axilla. From this last stage until April 21st his condition was very various. One day he would be more cheerful, and lose many of his special symptoms, but only to relapse again in a very short though varying period. About April 14th he appeared better, both mentally and bodily, and was permitted to get out of bed, and by way of occupation was allowed to assist the other patients in cleaning the wards. He had not been occupied in this way long before he took advantage of an opportunity to make elaborate preparations to commit suicide by hanging, but was again unsuccessful, by reason of the timely appearance of one of the attendants. The case was hereupon regarded as one requiring close and careful watching, and the patient was accordingly transferred to Prestwich Lunatic Asylum. When the patient was sent away, the hemianæsthesia and hemianalgesia had nearly disappeared, but the inability to distinguish between heat and cold remained. The two sides more nearly corresponded as regards temperature, color, and the readiness with which they could be made to bleed on pricking. Hearing was more acute, taste and smell more nearly normal. The man could distinguish colors with both eyes, though there was still slight hesitation and evident difficulty when using the right. Objects when placed within a distance of two feet appeared to both eyes as blurred and indistinct. This difficulty, which has been experienced ever since the man came under observation, may probably be due to the contracted state of the pupils.

By the kindness of Dr. H. G. Murray it has since been ascertained that the patient on admission to the Prestwich Asylum was low-spirited and suspicious, fancying that he had been drugged, and that the day after admission he commenced to assist in the cleaning of the wards; that in a few days, the depression having passed off, he was employed in the joiner's shop, where he worked well and cheerfully until June 16th, when he absconded, and has not since been heard of.

MANCHESTER ROYAL INFIRMARY.

CASE OF EPITHELIOMA OF THE SCROTUM IN A YOUTH.

(Under the care of Mr. HEATH.)

FOR the following notes we are indebted to Mr. John Sheldon Withers, M.R.C.S., late house-surgeon.

W. L—, aged eighteen, a block outter, was admitted to hospital. No tendency to malignant disease discoverable in his family. Patient had always had robust health. No history of injury or irritation. About a year before admission the patient noticed a small hard swelling as large as a marble in the right and lower part of his scrotum. It grew rapidly, reaching the size of a hen's egg in less than three months. Four months later (it

had spread far in the meantime) the right inguinal glands began to enlarge and soon afterwards the left. It did not cause him pain till nine months after its commencement, when a nightly aching began from which he has not since been free. His parents discovered it only when far advanced by noticing a peculiarity in his gait.

Condition on admission:—Pain has now made his expression careworn, but for this he might be taken as the type of a healthy country lad. He is of fair complexion, rosy cheeked, and well nourished. The growth involves the whole of the scrotum; its surface is irregular and nodulated. The nodules are of very variable size, some being no larger than a marble, whilst others are as big as a small orange. At its underpart is the mouth of a sinus, which leads to a cavity in the centre of the mass. Here, whilst growth is going on actively outside, a process of destruction is at work, evidenced by the constant discharge of a thin, yellowish, opaque fluid, and occasionally of blood in large quantities. On either side, the inguinal glands form two large tuberos masses adherent to the deep structures. In the neighborhood of the right of these, one testicle can be felt, the position of the other cannot be made out. The growth is nowhere tender to the touch, and is of uniform, moderate hardness. Owing to frequent hæmorrhages, he became rapidly worse, and died, wasted to the last degree, four months after admission. After death, the testicles were found to be quite healthy. A microscopical examination, made by several pathologists, among whom were Drs. Dreschfeld and Young, of Owens College, proved the tumour to be an epithelioma. A necropsy was not allowed.

GENERAL DISPENSARY, NOTTINGHAM.

ANEURISM OF THE INTRA-PERICARDIAL PORTION OF THE AORTA; SUDDEN DEATH FROM RUPTURE; NECROPSY.

FOR the following interesting notes we are indebted to Dr. M. Collins.

On the morning of May 5th, Mrs. B— was suddenly seized with præcordial distress whilst talking to some of her friends. She expired in a few minutes and before the arrival of the medical attendant, though her house was not two hundred yards distant from the hospital. The history of any previous illness was very indefinite. A week before her decease she quarreled with her husband, and had charged him before the magistrates with assault. Sudden death under such circumstances assumed an interesting nature, pathologically as well as medico-legally.

Necropsy, forty-eight hours after death—Apparent age fifty-five; body well nourished; no marks of violence. When the thorax was opened the pericardium was found distended with blood. Further examination revealed a very small sacculated aneurism immediately above the right coronary valve. This had ruptured into the pericardium. The opening was small, only sufficient to admit a medium-sized probe. There was no regurgitation through the valves. The aorta was atheromatous, as evidenced by "patchy thickenings and unevenness on the inner surface."

Dr. Hayden has pointed out that aortic aneurisms never attain a large size when they are exposed to the maximum of reflux from the aorta. The symptoms and acoustic signs are very indefinite during life. Death was very sudden, and without any warning, as it usually is in such cases.

A coroner's inquest was held, and the question naturally asked was, Did ill-treatment tend to accelerate her death? There was no evidence that it

did. She had not lived with her husband the previous week. The grief and anxiety consequent on her domestic infelicity may have contributed materially as a predisposing cause to the untoward event.

STANLEY HOSPITAL, LIVERPOOL.

CASE OF CARBOLIC ACID POISONING.

(Under the care of Dr. COSTINE.)

For the following notes we are indebted to Mr. E. R. Williams, M.R.C.S., junior house-surgeon:—

E. H—, a young girl of seventeen, was admitted on July 21st, having, it was stated, two or three hours previously taken poison, the nature of which, in spite of several awkward and futile attempts at its pronunciation, it was impossible to learn. Her condition was one of extreme danger. She was completely anæsthetic, her muscles relaxed, eyelids closed, pupils dilated and inactive, skin cold and clammy, with large drops of perspiration like beads running down the cheeks, temperature manifestly lowered, respiration feeble and shallow, the pulse at the wrist imperceptible, and the action of the heart feeble and intermittent. From this extreme state of collapse, by means of subcutaneous injections of ether, galvanism, etc., she gradually recovered. Careful examination of the dress, hands, lips, breath, mouth, and fauces revealing nothing as to the nature of the poison, it was deemed advisable to give her one-eighth of a grain of apomorphia subcutaneously. In fifteen minutes she expelled with a gush about five ounces of a dark-colored liquid, smelling strongly of carbolic acid. Having now ascertained what the poison was, the stomach-pump was used, and some olive oil injected. This she soon vomited, together with a little more of the same dark-colored fluid. The urine passed was of a dark-brown color and gave the usual tests for carbolic acid. The fæces were also of a dark color. With the exception of some soreness of the mouth and throat, together with a little pain in the epigastrium, all of which were relieved by appropriate medicines, she recovered without a bad symptom, and on the fifth day after admission was discharged. To complete the history of the case, it may be added that having had a quarrel with her lover she determined to destroy herself, and with that intention took a pennyworth, about one ounce and a half, of the common crude carbolic acid.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST.

MOVABLE TUMOUR IN THE ABDOMEN, SIMULATING MOVABLE KIDNEY; NECROPSY; DISPLACEMENT OF LIVER.

(Under the care of Dr. EUSTACE SMITH.)

For the notes of the following case, which is of considerable interest from a diagnostic point of view, we are indebted to Mr. T. H. Waller, M.R.C.S., L.R.C.P. Lond, resident medical officer.

J. S—, aged thirty-four, married, was admitted on June 4th, suffering from advanced phthisis and laryngitis. While in hospital she drew attention to a lump in the right side of her abdomen, which she had noticed for the first time after her last confinement three years previously. It caused her no inconvenience whatever—no pain except on pressure, and then very slight. She had noticed that it often shifted about from one place to another.

On examination, a tumour was felt in the right side of the abdomen, below the margin of the ribs,

with the following characters: It was solid, firm, oval in shape, with the long axis parallel with that of the body, and easily movable. When the patient lay on her back, the tumour could be grasped between the thumb and fingers in the right loin, but when she turned on her left side the tumour could be felt in the middle line of the abdomen, returning to its original place immediately the patient lay on her back again. The right kidney could not be felt positively in its natural situation. There was no dulness below the edge of the ribs in the natural position, but when the tumour was pushed forward to the anterior surface of the abdomen, it was found to be dull. The urine was examined several times, and always free from albumen, but contained latterly an abundant deposit of urates. There was no history of any urinary trouble. The tumour was thought undoubtedly to be a "movable kidney." The patient died on July 25th.

Necropsy.—The right lobe of the liver extended three inches and a half below the level of the ribs, reaching downwards just below the highest point of the crest of the ilium; from its emergence from under the ribs downwards, it nowhere measured more than an inch in thickness. Following the same mode of examination, the movement of this part of the liver corresponded in every way with what had been felt during life: when grasped between the thumb and fingers this part of the liver was folded upon itself, thus giving the tumour the oval shape, and the resemblance to that of the kidney. When removed the liver weighed 48 oz., and was healthy. The gall-bladder contained three gall-stones, the size of ordinary marbles, with several well-marked smooth facets on each. The gall-bladder was full, but not distended; the duct leading from it was occluded, not admitting the largest end of a post-mortem needle further than its entrance. The right kidney was in its natural situation, and healthy.

CASHEL UNION HOSPITAL.

NECROSIS OF SKULL FROM TERTIARY SYPHILIS.

(Under the care of Dr. LAFFAN.)

THE subjoined case possesses some interest from the guarded prognosis which it suggests in cases of syphilis, and from the obvious failure of mercury to prevent the worst manifestations of the disorder years after the original disease was contracted.

D. C—, a smith by trade, aged thirty-four, was admitted in March, 1878, with an abscess in the right ankle. He contracted syphilis in 1871, for which he was mercurialized. In 1875 syphilis attacked him again, for which he was treated with mercurial fumigations. There was some history of scrofula, but not a very clear one. He got occasional rigors when the weather changed, and these continued. They were accompanied by sleepiness and loss of appetite. Pulse 160; tongue brown and dry; head hot, but without pain; pupils contracting and sensible to light; noise in the ears.

July 29th, 1882.—A round piece of frontal bone exposed and necrosed over right eye, bone also exposed over left eye, with pus flowing freely from both places; sight unaffected; taste on tongue; occasional vomiting; some stupor present, which is more marked from time to time; some injection of conjunctiva. A marked rigor assailed him this day week and continued on and off up to the present. He had a horrible fetor from the breath, which continued to the end.

Aug. 5th: Temperature 96°; pulse 112; respiration 40. Bowels moved four times; the patient's sputum is of a bloody color. He is perspiring a

great deal; appetite very bad; appearance dull and wasted. He had a rigor at 8.30 p.m. yesterday; and a large swelling was observed on the top of his head, which broke and discharged a great quantity of fetid pus.—6th: Pulse 112; respiration 40; temperature 102°. He perspired a good deal; the bowels moved three times; he slept very little; appetite bad.—7th: The patient has had no sleep, took his drinks. Was restless for some hours before death, and had three motions of the bowels.

The purulent discharge continued to flow freely till about three hours before death, and was intermixed with a little blood. The stupor or hebetude went on till half an hour before death. This hebetude, which had gone on increasing from the commencement of the attack, was at no time so deep but that when at its worst he could reply consciously to questions. There was no local paralysis except a slight one of the face, the muscles being drawn to the right side. Two days before death there was a little delirium. Half an hour before death he asked for a drink. He died comatose on August 12th.

CITY OF DUBLIN HOSPITAL.

MR. HENRY GRAY CROLY'S CLINIQUE.

The following cases were recently under Mr. Croly's care, and present many points of interest:—

Cellulitis of the Neck.—A man, about thirty-seven, applied on July 3rd with a large tumour of the right side of the neck, which had been growing for the past six months. The posterior part of the tumour was extremely hard, and a question arose as to whether it might not be a case of medullary sarcoma. Mr. Croly used an exploring needle, which permitted a muco-purulent fluid to escape, and the man was taken into the theatre and there etherized for further operative measures. A free incision was made in the lower and anterior part of the neck, and the cervical fascia divided on a director, thereby allowing a free discharge of blood and pus. In making the necessary incisions in the neck to divide the cervical fascia, and thus to relieve tension and give exit to the infiltrated fluids, Mr. Croly sketched on the patient's neck before operation what he called "lines of safety" and "lines of danger," and which were described by him in an excellent monograph on Cellulitis, published in 1873. The lines of danger are those in the direction of the external jugular vein, which passes from the angle of the jaw downwards and outwards across the sterno-mastoid; and another line corresponding with the carotids in their course upwards and backwards.

Burns of the Head and Face from a Gas Explosion, caused by Flint and Steel.—This patient, a laboring man, received his injuries in a very singular manner. He was using a pickaxe in one of the Dublin streets when, on making a heavy blow, his pick struck on a large flint, and at the same time penetrated the main gas-pipe in the street. The fire struck from the flint ignited the gas which escaped, and the workman received severe burns about the head, face, and left arm.

Acute Edema of Scrotum.—A boy aged twelve, lately came to the hospital with acute oedema of the scrotum. About four days previously he fell on a spike of a railing, which explained the inflammatory condition of the part. Mr. Croly pointed out the similarity which existed in its appearance and that which usually presented itself in the extravasation of urine. The ether spray having been applied, Mr. Croly made an incision on one side, and gave exit to some pus and fluid.

STATION HOSPITAL, CAWNPORE, INDIA.

CASE OF HYDROPHOBIA; NECROPSY; REMARKS.

(Under the care of Surgeon S. J. RENNIE, A.M.D.)

J. B.—, Private 2nd Scottish Rifles, was admitted to hospital on Feb. 17th, 1883, complaining of pain and stiffness in his right shoulder, and spasm of the muscles of the glottis on swallowing liquids. There was no history of a bite from a dog or any other animal. The spasms were of short duration, and at first did not occur except when the patient attempted to swallow liquids, but afterwards the slightest breath of air or the application of the hand to his chest immediately produced a most distressing state of affairs. During the paroxysms great protrusion of the eyeballs was noticed. There was great mental excitement and a very heavy look about the face. The temperature was normal, and the bowels were open. He took his food well, but immediately he attempted to swallow liquids the spasm returned.

On admission, he was ordered a saline purge, and at night he had one drachm of solution of hydrochlorate of morphia. He did not sleep much.—18th: Ordered twenty minims of tincture of nuxvomica, fifteen grains of bicarbonate of potash, fifteen grains of bromide of potassium, and ten minims of tincture of opium three times a day. The spasms still continue. Bowels have been opened; temperature normal. Takes his food well, which is the regulation low diet. In the evening his tongue was covered with a white fur, and the pain in the shoulder severe. Ordered compound camphor liniment to shoulder, and ten grains of Dover's powder to be taken at once. Temperature 99°; pulse 90, full and strong. 19th: Seemed a little better; ordered blister to shoulder; spasms not so frequent; to continue medicine. Evening: Much worse. Temperature 100°; pulse 112, full and bounding. Ordered twenty grains of chloral hydrate and twenty grains of bromide of potassium at once. Some delirium had now showed itself. The draught was repeated at 9 p.m., when he was very violent, and presented all the symptoms of the hydrophobic state. His face was flushed and his eyes sparkling, and he was constantly attempting to expectorate the viscid mucus that hung about his gums and teeth. He struggled in his fits, and bit and struck at everyone who came near him. The draught, which was repeated three times, had no effect on him, and it took four strong men to constantly hold him. The slightest breath of air or motion in the room was sufficient to bring on a fit of wild fury. Towards morning he seemed exhausted, and the fits became less frequent.—20th: To-day he is very delirious, but has frequent lucid intervals, in which the poor fellow begs people not to come near him for fear he may hurt them. He also seems to feel acutely his position. His constant attempts at expectoration are very distressing to him, and the saliva has to be frequently wiped from his mouth. He took some milk and beef-tea, but refused water, the sight of which at once produced a convulsion. His head was shaved and an ice bag applied to both head and spine. 10.50 a.m.: Patient has just died suddenly during a convulsion, which was apparently less severe than usual. There was no previous sign of any marked exhaustion. He had suffered considerably the previous year from acute rheumatism and also from ague, and had just returned from the hills, where he had been sent for his health.

Necropsy, five hours after death.—Body well nourished; rigor mortis marked; there was considerable cutaneous hypostatic congestion; no marks or scars of bites discoverable. Right shoulder es-

pecially examined. Brain: Weight 2 lb. 11 oz.; much congested; some lymph was deposited along the edges of the longitudinal fissure; arachnoid vessels congested; substance of brain firm; puncta vasculosa marked, showing congestion; no fluid in ventricles. Spinal cord: Vessels much congested; marked softening of substance in dorso-lumbar region, with inflammatory thickening of membranes; the softened spot was an inch and a half in length, and opposite the last dorsal vertebra; the cord was almost entirely disintegrated at this place, the posterior columns suffering most. Lungs: Very much congested, and exuding frothy mucus on section. Liver: Weight 3 lb. 15 oz.; also very much congested. Heart: Weight 11 oz.; auricles empty; both ventricles contained dark fluid blood; valves healthy. Spleen: Weight 8 oz.; on section firm, but filled with dark grumous blood. Kidneys: Right 5 oz.; left 4 oz.; both intensely congested, but otherwise healthy. Bladder: Moderately distended. Stomach: Congested; intestines contained no entozoa.

Remarks.—There was no history of a bite from a dog or any other animal. The man, however, was one who was always out shooting, and also kept pets, and may have fondled a rabid animal, or may have shot a mad jackal or fox, and having torn his hand with a thorn may thus have become inoculated during the process of skinning. At any rate, the symptoms were those of hydrophobia, which was borne out by the post-mortem examination, the appearances being similar to those which were observed in two cases of undoubted hydrophobia which I have had the opportunity of seeing—viz., softening in the dorso-lumbar region with congestion of the membranes, and also general congestion of all the organs of the body. The case was a peculiar one from the first, owing to the earlier symptoms being marked by the intense pain in the shoulder, but the subsequent development of the disease left little doubt as to its true nature, in which Brigade-Surgeon Carter and Surgeon-Major Irving, who saw the case in consultation concurred.

WORCESTER GENERAL INFIRMARY.

CASE OF COMPLETE SUPPRESSION OF URINE LASTING FIFTY-THREE HOURS, FOLLOWED BY CYSTITIS; RECOVERY.

(Under the care of Mr. HYDE.)

For the following notes we are indebted to Mr. M. B. Shirley, house-surgeon.

John —, aged fifty-eight came to the casualty-room, at 10 A.M., on May 18th, suffering from stricture of the urethra. He had suffered from stricture for the last twenty years, and had had it frequently dilated surgically. Lister's sounds, from No. 9 to No. 12, were passed, and the patient refusing to stay in the infirmary was allowed to go home. About 3 P.M. he was brought back, having had a rigor in the street.

On admission he complained of great pain in the lumbar region: temperature 102°; pulse quick and full. He was put to bed; brandy was given, and warm bottles applied.

May 19th, 8 P.M.: He has passed no urine since his admission.—20th, 10 A.M.: He has passed no urine and is drowsy. Pulse slow and full; temperature 97°. His tongue brown and furred. The catheter drew off two ounces of almost pure blood. The bladder was washed out with a solution of carbolic acid, one in 100. He was ordered quarter-grain doses of pilocarpine with half a drachm of sulphate of magnesia every three hours. Loins dry cupped. 8 P.M.: The patient perspired freely

during the day; still no urine passed. The catheter drew off two ounces of urine, which deposited pus. The bladder was washed out. The patient is better. To continue the medicine.—21st, 10 A.M.: Passed a little urine; still perspiring profusely. Medicine to be continued.—22nd, 10 A.M.: Has passed twenty ounces of urine during the last twenty-four hours, which deposited pus. The bladder was washed out with a weak solution of salicylic acid. The medicine stopped.—23rd: Sixty ounces of urine passed. One ounce of infusion of buchu ordered three times a day.—27th: The bladder has been washed out twice daily since the last note with a solution of salicylic acid. The urine is now passed in large quantities naturally. The cystitis is quite disappeared. The patient expresses himself as quite well.

QUEEN'S HOSPITAL, BIRMINGHAM.

TWO CASES OF ULCERATIVE ENDOCARDITIS WITH BRIGHT'S DISEASE, IN ONE OF WHICH ULCERATION THROUGH THE AORTA TOOK PLACE.

(Under the care of Dr. HUNT.)

For the following notes we are indebted to Dr. Leslie Phillips, late house-physician.

CASE 1.—Jessie G—, a dressmaker, aged twenty-one, was admitted on November 28th, 1882. She had scarlet fever when young. Eight weeks before admission she had an ulcerated throat, attended with enlarged cervical glands, followed by rheumatic fever. About ten days before admission the feet began to swell. She had had headache and vomiting.

On admission there was marked anæmia, with slight œdema of feet. The heart's apex-beat was diffused and its dulness increased upwards to the third cartilage; there was a systolic bruit at the apex and also at base, the latter being of maximum intensity in the pulmonary area. There was visible pulsation of the neck vessels. There were no abnormal pulmonary signs. The morning temperature was 101° F.; the evening temperature was also 101°. Pulse 96; respiration 29. She passed 112 ounces of reddish urine, specific gravity 1003, containing a cloud of albumen when boiled. The next day the urine was smoky, sp. gr. 1010, and contained a third of a column of coagulum. The microscope showed numerous leucocytes, blood-cells, blood-casts, and cellular casts. There was no tenderness on palpating the kidneys. The fauces were congested. There were no hæmorrhages in the fundi of the eyes.

Dec. 6th: The patient has vomited. The temperature has been hectic in its type, rising to 104° in the evening, and falling in the morning to 100°. She has continued to pass large quantities of urine—112, 64, 108, and 90 ounces daily. Pulse dicrotic. On the 13th a temporary improvement was noted. She was stronger than on admission. The next day, however, she was not so well. There were nausea, headache, and tinnitus in auribus. The quantity of urine fell to thirty ounces, and to the end of her disease the quantity did not rise again. Some œdema of feet. To take purgative mixture.—16th: Very ill. Evening temperature 104°. Headache and vomiting.—19th: Has continued very ill; rigor lasting three hours. The anæmia is very profound.—21st: Last two days has had constant rigors followed by sweats. The temperature rises during the rigor. There is a double bruit at midsternum.—22nd: Worse. Diarrhoea. Temperature taken at 6 A.M. and 6 P.M. was normal, while at 11 A.M. it was 105°. Urine, twenty ounces, containing two-thirds of a column of albumen coagulum and one-eighth of a column

of pus.—23rd: Worse; vomiting constant, rigors occasional, diarrhoea continued. Sleepless, constantly moaning; cough appeared with pneumonic signs at the right apex. During the next two days the condition of the patient was very painful, there being extreme dyspnoea, præcordial pain, asomnia, desire for death, and delirium. The thermometer did not rise above normal. She died on the 26th.

With regard to treatment, among other drugs she took two grains of salicylate of quinine every hour from the 20th to the 24th, but without improvement. During the last three days the greatest benefit was derived from giving her five minims of the solution of hydrochlorate of morphia, with one minim and a half of the solution of sulphate of atropine occasionally. After each dose the breathing became easy and the patient comfortable, remaining so for some hours.

Necropsy.—Body moderately anasarous; surface waxy. The kidneys were large, whitish, and lobulated, the capsule easily stripping; the two weighed 14½ oz. There was no pyelitis or cystitis. The liver was fatty, and weighed 57 oz. There was some passive effusion into the abdomen and into both pleuræ. The apex of the right lung was hepatized. The heart was hypertrophied, weighing 12 oz. One segment of the mitral valve was sclerosed. On one segment of the aortic valve was a peculiar condition, which was regarded as a stage of ulcerative endocarditis. The valve was one-eighth of an inch thick, almost as hard as cartilage, irregular on the surface, and of the same color as the aorta. One of the other segments was also slightly affected. There were none of the friable, discolored, pendulous vegetations usually present in ulcerative endocarditis.

CASE 2.—Harry P.—, aged thirty, a brass-worker, was admitted on January 23rd, 1883. One sister died of diabetes. The patient had rheumatic fever fifteen years ago, and ever afterwards had had palpitation and dyspnoea on exertion. He began to feel ill six months before admission. He had thirst and frequent micturition, with passage of tea-colored urine. There was vertigo, but unaccompanied with headache or vomiting. Five months ago there was swelling of the feet.

On admission there was some œdema of the legs; anemia was marked, the face being puffy and pasty. There was vertigo and pyrexia. The evening temperature was constantly 103°; the morning temperature varied from 100° to 101°; pulse 108; respiration 18. There was intractable asomnia; later in the disease this gave place to polysomnia. He passed large quantities of urine (62, 56, 51, and 112 ounces daily); neutral, specific gravity 1010, containing a cloud of albumen and no sugar. Microscopically, there were cellular and granulo-cellular casts, with blood-corpuscles. The impulse of the heart was indistinct within the nipple line; the dullness was increased transversely, and upwards it began at the third cartilage. There was a systolic blow at the apex and also in the aortic area, and there was an accent on the second sound.

February 15th: Asomnia, pyrexia, polyuria, and thirst have been the principal symptoms. Pulse dicrotic.—17th: Anæmia very marked; insomnia has given place to drowsiness. Evening temperature 104°.—23rd: There are no retinal hæmorrhages. For the last few days rapid breathing has been a marked feature, without chest signs. Respiration 36 during sleep.

March 1st: Anæmia still greater; sleeps night and day. Respiration 48.—2nd: Distinctly worse; vomiting; is deaf.—3rd: It is with great difficulty that he can be made to understand or answer questions; a slight trace of albumen in the urine.—

6th: Failing gradually; passed evacuations in bed.—7th: Delirium; purpura appeared on the hands.—8th: Double murmur at the base of the heart, and also a sound like pericardial friction; he lies on his back breathing heavily, forty times a minute; mostly sleeping; is obviously dying, as he has been for six days past. He died comatose on the 9th.

Necropsy.—The kidneys "large white," together weighed nineteen ounces. The spleen contained two old infarctions and weighed twelve ounces. The liver large and fatty (five pounds six ounces). Each pleura contained about half a pint of blood-like fluid, which the specific gravity (1038) showed was not merely bloodstained serum. Two ounces of fluid blood in the pericardium, and a considerable quantity of clot and whisked fibrin, evidently the result of extravasation going on while the heart was beating. This clot was situated around the base of the heart, within the pericardium, and probably caused the friction sound heard the day before death. No pericarditis. The heart weighed thirty ounces, and was the seat of extensive ulcerative endocarditis affecting the left cavity valves. From the mitral valve depended large and easily detached friable and pigmented pendulosity. The process also extensively affected the auricular endocardium, while the aortic valves were similarly affected. Above the situation of the aortic valves, in the aorta, was extensive ulceration; eating its way through the coats of the vessel obliquely upward, it had perforated at the posterior aspect of the aorta between that vessel and the right pulmonary artery, near the reflection of the pericardium, but its exact relations with that reflection cannot be precisely stated. (This heart has been forwarded to the Royal College of Surgeons museum.)

Remarks by Dr. PHILLIPS.—In many respects these two cases ran in parallel lines, a recapitulation of which may be of use. In both there were hectic fever, progressive anemia, great thirst, asomnia, dyspnoea, vomiting, and the passage of large quantities of albuminous urine, coexisting with the signs of cardiac disease. In both the death-bed scene was prolonged. In the first case were superadded, recurrent rigors, angina, and diarrhoea, with death from pneumonia. The death in the second case was due to gradually deepening coma. In neither case were retinal hæmorrhages observed, but it must be stated that no examination was made late in the disease; and, as in the second case purpura appeared on the hands a day or two before death, a similar purpuric condition may have been present in the retina. The blood in the pleuræ in this case was attributed to the vascular (purpuric) condition; that in the pericardium probably leaked through the perforation in the aorta, and this latter theory finds confirmation in the interesting fact that a double pericardial friction sound was heard at the base of the heart the day before death, and that after death a churned mass of fibrinous filaments and blood was found occupying this situation. This case plainly shows that hæmorrhage slowly taking place into the pericardium, as from an aneurism, may give rise to a pseudo-friction sound. In one case the ulceration took place on old standing valvular disease; in the other it immediately supervened on the rheumatic endocarditis. Some writer has insisted that in ulcerative endocarditis an important diagnostic sign is that the physical signs may show the valvular lesions to be rapidly progressive; this was well observed in the first case, in which an obstructive basic bruit soon became double. The presence of ear symptoms in both cases is striking—tinnitus in one, and deafness in the other. I must acknowledge the courtesy of Dr. Hunt in placing these cases at my disposal for publication.

Editorial.

INNERVATION OF THE HEART.

THE study of the evolution of function, more especially that of contractility, is the study of a varying polarization. Primordial protoplasm is completely depolarized but potentially capable of any variety of specialization. Cardiac physiology bids fair to become perhaps the most debated territory of all physiology. If any proof of this were wanting, it would be furnished by a careful reading of a philosophical paper forwarded to us by W. H. Gaskell, F.R.S. The views held by physiologists upon many points connected with the innervation of the heart have been too exclusively based upon observations made upon a single type of heart—viz., that of the frog. It is therefore advisable to control and supplement these experiments by corresponding elaborate series of observations upon the hearts of a large number of other animal types, and in this way to trace the evolution of function in the same fashion as the morphologist tracks that of structure. The paper to which we refer is divided into four parts, each of which deals with a definite portion of cardiac physiology. Lucidity is thus secured at the cost of some brevity and simplicity. Gaskell believes that the cardiac functions are the result of a specialization of muscular tissue. No structural nervous system is necessarily required in this view of the matter. The keynote of the peculiarities of the cardiac muscle consists in its structural position, intermediate between unstriated and striated muscle fibre. Muscular tissues exhibit three different modes of responding to stimulation according to their structure. These modes may be expressed by saying that certain muscles possess essentially the power of "tonic contraction," others the power of "rhythmical contraction," and others that of "rapid contraction." In the striated muscle of vertebrates rapidity of contraction is most highly developed, tonicity is rudimentary, rhythmic action is still more rudimentary. In cardiac muscle rhythmic action is most conspicuous, rapidity of contraction is well marked, and tonicity is excellent. In unstriated muscle tonicity is most prominent, rhythmic action is well marked, rapidity of contraction is most rudimentary. All examples of a varying polarization. Rhythmical contraction may thus take place in the absence of structurally demonstrable neural apparatus. Unstriated muscle, as found in the ureter and in the veins of the bat's wing, is capable, under the influence of the mechanical stimulus of distension, of contracting as rhythmically as the apex of the frog's heart. But we have also evidence that the more highly developed striated muscle fibres are capable of rhythmical contractions under the influence of a constant stimulation, whether electrical or chemical. Schönlein

has proved this, especially in the case of the striated muscles of the invertebrata, which contract rhythmically upon stimulation by a weak interrupted current.

Speaking of the spontaneous rhythm of the different parts of the heart, and of the heart as a whole, Gaskell arrives at the following law: the power of independent rhythmical contraction decreases regularly as we pass from the sinus to the ventricle (frog, tortoise). Between the automatic rhythm of the sinus and that of a muscular strip removed from the apex of the ventricle no hard-and-fast line can, however, be drawn; the differences are of degree, not of kind.

As students of physiology know, the rhythmic action of the heart is usually attributed to the influence of the nervous ganglia, which have been found in its substance. The causes which regulate the sequence of the contractions of the different heart cavities are likewise believed to reside in these coördinating centres; but these positions are attacked by Gaskell. He shows that for the heart of the tortoise the proper sequence can go on even after section of the intercardiac nerves, which in this animal lie under the pericardium only, and in the junction-wall between the two spongy-looking auricles. He says the ventricle contracts in due sequence with the auricle because a wave of contraction passes along the auricular muscle and induces a ventricular contraction when it reaches the auriculo-ventricular groove. Muscular rings have been demonstrated to exist between the sinus and auricle, and between the auricle and ventricle. These are said to be amply sufficient to account for the passage of the contraction from the sinus to the auricle and so forth, without the necessity of invoking the presence of ganglion cells. At the same time an explanation is afforded of the natural pauses between the contractions of the different cavities because the muscular rings are intermediate in structure between the sinus and the auricular muscles, and the rate of their power of conduction is less as compared with the other muscles.

The action of the cardiac nerves on the rhythm, force, and conductivity of the heart muscle is next considered in detail. Just as the rhythm and the sequence of the heart's action are found to be independent of the neural system, so in this department Gaskell believes that the principal factor in the results obtained by nerve stimulation belongs to the muscle. In the tortoise the nerve fibres supplying the muscular fibres of the sinus, which by their alternate contractions originate the rhythmical beats of the heart, run almost exclusively in the right vagus nerve. Stimulation of the vagus may slow or stop the rhythm; after the standstill thus brought about a distinct acceleration is often observed. When the sinus of the heart of the tortoise is removed, the independent rhythm of the rest of the heart (which sets in after a more less long preliminary standstill) may,

according to Gaskell, be arrested by stimulation of the intercardiac nerve. This is a new fact in the physiology of the heart of the tortoise.

With regard to the force of the contractions, stimulation of the cardiac nerves is only able to diminish the power of the auricular contractions; the ventricular contractions are never directly influenced in the slightest degree. Further, although the contractions of the auricles are always markedly diminished in strength, yet they are increased in force *after* the end of the stimulation.

With respect to the conduction power of the muscular tissue, it is believed that the cardiac nerves are able both to depress and exalt this attribute of the auricle of the frog and the tortoise. Again, as regards the sequence of the contractions, the cardiac nerves are found to be able both to stop and to aid this phenomenon. When, for instance, an artificial partial block is produced (either by section or the clamp) the most striking effect of nerve stimulation is the removal of that obstruction by completely repairing the conduction power. But stimulation of the nerve when the natural pause only exists is provocative of prolongation of that pause, which may lead to complete standstill. Nevertheless the action of the vagus nerve is of the same kind throughout, and the different effects produced are not due to the action of different nerve fibres possessing different properties, but rather to the action of the same kind of nerve-fibre upon different attributes of the cardiac muscular tissues. Thus the nerves supplying the red and the white muscles of rabbits are not supposed to be different to other motor nerves, yet their stimulation produces very different results, owing to the differences which exist between the red and white muscles themselves. In precisely the same way the same kind of nerve-fibre will bring about different results in the heart according as the muscle fibres upon which it acts are specially engaged in the initiation of rhythmical contractions, in the conduction of a contraction wave, or in the production of strong and rapid contraction.

Although the initial effect of the vagus is to depress some function of the heart muscle, yet its final and most enduring power is to exalt, intensify, and repair that function. Thus, although it slows rhythm, yet its stimulation makes the rhythmical power last longer than it otherwise would, and makes the heart beat with regularity when it was previously irregular; although it reduces the force of the contractions, yet its ultimate effect is to improve and sustain the contraction force; although it may reduce the conduction power, yet in the end it completely repairs that power. For these reasons Gaskell regards the vagus as the trophic nerve of the heart. He shows also how the weak interrupted current has the same effect on the force of the contractions of a strip of cardiac muscle as the vagus nerve has upon the whole auricle or ventricle; and, further, how

atropin has the same effect upon the action of the interrupted current as upon vagus action. The resemblance between the action of the vagus nerve and the weak interrupted current upon the conduction power and the contraction force, is in all cases very striking. Gaskell thoroughly believes that the weak interrupted current and atropin act upon the muscle primarily in the above instances. Atropin improves the rhythmical power and the conduction power in the same way as the contraction force, such an improvement being of stable character, though not necessarily lasting. On the other hand, muscarin ought to depress every function without preventing the possibility of a limited amount of improvement of that function. Atropin influences not only the muscular tissue, but also the nervous structures of the heart in such a way that neither the direct action of the interrupted current nor stimulation of the vagus nerves is any longer able to produce their usual effects upon the various functions of the cardiac muscles. The views put forward by Gaskell will necessitate a revision of the opinions at present held in respect of the action of a large number of cardiac poisons. The doctrines here taught are those of a thorough-going myologist.

BODY AND WILL.

DR. HENRY MAUDSLEY'S new book, "Body and Will," is wondrously clever as a speculative essay on the subject of which it treats, but it is a mistake: a mistake in policy; and a mistake—a very grave one indeed—in science. The author is held in such very high esteem by the specialty to which he belongs that it may seem disloyal to give expression to this opinion; but the time has arrived when it is desirable to speak out, and very plainly too, on the subject of the new departure in physiological psychology of which Dr. Maudsley is regarded, and probably regards himself, as the originator. If we describe his gift as that of cleverness rather than wisdom, it is in no disrespectful spirit that we make the discrimination. Dr. Maudsley's philosophy as a whole—and this book, which may be taken as its latest embodiment, in particular—must be characterized as a peculiarly aggressive development of Agnosticism. His supreme pleasure in literature would seem to be the sad delight of demolishing the hopes and beliefs of his fellow-mortals. He is never weary of reminding them of their mortality, and never so happy as when he has twisted a coil of argument around the tortured consciousness and convinced himself and his reader—for the moment at least—that there is nothing to look for beyond the grave. At times he indulges in this grim humor to the extreme; for example, when he argues that "To us who are alive it may seem incredible that death can be the adequate end of such a long succession and such a vast complexity of life; but it is incredible only because we are alive

and conceive things according to our own measure; it will be more credible to each of us when he is nearly dead, and not incredible at all when he is dead." According to Dr. Maudsley's view of matters, when a man is dead there is an end of him, so that the concluding remark, which must needs give offence to many, has not even the excuse of a paradox. The quotation with which the book before us closes is a fair epitome of the lesson which the author would teach: "All that which is past is as a Dream; and he that hopes or depends upon Time coming, dreams waking."

We say the book is a mistake of policy, because it is not either prudent or justifiable for any man to make a demonstration against the accepted view of things unless he has something better—at least in his own estimation—to substitute for that which he would sweep away. Now, no thoughtful person can read Dr. Maudsley's writings without feeling that the mind of their author is unsatisfied if not unstable. In every page there are indications of the turmoil which is going on within it. He asserts his avowed convictions with more vehemence than belongs to calm persuasion, and he attacks those who differ from him with too much bitterness and impetuosity for a philosopher who is sure of his ground. Dr. Maudsley really ought to feel sorry to be driven to the humiliating conclusion at which he thinks he has arrived; and seeing that it is not a gospel of hope or encouragement that he has to preach, should have some pity for his kind and hold his peace. The utmost consolation he has to offer the world is that which he states thus concisely in the *Pathology of Mind*:—"So long as man has organic viscera he will have emotion enough, whatever his beliefs and disbeliefs may be: there need be no fear that he will lose his emotional nature and become a hard intellectual machine when he no longer puts up prayer or offers sacrifice to a personal God of like nature and passions with himself." Meanwhile, as he remarks in another place, "Herein lies the imputable mischief of prayer, that it is an imbecility of the will." Obviously thoughts like these—even if they be truths to the thinker—are not worth expressing; nor, as a matter of fact, would they be expressed if he were as well assured of their truth as he would have us believe him to be. Dr. Maudsley is *not* sure of his ground. He contradicts himself at every twist and turn, and it is well for the sake of the young and inexperienced in scientific life who may be captivated by his forcible and most excellent diction that the fact should be stated. In the preface to this new book he anticipates the objection of "adepts in the schools of high mental philosophy," and in justification of his view pleads that he has been all his life "dealing with mind in its concrete human embodiments." According to the author, mind can have no existence except in the concrete, so that the explanation offered is obviously unnecessary. Even in this matter, however, Dr. Maudsley

is not accurate. It is evident in the present, as in other of his works, that the concrete mind with which he has been dealing all his life is simply his own individual consciousness. What he describes as the phenomena of brain-function not his own he has derived from other writers, and in the use he makes of the material taken from divers sources he is either not precise or not intelligent, as witness the quotations and paraphrases of passages from Scripture, and from the writings of many divines, with which this and his other works are profusely illustrated. That this must be the conclusion at which even his most friendly critics will arrive there can be no question. For example, his view of the future of the human race, a future of degeneracy and of return to worse than primeval savagery, is nothing more than a misapplication of Herbert Spencer's hypothesis of "dissolution," at first sight barely recognizable. Dr. Maudsley is distressed and distresses his readers with alternating attractions and repulsions between the two schools of philosophy and science. So far as the reader can form any clear estimate of the precise position of the author's consciousness, it would seem to be like Mahomet's coffin, suspended between heaven and earth, neither able to soar to the one place of rest, nor to bury itself resignedly in the other. For the present the author seems inclined to fall back on the oldest form of faith and pay homage to the Sun. "For us men and for our salvation, the earth and its sun are all in all, but in the universe and its evolution new heavens and new earths may be natural incidents;" and therefore, while denouncing all confidence and hope in the future, he makes the reservation that, "It is perchance a cosmic instinct of the matter of which we are constituted," this "hope and conviction of a future realization of lofty ideals."

Our principal objection to Dr. Maudsley's reasoning is its notable lack of relation to the practical. No writer on psychology, as viewed from a physiological and pathological standpoint, makes more frequent allusion to, or lays greater stress upon, the Consciousness than he does; and yet there is no writer, with whose works we are acquainted, who shows less practical acquaintance with the facts of Consciousness, as evidenced by the action of minds other than his own. In illustration of our meaning, take the conception the author has formed of the mental act or state of the suicide. "From a purely psychological point of view," writes Dr. Maudsley, "it [that is, suicide] must be acknowledged the most momentous example of Free-will on human record." He assumes that the person about to commit suicide is convinced of the existence of a life after death, with an alternative of joy or woe, convinced also that suicide will precipitate him into an abyss of endless suffering, but "the unhappy person nevertheless recklessly perpetrates it when his misery on earth is greater than that which he believes he

is able to bear." Dr. Maudsley does not perceive that the state of mind he is describing is as far as possible from one of "free will." The man who, because he has more misery now than he can bear, deliberately and knowingly performs an act which he is convinced will "precipitate him into an abyss of endless suffering," must of course be mad! The author's love of paradox has led him astray. This is how he argues. "Against it [suicide] there is every motive that can influence a conscious being, so that the act is, *quid* consciousness, the most wonderfully illogical act of which anyone can be guilty: either a stupendous example of free will or a *reductio ad absurdum* of the doctrine." Obviously it is not either. The illogical nature of the act is proof that the intelligent consciousness cannot be sanely concerned in its determination; and it is certainly no *reductio ad absurdum* of the doctrine of free will to say that a man may be insane! As a matter of fact, apparently not observed by Dr. Maudsley, the sane and conscious suicide is not "assured that suicide will precipitate him into an abyss of endless suffering." He inclines rather to Dr. Maudsley's own view—namely, that death is the end of life. It is because he hopes and half believes this strange doctrine to be sound, that he dares the chance of escaping from the misery on earth which he is unable to bear. The logical outcome of this doctrine must be that on the whole suicide is about the most rational act a miserable man can perform. We expose the method and denounce the doctrine—the one is faulty, the other bad. Dr. Maudsley has clearly forgotten that the minds with which he has had to deal have been morbid, and, forgetting this, he has mistaken the product of mental disease for the outcome of a sound and intelligent consciousness. This misconception runs through the whole of Dr. Maudsley's writings, and it is conspicuously evident in the new volume from his pen. The mistake of the abnormal for the normal underlies the whole essay, and, when it does not vitiate, weakens the force of, the argument. It appears at the very outset, where the author bewails the want of a "Diabolometer or Satanometer," to measure the evil influences exerted on the mind and opposing the good influences, which he summarizes, as set forth by Dr. Isaac Barrow, the divine, and then characterizes as "a stupendous array of motives, which it is a standing wonder anyone ever withstands, seeing that they are wielded by the power of Omnipotence and guided by the insight of Omniscience." In Dr. Maudsley's estimation a free will choice of good in preference to evil, or the converse, would be an act of insanity. This is what his reasoning amounts to. "The person who answers best, who alone answers near, to the metaphysical definition of free will is the madman." The normal human being is, for the author, an organism more or less easily worked upon by those influences which he conceives to

be the factors in the production of conduct and character. Education is "manufacturing"; and each act of volition—he does not like the idea of an existing and continuous Will—is the resultant of divers forces operative at the moment, and conditioned by the character, inherited and acquired, of the organism, upon and through which these forces act. The odd part of the business is that, while Dr. Maudsley reduces man to this level and makes him a mere creature of circumstances, he asks: "Is it not obvious that, if sane men possessed free wills, they, like the madman, would be free from responsibility, since their wills would act independently of their characters, just as they listed—not otherwise than as a wayward wind was once supposed to blow capriciously 'where it listed'—and that no one would have much, if any, motive left to try to better his character?" The covert sneer at the words of Him who talked with Nicodemus notwithstanding, how can man be responsible if he is nothing more than a manufactured recording apparatus? Albeit "Body and Will" is, as we have said, a clever work, it is a mischievous one, misleading to the student, and unworthy the pen of a Master in Science and Philosophy.

THE GENESIS OF THE BACILLUS TUBERCULOSIS.

THE necessity for a reconstruction of the clinical history of tuberculosis seemed to follow as a logical outcome of Koch's important discovery. And there can be no question that many medical men enthusiastically fell in with the view that phthisis was a parasitic and infectious disease. At the last meeting of the Académie de Médecine, Professor Bouchardat has done perhaps more than justice to these exaggerations, as he regards them, in a communication inspired by the praiseworthy endeavor of seeking to harmonize the known facts of clinical observation with the recent acquisitions of experimental pathology. There can be no doubt that up to the present the doctrine of the contagiousness of phthisis, as demonstrated by the actual record of alleged instances, stands in an overwhelmed minority. M. Bouchardat believes that pulmonary phthisis is originated chiefly under the influence of general conditions determining a state of ill health which has been called *physiological misery*. However, it is argued that the parasitic nature of the disease can no longer be denied. What then becomes the rôle of, and what relation have, the micro-parasites in those cases which are clearly not derived by contagium from without the organism?

The condition of *physiological misery* is essentially characterized by a deficient oxidation and consequent want of calorification, due to insufficient respiration. Certain portions of the lungs have been observed not to expand in proper degree in those who have just become or are about to become the subjects of phthisis. M. Bouchardat

maintains that this local insufficiency is to be found in those in whom tubercles have not yet formed. In such areas the capillary circulation is arrested. At these sites the lymphatic corpuscles placed under abnormal conditions acquire new functions, and amongst others, are metamorphosed into pathogenic bacilli! This, indeed, is a bold return to the doctrine of heterogenesis so strongly upheld by Bastian, and implies not only a spontaneous generation of the micro-parasites, but also of virulent diseases. Beale has believed that particles of protoplasm derived from the living organism may be the germs of disease. And perhaps the view here set forth may supply Dr. Creighton with the most solid basis on which to found his views of the acquisition of specificity by diseases which were originally non-specific. Suppose that we have in the natives of Central Africa to do with a non-contagious suppurating form of lichen, and we wished to know how such an affection became specific and contagious (small-pox). It would not be too much to invoke the presence of the necessary external conditions under whose presiding influence the products of the suppurative inflammation underwent such changes that the inflammatory corpuscles became colonies of bacteria, after the manner advocated by Bastian and now most recently by Bouchardat. The bacilli might then be regarded as veritable spermatie filaments capable of engendering the parent disease from which they were derived. If it be not for some such opinion as this we do not see, although they may exist, on what grounds Dr. Creighton's position becomes intelligible, unless as an ingenious exercise of the scientific imagination. It will thus be seen that the whole question of spontaneous generation would again be opened in some quarters, and that not with a little lease of vitality. Professor Tyndall, in writing recently on the breeding of cholera germs, has remarked very positively and emphatically on the impossibility of our owning any other than the view of contagiousness for the explanation of cases of cholera and typhoid fever. He has spoken of an opposite theory as a dead opinion, which, if it did any good, did much more harm to scientific medicine. Now, although appearances, so to speak, are all against the doctrine of origination *de novo*, yet we hold that it is most scientific not to be so absolute as Professor Tyndall seems to be. He would not deny that spontaneous generation has occurred in long-past ages. And the mind which knows no changes of space and time cannot but conceive that what has once happened may do so again. We say, and say no more than this, that spontaneous generation is a conceivability, and whilst it remains such, it would be folly to shut our eyes and close our ears to attempts to show that the conceivability is something more than legitimate thought.

In thus having pushed to its utmost the heterodox doctrine, we do not desire to forget the actual

teaching of experiment. We unhesitatingly admit that, notwithstanding the intellectual possibilities of the case, the satisfactory proofs of an origination *de novo* have not as yet been given. Nor, judging from the performances of the past, does there seem much hope that the evidences will be forthcoming. And why? The difficulties which surround such a demonstration are so numerous and so complicated; the search after the philosopher's stone is not more so. Conceivably, and more especially in the light of some of the teachings of modern chemistry—we refer to the notion that all the elements may be but remarkable modifications of one element—all other metals may be converted into gold. But who would dare practically to entertain such an opinion with any regard for people's belief in the sanity of his mind! We have thus endeavored to express forcibly the insurmountable objections in the way of establishing the truth of the fascinating doctrine. Possibly in our simile of difficulties we have over-estimated the perplexities which beset those who would prove what most individuals disbelieve.

TUBERCULOSIS IN FOWLS.

THE literature of Tuberculosis is amongst the most extensive of any subject in medical science, and since Koch's discovery of the bacillus contributions to this special department have multiplied at a very rapid rate. The latest and in some respects the most instructive of these essays is contributed by Dr. Ribbert, of Bonn, to the last number of the *Deutsche Medizinische Wochenschrift*, and it consists in a briefly summarized account of some investigations into the pathological anatomy of the tuberculosis of fowls, particularly with reference to the presence of bacilli in the tubercular formations. In the presence of the doubt which still prevails in some quarters respecting the identity of bovine and human tuberculosis—a doubt which is in a fair way of being dispelled if Koch's bacillus is to be taken as the criterion of true tuberculosis—it will excite some surprise and perhaps some consternation to learn that a disease which occasionally ravages the poultry-yard is characterized by the same micro-organism. If Dr. Ribbert's observations be confirmed in every particular, our ideas concerning tuberculosis will require to be still further extended, and another possible source of infection through food will have to be admitted. For our own part we do not desire to press this suggestion too far, and will be contented with giving an account of Dr. Ribbert's research.

Tuberculosis had been unusually prevalent among poultry in Cologne and the neighborhood, so he had ample material to examine. He found the characteristic changes most marked in the intestinal tract, the liver, and the spleen. In the intestine there were beneath the serous coat nodules varying in size from a pin's head to a walnut, the smaller ones projecting beneath the mu-

eous membrane, which was puckered in a scar-like manner over the surface of the larger masses. On section these growths presented much caseation. The foci in the liver and spleen were some of them almost microscopic, others varying in size up to that of a cherry, the larger nodules being caseous in the centre. Occasionally similar nodules occurred scattered through the lungs and kidneys. All these tubercles were the seat of bacilli in great numbers, generally massed together in groups, and so abundant that in the stained sections their presence could be detected with the unaided eye. Their disposition in the nodules was peculiar. Thus in the very small hepatic nodules the bacilli were collected in the centre, the periphery being composed of inflammatory tissue. The nodules next in size presented an area in the centre partly caseous and wholly free from bacilli, which were grouped in a zone outside this. In the largest tubercles it was possible to distinguish four zones—viz., a central caseous mass, a zone of tubercular cells free from bacilli, then the bacilliferous zone, and lastly the outer zone of inflammatory tissue. It would appear as if with the growth of the nodule the bacilliferous zone continued to extend its area, and that caseation occurred, not from the direct action of the bacilli, but from the shutting off of the blood supply.

Perhaps the most interesting fact that comes out of Dr. Ribbert's work consists in the observed relation of the bacilli to the bloodvessels, particularly of the lungs, where the indurated vascularized areas surrounding caseating tubercle yielded on examination the following facts. The parallel bundles of connective tissue forming the walls of the veins were seen to be thickly invaded by the bacillus, which occurred in irregularly shaped masses, in places encroaching upon the lining membrane of the vessel, the bulging of which produced the appearance of minute tubercles, and rendered thrombosis probable. The bacilli were specially massed within the mesh-like spaces of the connective tissue forming the vessel wall. Caseation was not to be found in these structures, and the arterial walls were similarly invaded by the bacillus. It is suggested that, if the same invasion of the bloodvessels occur in the human subject, we may not have to go far to seek for an explanation of that rather inexplicable occurrence in the history of pulmonary phthisis—viz., early hæmoptysis. The vessel wall, weakened by the invasion of the micro-organism, yields before the blood-stream and gives rise to the hæmorrhage, and the discovery by Hiller of bacilli in the sputa of cases of this initial hæmoptysis seems to support the inference, which, however, should not as yet be allowed to go beyond the region of hypothesis. More plausible is the other inference which Dr. Ribbert deduces from this involvement of the veins—viz., the facility with which a general tubercular infection may arise secondarily. He is careful to point out

that there is no question here of any special form of new growth in the vessel wall; but the essential feature is the presence of bacilli in situations admirably calculated to ensure their entrance into the circulation.

A few remarks upon the character of the tuberculosis of fowls conclude his suggestive paper. The large size and advanced character of the intestinal nodules point to the alimentary canal as the primary seat of the disease, the liver and other organs being secondarily infected. It is easy to infer from this that an epidemic of tuberculosis in the poultry-yard may arise through feeding, the excreta of the fowl affording the virus. But this hypothesis has not received direct confirmation. Dr. Ribbert has not found bacilli in the excreta examined, nor was he able to induce tuberculosis in two fowls with whose food excreta from tuberculous fowls were mixed. On the other hand, he succeeded in inoculating fowls with tubercle by the introduction into the abdominal cavity of portions of the intestinal nodules. The inoculated tubercle, it may be remarked, did not occur in the intestine, but only in the spleen and liver, nor did it present many bacilli. Inconclusive as this part of the research appears to be, it opens up a new field of research, which we trust pathologists will not be slow in following up. It shows further, how much may be gained from comparative pathology upon this most interesting subject of modern research.

"MESSAGE."

THE word *Massage* has been used to designate a mode of treatment applicable to a class of cases which are by no means uncommon, and many of which have baffled the skill of the neurologist and the ingenuity of the gynæcologist. It is an unfortunate use of a term, inasmuch as it indicates only a part, for the word means rubbing or shampooing simply, and that, although a necessary, yet by no means the most essential, part of the treatment. The cases to which the method called *massage* is applicable have not been defined with sufficient accuracy; and partly owing to this fact and partly to the object of the treatment being misconceived, and to the obscure nature of the cases in which it is useful, the method has already been abused and misapplied. We have on a previous occasion called attention to some forms of abuse of it, and to prevent these as well as other forms, a knowledge of what is to be gained and what can be done by it is necessary, and this can only be acquired by the publication of all cases, unsuccessful as well as successful, in which the practice has been resorted to. The practice consists of several procedures, each of which has been long known to and employed by physicians, but not in the combined and carefully systematized manner recommended and practiced by Dr. Weir Mitchell. These are isolation of the

patient from friends and relatives, and placing her under the care of a skilled nurse; massage, shampooing, rubbing, and electricity, or passive exercise; and feeding. The practice, when resorted to in suitable cases, is thoroughly scientific, and consists simply in removing the cause of the disordered condition and restoring the strength.

The disorders for which the method is suited are, in their inception, of a very feeble character, and would probably fall stillborn were it not for the assiduous care and attention bestowed upon them by friends and relatives. The supply of the latter is, however, so abundant, that the puny infants grow to be veritable giants—giants, however, which perish like the prophet's gourd, once their source of nourishment is cut off. The cases cured by the practice appear to be of the following character; their starting-point seems to be some mental shock or trouble, overtaking of strength, or in some cases perhaps some trifling uterine disorder; sympathy, indulgence, moral mismanagement, encouragement to invalid habits from friends now come into play. The disorder will now retain its vigor without much variation, sustained by the vigilant care of friends. Soon, however, it becomes developed by the aid of the doctor—too often a neurologist or gynecologist. In proportion to the number and variety of doctors consulted will the disorder find new spheres of activity; it may assume a uterine, spinal, cerebral, laryngeal, or other character, according to the element ruling at the time; unfortunately it is too often uterine.

Dr. Playfair has published ten cases in which cures were brought about by the method we speak of. These cases had their origin in the ways we have stated. Indeed, Dr. Playfair clearly and unmistakably points out the part played by friends and by active local uterine treatment in these cases. Of the last he says: "I am not sure that I should not, in common honesty, make the humiliating confession that in many instances over-much and injudicious treatment, in my opinion at least, intensified and kept up the now dominating neurasthenic disorder, as in a case under my care as I write, in which the patient may fairly be said to be suffering from pessary on the brain, so incessantly is she thinking of one or other of the seventy-nine different instruments which she has had inserted during the last few years in America and in this country." We do not know which to admire most—the imagination which called into existence the conditions requiring the use of seventy-nine different pessaries, or the ingenuity which devised them.

How many women, fit subjects for the method of treatment included under the term "massage," go about laboring under some supposed affection of the uterus or spine, a burden to themselves and to their friends, cannot be estimated. The number, however, is by no means small. That there is no organic disease present in

the uterus or elsewhere, and that these women are invalids made by their surroundings, is proved by the fact that their symptoms disappear after a few days of separation and isolation from their friends, and that the only indication then is to restore their strength, which is done by passive exercise, rest, and feeding. In one only of Dr. Playfair's cases was recourse had to local uterine treatment. This was a case in which the uterus assumed a position of retroflexion, and, although this condition did not appear to have much to do with the symptoms, a stem pessary was introduced, fortunately without preventing a favorable issue. The treatment does not appear suitable for cases of organic disease, but rather for women who have acquired invalid habits, and for a large number of those who are always thinking of their displaced and ulcerated uteri, and of the ingenious instruments inserted and the varied applications made to cure them.

PHYSIOLOGY AND THE EXPLANATION OF CONSCIOUSNESS.

THE *Princeton Review* for July contains a paper by Professor William B. Scott, of Princeton College, on Recent Researches in Cerebral Physiology. Mr. Scott is one of the clearest headed biologists of his country, and it is of much interest to notice the impression produced on his mind by the arguments in support of the most recent doctrines in cerebral physiology. The paper is not the less interesting for being intended for comparatively popular uses. The chief doctrine, of course, in which Mr. Scott seems interested is that of the localization of function—a kind of modern phrenology, only with much more effort after a scientific basis than the old phrenologists cared for. After giving a *résumé* of the "centres" which have been indicated, and of the best established views as to the functions of the different parts of the cerebro-spinal system, Professor Scott comes to the "most important question of psycho-physiological inquiry—the functions of the cerebral hemispheres." After admitting with all physiologists that the cerebrum is the organ most indispensable for the operations of conscious intellect, he proceeds to discuss the question, "Can we find any reason to believe that the functions of the cerebrum are localized in its cortex? After reviewing the evidences for the theory of localization, those from experiments on animals and those from pathological observations on man, with much clearness, he comes to the conclusion that the mental functions cannot be localized. He lauds highly the work of Wundt, as the most important of recent contributions to Physiological psychology (*Grundzüge der Physiologischen Psychologie*, 2te Aufl., Leipzig, 1880). He thinks the best statement of our present knowledge of the complex question of localization will be found in the following propositions of Wundt:—

"1. The Connection of Elements: Every nerve-element is connected with others, and only then is it capable of physiological functions. 2. Indifference of Function: No element performs specific functions, but the form of its function depends upon its connections and relations. 3. Representative Functions: Elements whose function is inhibited or destroyed may be represented by other elements, so far as the latter stand in the necessary connections. 4. Localization of Function: Every definite function has, under given conditions of conduction, a definite place in the central organ. 5. The Principle of Practice: Every element becomes the better adapted to a definite function the more frequently it is caused to perform it."

We see, says Mr. Scott, that the cerebrum is the most essential part of the brain for mental action, and that only through it can the impulses from the sense-organs rise into consciousness, or the will affect the body. Further than this, there is very strong evidence that it is indispensable to memory. To the great question which so holds us all, and which is dealt with reverently by Professor Scott, "Has anything in our investigation given us a clue to the origin and meaning of consciousness?" he answers, "It must be admitted that nothing has done so. Consciousness is an ultimate fact beyond which we cannot go, and all attempts to explain the transition from the unconscious to consciousness are merely clever tricks to evade the real question. The materialistic hypothesis regards the soul as a function of organized matter, the result of vibrating molecules, in the same sense that heat is a product of such vibrations. But this is entirely untenable. . . . Our immediate knowledge is that of consciousness; consciousness is the fact, matter the inference."

Reviews and Notices of Books.

Localization of Cerebral and Spinal Diseases. By J. M. CHARCOT, Physician to La Salpêtrière. Translated and Edited by W. B. HADDEN, M.D. London: The New Sydenham Society. 1883.

THERE can be no doubt that the New Sydenham Society has acted wisely in selecting for publication the translation of another work by the renowned Charcot. The present volume does credit to all concerned. We congratulate Dr. Hadden upon the successful accomplishment of his task. He has presented the English-reading portion of the medical public with a readable interpretation of the lectures of the able French physician. In a preface to the lectures Dr. Hadden has brought together some portions of neuro-physiology not contained in the body of the work. We may notice in this regard a summary of the experiments performed on monkeys by Ferrier and Gerald Yeo on the visual centres in the hemispheres, with an abstract of Ferrier's inferences on cerebral amblyopia and hemiopia; an account of a new tract of spinal degeneration in the anterior part of the lateral column observed by Gowers and in another instance by Dr. Hadden; a condensed and clear statement of the recent researches into the nature of the so-called tendon reflexes by Gowers, Tschirjew, Waller, and Horrocks. This informa-

tion is valuable, and, as it is contained in a prelude by itself, unobjectionable. It is questionable, however, whether many readers would not have preferred to study Charcot without any admixture from without, and for these individuals the introduction of the views of other observers not quoted by Charcot on some debated point in neurology may appear impertinent. The translator mentions that the French edition was edited and partly annotated by MM. Bourneville and Brissaud.

We cannot praise these clinical and anatomical lectures too highly. As Charcot himself says, they constitute an introduction only to the clinical history of cerebral and spinal disease as met with in man. But such an introduction!

The first part of the work treats of the localization of cerebral disease, and sets to work in a thorough fashion by describing the broad anatomy and histology of the cerebrum. Perhaps the principal fact in the minute anatomy is the general distinction of the cerebral cortex into anterior and posterior, the former containing the large motor cells which are absent in the latter. Charcot insists on the necessity for good clinical observations and careful autopsies of cases of disease of the central nervous system. Having drawn attention to the frequency of vascular lesions in cerebral pathology, an elaborate description of what is known concerning the arterial circulation of the cerebrum follows, and forms the main subject of the next five lectures. Cerebral and hysterical hemianæsthesia are contrasted in the next lecture. Charcot has long held decided views on crossed amblyopia and lateral hemiopia. He says that lesions of the cerebral hemispheres causing hemianæsthesia give rise also to crossed amblyopia, and not to lateral hemiopia. The well-known diagram explanatory of the phenomena of lateral hemiopia and crossed amblyopia naturally finds its fittest place here. The origin of the cerebral parts of the optic nerves is dealt with next. On arriving at the twelfth lecture it is obvious that we have to do with questions of exceeding importance. The division of the central masses of the hemisphere into anterior or lenticulo-striate, and posterior or lenticulo-optic regions, is apparently of surpassing interest from an anatomical and pathological standpoint. Damage of destructive sort to the anterior region which comprises the anterior two-thirds of the internal capsule, caudate and lenticular nuclei, produces loss of motion on one side of the body without any associated hemianæsthesia, but the loss of power is less when the grey matter of this region is destroyed as compared with the pronounced and lasting palsy which accompanies the lesion of the white matter (internal capsule).

In the second part of the book, which concerns chiefly the localization of spinal disease, the predominant feature is the anatomy and physiology of the pyramidal tracts. The reader is taken through a course of most instructive lectures, and cannot fail to possess himself of the main embryological, anatomical, physiological, and pathological facts already known on the subject of the pyramidal tracts. For this knowledge we are indebted mainly to Flechsig. It is shown that during the first few weeks of extra-uterine life, according to Parrot's observations, the then indifferent, nearly uniform, grey transparent matter of the cerebral hemispheres becomes differentiated into white matter first at that part immediately beneath the fissure of Rolando. Of all the cortex of the hemisphere, that forming the "motor" region is the first to be developed. Flechsig, although differing in some details, is yet corroborated in this main fact of development. The pyramidal tract next proceeds downwards through the centrum

ovale along the posterior part of the internal capsule, behind the "knee" of this structure, which is formed by the junction of the anterior and posterior bands. In the cerebral peduncle the pyramidal tract occupies generally the middle segment of the lower layer of the crus, and may be seen as an opaque rhomboidal area, when the internal and external segments yet exist as clear spaces, due to the non-development of the medullary sheaths. Owing to the intermingling which takes place, we know but little of the precise arrangement of the fibres under consideration in the pons Varolii. In the medulla the anterior pyramids are the direct pyramidal tracts. The varying amount of decussation, and the situation, size, shape of the direct and crossed pyramidal tracts in the spinal cord are now amongst the more familiar facts of the anatomy of the spinal cord. The knowledge brought to light by developmental, by structural, and by pathological anatomy have conclusively demonstrated the essential contrast between the two constituent parts of a posterior column of the cord. No one can over-estimate the importance of the study of the secondary degenerations of the white fasciculi, not only in the cord but in the brain. A solution of osmic acid has proved of great value in these anatomical studies. In an appendix to the work some fresh evidence of a clinical and anatomical nature is afforded with the view to place anyotrophie lateral sclerosis on a sure autonomous basis. The objections raised by Leyden are here discussed and explained away. With all that we have said, we are afraid that we have done but scant justice to this modern masterpiece. It is but natural that those who read French should prefer the volume in its original dress. Things coming from Charcot, which sound pithily in the foreign tongue, rather lose their freshness when rendered into even readable English.

Artificial Anæsthesia and Anæsthetics. By HENRY M. LYMAN, A.M., M.D. London: Sampson Low & Co. 1882.

If we were asked to write a thesis in support of the proposition that the subject of artificial anæsthesia and anæsthetics was of sufficient importance to require a separate literature, we confess that we should not feel very intensely on the matter, and probably our arguments would be correspondingly lame. Dr. Lyman has, however, composed a work of over 300 pages, and has brought together a large amount of miscellaneous information. In the preface he says "the practiced expert will everywhere recognize the quality of Ferrin, of Snow, of Simpson, of Samson, of Anstie, of Turnbull, of Kappeler, and of Rottenstein." No doubt the treatise has been finished at the cost of a great deal of constructive energy, the materials from the various sources having been welded together in a systematic whole by the author; for this labor Dr. Lyman deserves much credit as well as for the modest way in which he speaks of his own share in the work. An opening chapter is devoted to the History of Anæsthesia, in this sundry allusions to ancient authors are made, showing that from the earliest ages of antiquity man has continually sought for the means of obtaining relief from pain. The phenomena observed in the course of the administration of an anæsthetic are carefully described, and the physiology of anæsthesia is fairly well entered into. Attention is next directed to the administration of anæsthetics, the method of producing anæsthesia, and the various forms of inhalers in use. Accidents and the treatment of these are explained; some illus-

trative cases of apparent death in which restoration was affected by many simple means are also quoted from medical journals. Another chapter gives an account of many Anæsthetic Mixtures which have been suggested with the hope of diminishing the perils of anæsthesia from the use of chloroform alone. Artificial Anæsthesia and Anæsthesia in Dentistry are the titles of the following two sections. Local Anæsthesia receives adequate consideration, as also does the important question of the Mortality of Artificial Anæsthesia. The Medico-legal Relations of Anæsthesia are of the first importance, and of a very extensive nature. Dr. Lyman mentions most of the many aspects of this subject, and illustrates them by means of reported cases. A description of all the chief Anæsthetic Substances occupies the remaining, and by far the largest, part of the book. Under the heading of Chloroform, the author has collected 393 cases of sudden death from the inhalation of this anæsthetic. Of these, the sex was recorded 370 times, 262 were males and 108 were females. Death occurred 15 times at the commencement of inhalation, 99 times before complete insensibility set in, 70 times whilst the patient was fully unconscious, and 35 times after the completion of the operation (out of a total of 219 available records). Some more tables are given, including one showing the nature of the operation for the performance of which the chloroform was administered. Under the chapter on Ethidene Dichloride, two recorded cases of death from the use of this agency are briefly sketched. The administration of amylene has been followed by death in two cases reported in the *Medical Times and Gazette*, 1857. Alcohol is fully treated of, both from a chemical and physiological standpoint. Cases of death caused by the inhalation of ether, and of nitrous oxide gas are also incorporated in the work. The question of the Production of Anæsthesia by Rapid Breathing and by Electricity occupies the brief concluding chapters.

Lectures on Orthopædic Surgery and Diseases of the Joints. Delivered at Bellevue Hospital Medical College during the Winter Session of 1874-75. By LEWIS A. SAYRE, M.D., Professor of Orthopædic Surgery in Bellevue Hospital Medical College, Consulting Surgeon to Bellevue Hospital, etc. Second Edition, revised and greatly enlarged, with 324 illustrations. London: J. & A. Churchill. 1883.

DURING Dr. Sayre's visits to this country he availed himself of the opportunities afforded him on many occasions of stating, and, as far as possible, demonstrating his views and lines of practice; and the teaching of this volume will not be novel in its main doctrines. In the treatment of talipes Dr. Sayre lays stress upon the value of joint pressure as determining the necessity for, and also the seat of, division of tendons. Immediately after tenotomy he places the deformed part in the correct position, and thus is exactly opposed to the usually received view that it is better to wait for three or four days before trying to correct the deformity at all. In the treatment of joint disease he relies almost entirely upon fixation of the part, combined with extension. These principles are illustrated in their practical application in affections of all the joints of the body, and the author's mechanical ingenuity is abundantly evidenced. The book, however, is too large. It could have been shortened very considerably without sacrifice, and thus have been made much more gener-

ally serviceable. There is great repetition, which, although quite legitimate in clinical lectures, is very tedious when the lectures have to be read. Dr. Sayre is a firm believer in the evil effects of congenital phimosis and adherent prepuce, and is disposed to attribute all kinds of muscular spasms and paralyses to these conditions. He cites several cases in which circumcision was speedily followed by relief to these conditions. And Dr. Sayre goes on to state, "The same general disturbance takes place in the female from irritation of the clitoris; to illustrate which and the results secured from clitoridectomy" he quotes cases. The first is of a child nine years old, with spasm of the muscles of the thigh and calf, "Pressure on the clitoris caused spasmodic contraction of the muscles of the lower extremity. I clipped off the end of the clitoris." A month after she was stated to be well. Another case is that of a child, eight years old, who was sickly until three, and then began to improve, but had never been able to walk. Dr. Sayre found her healthy, "but unable to extend her limbs at all." He "found the clitoris very much congested, and the slightest touch produced spasm of the whole body." Clitoridectomy was accordingly performed. The third case recorded is similar in all important points. We must protest very earnestly against this practice and teaching. Dr. Sayre appears to consider that circumcision and clitoridectomy are analogous operations. The loss of the prepuce for certain entails no evil, but to remove the clitoris is a mutilation only justifiable under the most extreme circumstances—circumstances which, from Dr. Sayre's account, did not exist in his cases.

On the Pathology of Bronchitis, Catarrhal Pneumonia, Tubercle and Allied Lesions of the Human Lung.
By D. J. HAMILTON, M.B., F.R.C.S.E., F.R.S.E.,
Professor of Pathological Anatomy (Sir Erasmus Wilson's Chair), University of Aberdeen. London: Macmillan & Co. 1883.

WE are glad to find that Professor Hamilton has thought fit to collect within this volume the very interesting and thorough series of papers which he contributed to the pages of *The Practitioner* a short time ago, and with needful additions, to have placed before the profession a work which we hope will be widely read and studied. It contains the outcome of extended original observation, and although in some respects it may seem to run counter to the tendencies of modern pathology, no one can deny the ability with which the author handles the problems arising out of this study. The chapters devoted to bronchitis and the diseases frequently associated with it fill a gap in pathological histology which has never been so adequately dealt with before. After describing in detail the normal structure and disposition of the bronchial passages, and the manner in which the epithelial lining is reproduced, he applies this knowledge to the explanation of the changes observed in acute bronchitis, laying great stress upon the presence of the basement membrane as preventing the catarrhal process from being, as some hold, in part due to proliferation of connective tissue corpuscles. The cellular products of catarrh are, he maintains, entirely derived from the layer of germinating epithelium. There are evidences of concomitant leucocytic infiltration of the inner fibrous coat of the bronchus and of the lymphatic structures, but there is no proof that these exuded leucocytes travel beyond the barrier afforded by the basement membrane. Another interesting fact is the state of congestion of the nerv-

ous ganglia at the root of the lung, suggestive of their taking part in the increased activity of the bronchial glands. Descriptions follow of the changes observed in chronic bronchitis, as occurring in an acute attack, in valvular lesion of the heart, from inhalation of foreign matters, etc., and then comes an important section upon chronic interstitial pneumonia as a complication of bronchitis; in which the author gives his adhesion to the doctrine that bronchiectasis is due to the contraction of the thickened lobular septa passing between the bronchial wall and the pleura.

It is, however, in the second half of the work that Professor Hamilton enters upon controversial ground, and the bold statement that he does not consider ordinary croupous pneumonia to be an inflammatory process at all, may sound strangely to those unacquainted with the arguments he proffers. The fact is he does not acknowledge that the vascular changes in the process of inflammation are, strictly speaking, "inflammatory;" the exudation of liquor sanguinis and the emigration of leucocytes are, he considers, purely the mechanical effects of suddenly increased blood-pressure, and the pneumonic exudations being solely composed of blood constituents is, he thinks, brought about by the sudden change in the condition of the pulmonary circulation, the primary cause of the heightening of blood-pressure being stagnation in the capillaries, due to spasm of the bronchial and pulmonary vessels from irritation of the alveolar walls. This subject is discussed at some length, but it does seem as if far too much importance was assigned to these mechanical conditions. Professor Hamilton, in pursuing his arguments to their logical conclusion, and in advocating venesection as "the one sovereign remedy" in acute pneumonia, says:—"I cannot refrain from expressing my strong conviction that in venesection we have the one means of lowering the blood-pressure and cutting short the disease. Once the undue blood-pressure has been relieved, the exudation of its solid constituents must cease, and time will thus be afforded for the circulation in the part to recover itself. The hard, wiry pulse of a person suffering from croupous pneumonia simply expresses the high tension of the blood. Remove part of the latter and relieve this tension, and you will cut short the disease." And he thinks that venesection has been discredited because it has been employed for cases of catarrhal as well as of croupous pneumonia, an assumption almost as gratuitous as the foregoing statements upon its value in the latter disease. Pathologically Professor Hamilton sees no difference between "croupous pneumonia" and "oedema" and "brown induration" of the lung, except in the rapidity with which the increase of blood-pressure takes place; and he regards "catarrhal pneumonia" to be the real inflammatory disease of the lung. The chapters on catarrhal pneumonia naturally lead to the discussion of tubercle and phthisis. The view taken by the author here is much the same as that promulgated by Virchow, but which is now on all sides giving way before the reversion to the modified doctrine of Laennec. Tubercle, according to the author, is a connective-tissue tumour, analogous to sarcoma, but evoked by infection from the absorption of caseous products. The giant-cells are only so far characteristic as indicating the reversion of the irritated connective tissue to its embryonic type. Tubercle may be disseminated embolically, but he finds no ground for the belief that it primarily precedes the inflammatory changes so often associated with it in the lung. It is impossible, and it would be unfair, to attempt to give an accurate idea of Professor Hamilton's teaching within the small space

at our disposal. We must refer to the work itself for this, and for his views on the supposed contagiousness of phthisis, to which the discovery of the bacillus has given such a stimulus. Professor Hamilton does not believe much in the constitutional nature of phthisis, but rather in a liability from internal weakness or from mal-hygienic surroundings, to catarrhal pneumonia, which on reaching the caseous stage, may become the source of the tubercular virus, capable of transmission. He does not, however, believe that the secretions, etc., contain this virus. We commend this work for careful study. The reader will find it pleasant to peruse, and profitable, too, for it bears the impress of convictions based upon careful observations. It is amply and beautifully illustrated, and the printing is unexceptionable.

Leçons Cliniques sur les Maladies Mentales et sur les Maladies Nerveuses. Par AUGUSTE VOISIN. Paris: Baillière et Fils.

THIS is a huge volume of 800 pages, which, probably with advantage to author and reader, might have been condensed into a much smaller compass; the present bulk, however, has the advantage of demonstrating more fully the author's facility in generalizing. Praise must be accorded to the systematic method in which the subjects are treated, and to the author's constant endeavor to associate cerebral pathology with mental symptoms. In places, however, the former merit degenerates into a fault, and becomes a mere hair-splitting subdivision. The theme of the work would appear to be the great therapeutic success of the author in the use of counter-irritation, morphia, and the bromides, together with his pathological success in discovering microscopic changes which correspond most accurately with the present accepted theories of brain function and the author's views of cerebral disease.

Counter-irritation by blisters or actual cautery is recommended in general paralysis with mania, whenever the cerebral temperature rises above the normal. In ordinary mania with cerebral hyperthermia, blisters should be used to the head and neck, with a sufficiently powerful injection of morphia to produce prolonged sleep. In ordinary melancholia, where there is temporary or chronic cerebral hyperthermia, the same treatment should be adopted; and so also in the case of stupor, but if the stupor be without elevation of head temperature morphia should be used. Morphia is recommended to be employed in the form of hydrochlorate as a subcutaneous injection in stupor, in simple hypochondriacal and hysterical melancholia, in mania, and in sensory hallucinations; the doses varying from 3 to 5 centigrammes per day in simple melancholia, to 9 or 10 in stupor, and from 40 to 60 in circular insanity. The initial dose in all cases should be from 1 to 3 centigrammes.

Of 106 epileptics treated by bromides, 37 were cured and 37 were so much improved that many had no longer fits, but only auras and vertigos. The dose is regulated so as to suppress the reflex irritability of the epiglottis, and varies from 50 centigrammes to 12 grammes daily. The success of this treatment is certainly astonishing. The pathological success may be estimated by the fact that in simple mania the changes under two months of diseased condition are differentiated from those above that period; in these last three stages of brain-cell degeneration are described. In the first stage, amongst other changes, the protoplasm of the cell becomes fatty and pigmented; in the second, the protoplasm commences to be

absorbed, is more granular and opaque, the axis cylinder becomes atrophied; in the third, the protoplasm has disappeared, the contour of the nucleus is that of the cell, the axis cylinder, is disconnected, and the secondary prolongations have disappeared.

A large portion of the work is devoted to showing that general paralysis may be associated with every form of melancholia—a fact already well recognized; and much space is also devoted to proving the long accepted conclusion that the enfeeblement of mental powers exists from the outset of, and is an important diagnostic symptom in, general paralysis. The perusal of this work cannot but excite the desire of many alienists to rival Dr. Voisin in his therapeutical triumphs; yet before adopting his modes of treatment, favorable as they appear, it might be wise to compare the total statistics of the Salpêtrière with those of similar French or English institutions. The difference should be so well marked as to convince the most sceptical therapist.

Student's Guide to the Examination of the Pulse and the Use of the Sphygmograph. By BYRON BRAMWELL, M.D., F.R.C.P. Edin. Second Edition. Edinburgh: MacLachlan & Stewart.—The author of this brochure has not only supplied a distinct want, but has done his work in a manner which will make it very acceptable to clinical students; for although no text-book on medicine fails to say something about the sphygmograph, the rationale of its employment is never very fully, and seldom very clearly, explained, and consequently vague ideas both as to its value and its indications are commonly current. Dr. Bramwell seems to possess the power of clear definition, and certainly is an adept at clear and systematic exposition. After a description of the instruments of Marey, Mahomed, and Dudgeon, and rules as to their application, he gives a full and careful analysis of a sphygmographic tracing, discusses the condition of diastole, and deals in turn with the frequency, rhythm, and tension of the pulse. No student who works with the sphygmograph with this book before him but will derive much serviceable knowledge. The domain of the instrument may be overrated, but there can be no doubt that it often gives very useful indications when properly applied.

The Students' Manual of Venereal Diseases. Being a concise description of those affections and of their treatment. By BERKELEY HILL, Surgeon to University College and the Lock Hospitals; and ARTHUR COOPER, late House-Surgeon to the Lock Hospital. Third Edition. London: Smith, Elder, & Co. 1883.—The title of this little book exactly expresses, not only the aim of the authors, but the result of their attempt to achieve it. It is a capital book, and one that students will find very useful while they are attending surgical out-patient practice; and practitioners will find it a thoroughly trustworthy source from which to rapidly refresh their memory on the practical points of diagnosis and treatment of venereal diseases.

On the Relation of the Chest-movements to Prognosis in Lung Disease. By ARTHUR RANSOME, M.D., M. A. Cantab., Lecturer on Public Health in the Owens College, Manchester. London: Macmillan. 1882.—In this volume Dr. Ransome has incorporated the observations which he communicated to the Medico-Chirurgical Society in 1881 with those in his work on Stethometry, and has reviewed their bearing on prognosis by the aid of his more recent experience. The mobility of the walls of the thorax and comparative measurements

of the chest at rest have at all times been considered most important in forming an opinion of the extent of any chronic lung mischief and the probable duration of the disease. It is so very difficult to come to any definite conclusion in these cases that any additional help is eagerly welcomed by the physician. Dr. Ransome's researches give us the first really scientific data on which stethometry as a practical guide can be said to rest, and, although we are inclined to think that he somewhat over-estimates its importance, we are none the less obliged to him for presenting us with a most valuable and suggestive book.

How to Examine the Chest. By SAMUEL WEST, M. D. Oxon., M.R.C.P., Physician to the City of London Hospital for Diseases of the Chest, Victoria Park; Medical Tutor and Medical Registrar at St. Bartholomew's Hospital; and Assistant Physician to the Royal Free Hospital. London: J. & A. Churchill. 1883.—This student's guide may be of use to the beginner in examining a chest, but beyond this it can be of but little service. It deals with the lungs, the heart, and the parts in the mediastinum; but it is far from exhaustive, whether we regard the topographical anatomy, the physical signs, or their explanation and significance in thoracic diseases. We can quite understand that, aided by demonstrations on patients, a course based on a work like this has been of great value to students before they have undertaken clinical work in the medical wards. The illustrations are sufficiently good, but the information, although correct enough so far as it goes, is so very elementary that it leaves but little ground for criticism.

Journal of Mental Science. July, 1883. London: J. & A. Churchill.—Dr. John Cleland writes in the current number on the seat of consciousness. No doubt the subject forms, and has ever formed, a highly interesting intellectual exercise; but if anyone chooses to maintain that the question resolves itself into one of verbal quibbling, we do not think he would have the worst of the argument. Dr. Cleland does not fall in with Ferrier's views on the matter. Dr. Bevan Lewis publishes the results of some experiments on caffeine in its relationships to animal heat and as contrasted with alcohol. He concludes that whilst both caffeine and alcohol alike increase to a great extent the normal heat formation, they differ in the very important feature that alcohol by an excessive and prolonged discharge of heat, greatly lowers the body temperature, whilst, on the other hand, caffeine tends rapidly to reinstate the normal temperature by retention. The remainder of the original articles deal almost exclusively with subjects most allied to alienism. We regret not to be able to find space for mentioning any of these more particularly.

Insanity; its Causes, Prevention, and Treatment. By W. HARRIS, M.R.C.P. Edin. London: Wyman & Sons.—This is a sketch of the subjects indicated in the title, and is intended for popular reading. The medical treatment does not seem a fit matter for popular treatment, and the causes and prevention of insanity are so faintly dealt with that it is to be feared the object intended will not be greatly advantaged. The author does not diverge from the accepted views on these matters.

Archiv für Anatomie und Physiologie. (His. Braun, und Du Bois Reymond.) Physiologische Abtheilung. Heft ii. und iii.—This part contains—1. Ernst v. Fleisch: Das Chronoautographium. 2. Ferd. Klug. Ueber den Einfluss der Kohlensäure und des Sauerstoffs auf die Function des Säugethierherzens. 3. A. Canini: Die Endi-

gungen der Nerven in der Haut des Froschlarvenschwanzes. 4. Ad. Zederbaum Nervendehnung und Nervendruck. 5. Wilhelm Fleiss: Das Piperidin als Anæstheticum und der Beziehung desselben zu seinem Homologen, Coniin. 6. S. Meltzer: Die Irradiationen des Schluck Centrum und ihre allgemeine Bedeutung. 7. Babuchin: Zwei Begründung des Satzes von der Präformaten der Elektrischen Elemente im Organ der Zitterfische.

Zeitschrift für Biologie. Von W. KUHN und C. VORR. B. xix. Heft 2.—This part contains the following articles:—(1) Ueber die nächsten Spaltungsproducte der Eiweiss Körper, by v. Kühne and Dr. R. H. Chittenden; (2) Ueber Hemialbumen im Harn, by v. Kühne; (3) Die Gase des Verdauungsschlauches der Pflanzenfresser, by Professor D. Tappeiner; (4) Versuche über die Raumsinn der Haut nach der Methode der richtigen und falschen Fälle, by Dr. W. Camerer; and (5) Einfluss des Bromkalium auf den Stoffwechsel, by Dr. B. Schulze.

Journal de l'Anatomie et de la Physiologie. Par C. ROBIN et G. POUCHET. T. xix. No. 3. Mai et Juin.—The whole of this part is occupied with a memoir by L. Huet on the Isopod Crustaceans. There are several plates giving illustrations of their internal structure.

The Hygiene of Armies in the Field. By ROBERT RAWLINSON, C.B. Read at the Parkes Museum, June, 1883. London: Wyman & Sons. 1883.—This paper, which was read at one of the evening meetings at the above museum, is more an account of the author's experience as the engineer member of the Sanitary Commission sent out to the army of the Crimea in the spring of 1855, than a sketch of the hygiene of armies in the field. It is an interesting record of sanitary work performed, and from this point of view may furnish practical hints for the arrangements which may be advantageously made for the carrying out of sanitation with an army on active service. The Appendix contains extracts from the Report by the United States Sanitary Commission of its work during the war of the Rebellion, and from Kinglake's "Invasion of the Crimea." The omission of the latter would not have affected the value of Mr. Rawlinson's paper.

Æsthetical Sanitation. By WILLIAM WHITE, F.S.A., M.S.I., F.R.I.B.A., etc. London: E. Stanford, Charing-cross.—"Be healthy, and only thus you will be beautiful," is the excellent lesson contained in this little book; but so many have gone before the author in decrying tight lacing, tight clothing, and tight shoeing, and in advocating exercise of the whole frame, that he must be sanguine if he hopes that fashion will recognize his claims to be heard. A fuller account would have been useful and interesting of Colonel Ling and his grand central institution at Stockholm for the "wonderful system by which more than five hundred muscles of the human body, together with very many thousands of nerves, are thoroughly and equally exercised and trained." In this connection few perhaps are aware of the value of cricket but those who have played an all-round game after long disuse, and have found out painfully the next day how many neglected muscles have been brought into play. Of the lessons of this book we can say nothing but good; it is only their enforcement which is wanting.

Knapsack Handbook, or Pedestrian's Guide. By WILLIAM WHITE, A.C., F.S.A., etc. Second Edition. London: Edward Stanford, Charing-cross. This pamphlet, by a member of the Alpine Club, contains in a handy form lists for the use of the ordinary knapsack tourist, showing what he should

wear and what he should carry, together with much short and sensible advice. The knapsack itself is not discussed, as it is taken for granted that an invention of the author's, called the "porte-knapsack," will be used, which remedies "all drag on the arms and all pressure on the breast or between the shoulders." But from beginning to end the pamphlet is the work of a man who has learned by experience what he wants himself, and the price is a small one to pay even for the grateful security from finding that one has "left something behind."

Health Lectures for the People. Delivered in Manchester, 1882-3. Vol. vi. Manchester: Heywood, 1883.—This is the sixth course of lectures published by the Manchester and Salford Sanitary Association. The subjects treated were those relating to "The Home and the Household in their Sanitary Aspects." We are disposed to think that some of the lectures are not well adapted for the class for whose instruction, it is to be presumed, they were chiefly intended, but others are very practical, plain, and instructive. Those by Dr. Ramsome, "On Some Dangers connected with Dwellings, and how to avoid them"; by Dr. Leech, "On Personal Care of Health"; by Mr. Reynolds, "On Thrift, its bearing on Health and Disease"; and by Dr. Simpson, "On Cookery for the Household," appear well adapted to promote the objects of the Association, and to point out to heads of families how they may most effectually care for the health of those in whom they are interested, and for whose well-being they are responsible.

The American Journal of Neurology and Psychiatry. New York: B. Westermann & Co. May, 1883.—In the current number Dr. Stephen Smith contributes some remarks on the lunacy laws of the State of New York as regards the provisions for commitment and discharge of the insane. The history of lunacy legislation in the State of New York shows a remarkable change in its policy of treating the insane, very like that of some other civilized countries. Max F. Eller directs his shafts against some of the narrow logic of the new penal code in regard to its medico-legal features. A case of mimicry of hydrophobia by other neuroses is sketched by Dr. James Kiernan. Some further notes on insane delusions are continued by Dr. Spitska. A short account of insanity associated with, or, as the author puts it, from, measles, is given by Dr. Madigan. The relation of dental operations to facial neuralgia by Dr. Brush; how to examine the insane by Dr. Spitska; the somatic etiology of crime by Henry Howard, and contributions to encephalic anatomy constitute the remainder of the original articles of this quarterly journal, which is printed in a clear type, not fatiguing to the sight.

Abstracts of some of the Medical and Surgical Cases treated at the General Hospital for Sick Children, Pendlebury, Manchester, during the year 1882. Second year of issue.—We are pleased to find that the valuable material which evidently exists at the Pendlebury Institution for Sick Children has not been simply confined to increasing the experience of those who have to do with the hospital. It has become a truism to say that it is impossible to make a post-mortem examination without learning something. But if anything substantial is to come of this recognition it can only be by careful records of the clinical and anatomical features of the cases. Notes ought to be taken in abundance, and everything that can be discriminated with certainty recorded. The "abstracts" before us have evidently been made at the cost of much time and labor. At first sight the adequate compensation

for such work does not appear. One would like to see some general conclusions drawn from this vast array of material. But no doubt these will be forthcoming when a few more annual "abstracts" have been published. By keeping up the statistics, for example, of chorea, and endeavoring to follow accurately a regular list of headings, the hospital would in a few years afford a large mass of evidence which would serve to enlighten some of the dark corners of this field of medicine.

Hospitals, Infirmarys, and Dispensaries. By F. OPPERT, M.D., M.R.C.P.L. Second Edition. London: J. & A. Churchill, 1883.—It is not surprising that this well-known work of Dr. Oppert should reach a second edition. It contains a great mass of information, and no one interested in hospital construction could afford to neglect consulting it. The work is in two parts. The first part is devoted to principles, and the second part to details. Dr. Oppert does not appear to have any very decided views of his own, but on every question of principle he gives the arguments *pro* and *con.*, and leaves the reader almost unbiased to form his own conclusions. There is a section devoted to hospital administration, in which a great many useful facts are given. The chief value of the book consists, however, in the details which are given of a very large number of hospitals, British, continental, and American, and a careful study of the seventy-four ground plans of different institutions must be of the greatest value both to sanitarians and architects. Some of the ground plans have become a little antiquated, and since they were made the buildings have undergone sundry tinkering (or improvements?) which are not in some cases represented. As an example we may instance the Westminster Hospital, in the plan of which the very important additions made a few years since are not shown. In spite of these slight shortcomings we can cordially recommend the study of Dr. Oppert's book to all who are interested in hospitals.

Die Elektro Medicin. Von Dr. R. Stintzing. "Antotypieverlag München." 1883.—This fasciculus is a reprint from the official report of the International Electrical Exhibition held at Munich last year. It treats of the various forms of electrical apparatus which are, or have been, in any way connected with the study of medicine. Galvanic elements, thermopiles, induction apparatus, constant batteries, both fixed and portable, Edelmann's absolute unit galvanometer, and his pocket galvanometer, Stöhrer's vertical galvanometer, apparatus for the employment of static electricity, and other accessory articles, receive full and careful descriptions. An appendix is added by Professor von Voit, on the employment of the electric light in the study of anatomical, microscopical, and spectroscopic specimens. The text is illustrated by one plate and twenty-four figures.

The Student's Guide to Dental Anatomy and Surgery. By HENRY SEWILL, M.R.C.S., L.D.S. Eng. Second Edition. 1883.—To any Medical practitioner who requires a succinct *résumé* of the various text-books on dental surgery this small book can be recommended, for, although it contains little if anything original, it conveys to the reader in a few words most of the facts and theories of dental anatomy and surgery. It is profusely illustrated; though some of the illustrations, notably 22 and 29, scarcely convey much additional information, and it is difficult to imagine why diagrams of syphilitic and of honeycombed teeth are entirely omitted. The chapter on dental irregularities is fairly good, and the one on caries a great improvement on that in the former edition,

as it gives most of the various explanations of other authors, and justly insists upon thorough cleansing of the teeth as the most likely means of preventing the onset of decay. The treatment of caries is clearly enough given, though perhaps some of the most recent methods of filling are not included. The remainder of the book treats of diseases of the dental pulp and their management, dental periostitis, abscess, necrosis, and other diseases of the oral cavity. Diseases of the antrum are very summarily dismissed, and in the section on neuralgia it is curious to notice that although decayed wisdom teeth are mentioned as an exciting cause of neuralgia, no reference is made to the fact that retarded eruption of these teeth (even when sound) is about the most frequent cause of neuralgic pains of the head and neck and even of the shoulder and arm. For the extraction of teeth this manual gives, with the aid of illustrations, copied from Druitt, clear instructions, but most unaccountably omits all reference, containing not even a drawing, of the so-called "hawk's-bill" pattern molar and root forceps, an almost indispensable requisite amongst modern dental surgeons. We are glad to find that this author (with few exceptions) does not recommend the administration or prescription of internal remedies by dental surgeons.

Medical Annotations.

"Ne quid nimis."

THE GROWTH OF "THE LANCET."

WITHIN one day of the present date—Oct. 6th—THE LANCET will have been in existence sixty years. The late Mr. Wakley's modest venture was first issued on October 5th, 1823. There are probably not ten practitioners in the United Kingdom who were at that time in the active practice of their profession and who can recall what was the first effect of the journal on the professional mind. THE LANCET was the original weekly journal for the advancement of medicine as a great power among the masses of the people. We may say so much, because no one now disputes the fact. There had been journalists in medicine before Mr. Wakley took up his pen. At that very time Dr. Roderick Macleod and Surgeon John Bacot, who had not long left the surgeoncy of the Grenadier Guards, were conducting a journal which, from a purely scientific point of view, was exceedingly well done, and was sometimes not badly illustrated. They, too, were the successors of other able editors, notably Dr. T. Bradley, Dr. Samuel Fothergill, and William Hutchinson. But these had all represented the profession in itself. The profession, the whole profession, and nothing but the profession, was their motto. Our founder took a different position. He took the people, the whole people, and nothing but the people, as his constituency; and while he never deserted the real and long-sighted interests of medicine, even as a compact professional body, he held by his text and preached from it until he succeeded beyond, far beyond, his own most sanguine expectations. In his preface to the first number of THE LANCET, Mr. Wakley tells to whom it was addressed. It was intended to be useful "to the medical and surgical practitioners of this city—London—whose avocations prevent their personal attendance at the hospitals:—To country practitioners, whose remoteness from the headquarters, as it were, of scientific knowledge, leaves them almost without

the means of ascertaining its progress:—To the numerous classes of students, whether here or in distant universities:—To colonial practitioners: and, finally, To every individual in these realms." The last promise—which we have italicized—was the keynote of THE LANCET, and it is by that it has become known and recognized as being above all class and clique. The undertaking was, and has always remained, arduous. In carrying it out, medicine as a literature has had to be simplified; "mystery and concealment" killed; "ignorance and mystery" made "synonymous;" "ceremonies and signs" deprived of their charms; "hieroglyphics and gilded serpents" deprived "of their power to deceive." These things were to be destroyed, and new things were to be introduced. When we note that the first article in the first LANCET was an introductory lecture to students at St. Thomas's by Sir Astley Cooper—a lecture, by the way, as fresh to-day as when it was delivered—we show, in part, the full life of a now sexagenarian work that has been conducted under an Editorship which has but once changed hands, and which at the death of the founder, twenty-two years ago, devolved as a sort of heirloom on his son, Dr. Wakley, the present Editor. The first principles of free and independent journalism have been and will be faithfully maintained. To what extent the little double sheet has gradually increased, this day's impression will indicate.

INTERNATIONAL MEDICAL CONGRESS, 1884.

PREPARATIONS for the eighth session of the International Medical Congress, to be held in Copenhagen from Aug. 10th to 16th, are being actively carried on. A local committee has been formed, as follows: President, Dr. Panum; Secretary-General, Professor Lange; Secretaries, Dr. Bloch, Dr. Salomonsen, and Surgeon-Gen. Joh. Møller, together with the presidents of the committees of the various sections—viz., Anatomy, Prof. Chievitz; Physiology, Prof. Panum; General Pathology and Pathological Anatomy, Prof. Reisz; Medicine, Dr. Trier; Surgery, Prof. Holmes; Hygiene and State Medicine, Dr. Hornemann; Military Surgery and Medicine, Director-General Salomon; Mental and Nervous Diseases, Prof. Steenberg; Obstetric Medicine and Surgery, and Gynecology, Profs. Stadfeldt and Howitz; Diseases of Children, Prof. Hirschsprung; Ophthalmology, Prof. Hanson Grut; Diseases of the Skin and Syphilis, Prof. Haslund; Diseases of the Ear and Throat, Dr. Meyer. The programme for some of the sections has already been decided upon, although at this early date the arrangements are all more or less provisional; and invitations are being issued for suggestions upon each programme, to be sent to the President of the Organizing Committee of the section before November 1st. Amongst the subjects proposed for debate in the pathological section are tuberculosis, coagulation—necrosis, pathogenic micro-organisms, chronic nephritis, etiology of malignant tumours, anæmia, etc.

HARVEY'S REMAINS.

WE were requested by the Registrar of the Royal College of Physicians to state that the remains of the illustrious Harvey, lying in the vault under Hempstead Church, in Essex, would be removed (with the sanction of Harvey's next of kin) to the Harvey Chapel, and placed therein in a sarcophagus provided by the Royal College of Physicians. The ceremony took place on Thursday, October 18th, St. Luke's day.

AN AMERICAN HOME FOR INEBRIATES.

THE annual report of the President of the Inebriates' Home, Fort Hamilton, N.Y., for the year 1882 is not unsatisfactory. Compared with our own puny and feeble experiments at home, those of Fort Hamilton are on a considerable scale. On the first day of the year there were remaining on the books 131 patients; there were admitted during the year 364, making a total of 495. During the year 4 patients died in the home, 2 were transferred to hospitals, and 1 to the lunatic asylum; 355 left during the year, 131 of whom are engaged in business and doing well; 49 unimproved; 104 have been lost sight of; and 71 were readmissions. The months in which the greatest number was in the home were April (190) and June (182). The nationality of the patients is as follows: United States, 359; Ireland, 73; England, 27; British Provinces, 10; Germany, 12; Scotland, 6; France, 3; elsewhere, 5. As to occupations, the largest number of patients was of the class of clerks. The great majority of patients (426) were males; females, 69. There is a want of accommodation for the better class of females, so that many applications have been necessarily refused. The number of patients received has been less than last year by 23, but the average time of residence has been increased from three to over four months.

BACTERIA NOT THE CAUSE OF DISEASE.

At a meeting of the Buffalo Microscopical Club Sept. 12th, Dr. Rollin Gregg read a paper in which he contended that the so-called bacteria of disease were nothing more than so many forms of fibrine. He has made some apparently rather rough-and-ready experiments by boiling blood on the one hand, and allowing it to "rot" on the other. All the forms that have ever been pictured as bacteria were to be observed in the boiled blood. "Rotted" blood showed even still more numerous shapes. In fact, every variety of shape, from a thread to a ring or globe, or any combination of such forms, may be simulated more or less exactly by fibrine in "rotting" blood. Dr. Gregg seems to think that fibrine contained most, if not all, of the formative forces of the organic world. We give these views that they may be compared with others which have from time to time appeared in *THE LANCET*. No difficulty in calling up the fallacies to which all positive opinions on this question are liable will be encountered by our readers.

ONLY NINETY-NINE YEARS OLD!

THERE is something very fine in the correction our careful contemporary, *The Times*, has to make in its report that preparations were being made for the celebration of the 100th birthday of Sir Moses Montefiore. It had to announce that Sir Moses on his next anniversary will be only ninety-nine! The difference may not seem very great to our younger readers; but it is, indeed, much. The correction reminds us of one which is reported to have been made somewhat promptly by Sir John Franklin when one of the Lords of the Admiralty ventured to suggest that he was too old for what proved his ill-fated enterprise—that, in fact, he was fifty. "Oh, no, my lord, I am only forty-nine!" was the quick rejoinder. Though not so rare a feat as some would have us believe, it undoubtedly still is a feat to accomplish at ninety-nine another year of life. But, from all accounts, Sir Moses Montefiore is as likely to achieve this feat as most people of his age, and we heartily wish him success. Physiologically such a success is gratifying, especially when, as in

Sir Moses's case, it involves the prolongation not of mere life, but of so many of the qualities which make life estimable at any age.

MICRO-PARASITES OF FISHES.

As a contribution to the stock of our knowledge of bacterial pathology we give here an abstract of some fresh investigations made by MM. Ollivier and Richet, published in *L'Union Médicale* of Sept. 29th, on the micro-organisms found in the lymph of fishes. By diligent examination these observers were able to detect microbes in the peritoneal, cerebro-spinal, and pericardial fluids, and even in the blood of the heart. There could be no doubt, according to them, that the forms observed were really bacteria, for they possessed undoubted powers of locomotion, or, as the authors put it, of *mobility of translation*. It was found that the bacilli could be cultivated either in the natural lymph or in prepared bouillon. If some lymph and blood be collected with all the necessary precautions no decomposition takes place, even after several months. However, microscopical examination always reveals the incontestable presence of microbes. The maintenance of the limpidity and the absence of putrefaction do not constitute a sufficient proof of the purity of an organic liquid from a point of view of bacteria. A bouillon made from beef, neutralized and filtered several times, then heated in a sealed flask in a stove at a temperature of 105° to 110° for fifteen hours, is and remains a clear pure fluid. Suitable quantities of this were introduced into some sterilized Pasteur's solution with all the essential precautions. At the end of a month no change had occurred. Inoculations were then made with blood or lymph, as above mentioned. Several specimens of blood and lymph had been kept in tubular pipettes. These pipettes were filled with the sterilized bouillon and then sealed at both ends, so that the cultures were rendered almost completely devoid of air. The liquid in the flasks and in the pipettes did not become turbid, even after several months. Nevertheless, at the bottom of the flask a light, small, flocculent deposit could be perceived with difficulty. But the microscope brought to light many kinds of micro-organisms, possessing motility and staining intensely with methyl violet. Multitudes of mobile forms were also to be seen in the tubular pipettes.

FISH IN HOSPITALS.

THE Committee of the Bristol Royal Infirmary have recently adopted the plan of having a fish diet in the house once a week. It is stated that this has effected a great saving in money, and has met with the hearty approbation of the patients and staff. With the exception of the London Temperance Hospital, where this plan has been adopted for some months past, we believe that the Bristol Royal Infirmary is the first to introduce this modification of its dietary. We are glad to learn that the friends of this institution are establishing a superannuation fund for its nurses. Such a scheme must command the support of all who are familiar with the way in which hospital nurses now do their work.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

THIS Association will hold its eleventh annual session at Detroit, Michigan, from November 13th to 16th, when the following subjects will be discussed:—

"1. *Malaria*—Its etiology and the methods for its prevention in localities or in persons; its Ameri-

can history; its specific particles; its origin; the conditions of its prevalence; its laws of extension, etc.

"2. *Foods*.—Their adulterations; healthy or deleterious modes of preservation and the function of legislation in regard to them. Ascertained facts as to adulterations in this country. Facts as to canned goods, condensed milk, artificial butter and cheese, prepared meats, etc.

"3. *Vital Statistics*.—Methods and results; defects apparent. How far foreign modes of tabulation are to be followed. Systems of collection and classification. Race vitality and the care of population as indicated by statistics.

"4. *The Control and Removal of all Decomposable Material from Households*.—The mechanical laws, constructions and appliances relative thereto. The construction of all inside pipes and their connections, their traps and syphonage, flushing, ventilation. How they shall be connected with outdoor receptacles and yet be free from ill effect.

"Methods and systems of physical education, drill, etc., suitable for the school-room, will also be discussed.

"Reports are expected from special committees on compulsory vaccination, the management of epidemics, and on diseases of animals."

SPLENO-PNEUMONIA.

PULMONARY congestion is a term which comprises all the stages intermediate between pneumonia and simple hyperæmia, according to M. Grancher. This physician has, like many others, had much difficulty in distinguishing, in certain cases, between pleurisy and pulmonary congestion. He thinks it necessary to admit that there exists a special pathological state of the lung, which he proposes to call spleno-pneumonia. The physical signs are insufficient, however, to distinguish this condition from œdema and other affections of the lung. M. Grancher has no post-mortem evidence to offer. Certainly states of lung are met with in the post-mortem room which might with advantage be termed of "splenic" appearance and consistence. But that is hardly a justification of the introduction of such a combination as spleno-pneumonia. The term does not explain itself, but the ease with which it is vocalized may possibly give it life.

ATTENUATION OF CHANCROUS VIRUS.

WE have already drawn attention to the hypothesis that the principle of attenuation may play an important part in the explanation of some of the remarkable changes which diseases undergo, either under the influence of intentionally administered agents, or from the action of quasi-accidental circumstances originating within or without the organism. The notion of destroying or annihilating a disease can only be entertained side by side with the belief that the chief factor of a disease is some tangible entity. Absolute extermination can only be aimed at whilst the micro-parasites exist in the environment. When once the organism is attacked we must trust to attenuation. Chemically the distinction between destruction and attenuation, however great, may be regarded as one of degree. In destruction we may say there is a passage from the organic to the inorganic; whilst in attenuation the transition may be to a body which is equally vital, organic, and complex with the original poison, but possessing different physiological properties. One of the latest practical phases which this new development of the principle of attenuation has received comes from the observations and recommenda-

tions of M. Aubert. The author concludes from his experimental and clinical researches that in the agency, heat, we possess an excellent means of attenuating the chancrous virus, and consequently of treating the simple chancre. He finds that a temperature a little above the normal body heat, of 37° to 38° C., destroys the virulence of the poison. It is necessary to combine elevation of the internal body-heat with that of local warmth, and practically to imitate what goes on in the organism affected with erysipelas when there is general fever and local heat. M. Aubert advises the employment of the hip-bath, made with water at a temperature of 40° to 42° C., and continued for several hours. Chancrous ulcers may thus have their virulence destroyed. This mode of treatment is considered to be the best for phagedænic ulceration, and for those subphimotic sores which ordinary dressings cannot touch. Similar treatment directed to specific buboes is said to convert them into simple abscesses. The value of the warm bath, hot fomentations, and the, at times, much derided poultice in the treatment of angry and virulent forms of inflammation has been long admitted. It is possible that a more scientific explanation than has hitherto been forthcoming of the *rationale* of these familiar remedies is afforded by the present notions of attenuation.

ASTIGMATIC KERATITIS.

AT a meeting of the Académie des Sciences recently held, M. Martin, of Bordeaux, read a paper, of which the following are the principal features. Cases of severe keratitis tending to recur are met with, more especially during the period of youth, which are believed to be dependent on corneal astigmatism. Generally, the affection is of both eyes; when one alone is diseased, it is always that which is the more astigmatic. When the eyes are accommodated for a long time, as in the careful examination of small objects, the repeated contractions of the ciliary muscles are thought to lead to disturbances in the circulation of the eyeball, which disorders tell most on the cornea. Astigmatic keratitis is observed during that period of life when the power of accommodation is at its best. Atropization of both eyes is the best mode of treatment. The use of cylindrical glasses is the proper means of preventing recurrence.

THE COUVREUSE, OR MECHANICAL NURSE.

AFTER two years' trial, the *couvreuse* has proved so decided a success that a brief description of this ingenious contrivance may be desirable. It was in 1878 that Dr. Tarnier, when visiting the apparatus devised by M. Odile Martin for artificially hatching and rearing chickens at the Jardin d'Acclimatation, suggested that a similar method might be applied with advantage to infants, especially in cases of premature birth. Two years elapsed, however, before any attempt was made to carry out this proposal; but in the course of the year 1880 a *couvreuse* was made, and brought to the hospital of the Maternité. This is a plain wooden case or box, measuring about 2 ft. 8 in. by 2 ft. 4 in., and 2 ft. 4 in. in height. The box has a double covering, the space between being filled with sawdust to retain the heat, and is divided into two parts. The lower half contains a reservoir, which holds about sixty litres of water, and is fed by a patent boiler that stands outside the box, and is warmed by an oil lamp; or hot water may be used without recourse to the lamp. The upper portion of the box forms a warm chamber, where a little basket or

cradle is placed, large enough to hold two infants. From an opening at the side, this cradle may be withdrawn, while the top of the box has a double glass covering, so that the children and the thermometer lying by their side can be constantly watched. If the water used in the first instance is cold, it takes a long time to attain the required temperature; but once this is done the lamp need only be relit three or four times during the course of the day. It is best to warm the apparatus while the infants are being fed or washed. The temperature within the *couvreuse* is generally maintained at 86° F., and though the contrast on withdrawing the child to be fed or washed is very great, amounting often to 30° F., colds are not so frequent as among the infants nursed in the ordinary manner. Altogether the experiment is considered so successful, that it is proposed to supply all the hospitals of France with a *couvreuse*, and there is every reason to anticipate good results from this measure. Nor is this all. A small portable *couvreuse* is now about to be tried which could be carried by hand from house to house. After this we shall probably have perambulators constructed on the same model. In conclusion, we should remark that, though no very careful experiments have been made with respect to the ventilation within the *couvreuse*, yet this is evidently sufficient. Apertures are made in the lower portion of the box, the fresh air travels over the hot-water reservoir, and is thus warmed before it reaches the child. The very great difference of temperature within the *couvreuse* ensures a constant current of air, though the child is protected by its cradle and clothes from any draught.

FORMATION OF HIPPURIC ACID IN MAN.

ACCORDING to Bunge and Schmiedeberg, the conversion of benzoic into hippuric acid, which results from the ingestion of the former substance, is carried out, in the dog at least, in the kidneys only. Salkowski has shown, however, that in the rabbit the transformation may occur not only in the kidney, but also in the liver and muscular tissue. An opportunity of studying the influence of the kidney in the above respect presents itself when that organ is the seat of disease. Jaarswell and Stockvis arrived at the general conclusion that renal lesions often have an influence on the metamorphosis of benzoic into hippuric acid; that influence is most marked when there is parenchymatous nephritis, much less manifest in cases of lardaceous degeneration, and not perceptible when interstitial nephritis is present. Kronecker's investigations led him to the opinion that interstitial nephritis may hinder to a considerable extent the conversion of benzoic into hippuric acid; he also found that the elimination of benzoic acid as such takes place in all forms of nephritis, and that the proportion of hippuric acid eliminated was more scanty as the renal disease was more pronounced. From the researches of Schmiedeberg it appears that not only can the animal organism bring about a synthesis, but also an analysis or splitting up of hippuric acid. The agent which determines this destruction is a ferment which is named "hystozyme." This ferment is present in several organs, in the renal amongst others. If, therefore, on the exhibition of benzoic acid very little or no hippuric acid is discovered in the urine, we ought to inquire whether the hystozyme is present in the organism in larger quantity or greater activity than usual, or whether the synthesis has never taken place between glycol and benzoic acid. Kronecker has been unable to draw any certain conclusions in this direction from his experiments. Though he found

that the administration of benzoate of soda in two cases of typhoid fever gave rise to the appearance of but trivial quantities of benzoic acid in the urine, the result could hardly be reconciled with the notion that the ferment was developed in excessive quantities.

BACILLI AND CHOLERA.

THERE is probably nothing which takes place in the universe which may not ultimately be resolved into two principal phases. Every process may be likened to the swing of the pendulum. In every natural action we almost certainly have to do with a to-and-fro or an up-and-down period. The rhythm may vary infinitely in respect of space and time, but the notion of a cycle probably pervades all cosmic phenomena. The force and truth of these general remarks are perhaps nowhere more patent than in the study of those natural phenomena—the changes of pathological doctrine. After the careful series of researches conducted by such able observers as Drs. Lewis and Cunningham, we were warranted in believing that cholera was independent of the presence of any microscopically demonstrable poison. In *The Times* of Aug. 14th a paragraph announces that Dr. Kartalis, of the Greek hospital, claims to have made the important discovery of living bacilli in the blood of cholera patients, the organisms being visible under the microscope. We shall await with interest the confirmation and further particulars of this discovery, which does not necessarily imply a belief in the bacterial origin of the affection.

COLD BATHING A HINDRANCE TO CURE.

WE are open to anything that looks like truth and sense wherever it appears. The *Monthly Homœopathic Review* is not an organ from which we can be accused of often quoting, but in the number for August there is a hint which we readily take from Dr. Pröll, of Nice and Gastein. It has reference to the case of a Russian child, aged seven, troubled with chronic diarrhoea, for the cure of which all treatment, homœopathic included, was unavailing. The boy looked exceedingly ill, face pale, sallow, emaciated, with dark hair and sunken eyes. The urine contained a sensible amount of albumen, and Dr. Pröll was in despair. At one of his visits he heard the child screaming, and ran to him and found him naked and being rubbed down with a sponge full of cold water. It instantly occurred to Dr. Pröll that this was keeping up the diarrhoea and the albuminuria, and he ordered its discontinuance and the use of more limited sponging with tepid water. Three days after the diarrhoea ceased. After a week the albumen was reduced to half, and after a fortnight "the Bright's disease was cured." This is very bad homœopathy, but it is good practice, and we gladly record it to Dr. Pröll's credit and for the advantage of all physicians.

TRANSFUSION OF BLOOD.

THE *Presse* of Vienna lately described an operation of the above kind successfully carried out by Professor Nothnagel in conjunction with Herr Ritter von Hacker. On account of the unsatisfactory results recently obtained in several cases by using human and lamb's blood, it was resolved to try a better method, already suggested by several physiologists. This consisted of a solution of common salt of 0.6 per cent. rendered alkaline by two drops of concentrated solution of soda. The patient treated on this occasion was a young man who was in imminent danger from weakness of the

heart, consequent upon loss of blood by reason of an abscess in the stomach. An incision was made in a vein in the upper part of the arm, and by means of a funnel-shaped receptacle about two pints and three-quarters of the fluid in question were introduced into the system of the patient, who is now expected to recover.

CARBON MONOXIDE AND PREGNANCY.

A DEBATED point in animal physiology is the question whether carbon monoxide can pass from the maternal to the foetal circulation. The influence of the subject outside the sphere of pure physiology is small but important. Accidentally or suicidally, a pregnant woman may have succumbed from the respiration of fumes from burning charcoal. Can the life of a viable foetus be saved by the timely aid of a Cæsarean operation? From his investigations on rabbits M. Hogyes has answered this question in the affirmative, since he was unable to detect the gas in the foetal circulation by means of the spectroscope. MM. Gréhant and Quinquaud, however, conclude (see *La France Médicale*, No. 16) that, in small quantities, carbon monoxide may pass over from the maternal to the foetal blood.

A MISTAKEN DIAGNOSIS.

A FEW months ago in a northern university town a medical man of some professional standing read a paper before a local society on what he described as a case of poisoning by salicylate of soda. The patient, a young man, aged twenty-nine, had for some days been suffering from pains in his joints, which he thought were rheumatic. One morning on trying to get up he complained of a pain in his side, and was compelled to return to bed. His wife sent to a neighboring druggist for half a dozen fifteen-grain salicylate of soda powders, which she had been told were good for rheumatism. The patient was given one of these powders, and in an hour and a half fell asleep. After sleeping for two hours he was roused up and had some dinner, but feeling very drowsy went back to bed and was soon asleep again. His wife tried to waken him three hours later, but failed to do so, and sent for a doctor, who came in about an hour, and found him comatose with stertorous breathing. The pupils were contracted and not sensitive to light, the face, neck, and ears were covered with perspiration, and the extremities cold and clammy. The treatment was very simple, consisting of mustard to the back of the neck, heat to the trunk and legs, and ice to the head. The patient was seen again three hours later, when the pulse was noted to be 100. At one o'clock the next morning the pulse was 130, and the breathing labored. Death occurred that afternoon at half-past two, sixteen hours and a half after the powder had been taken. A post-mortem examination was made, but seems to have thrown very little light on the subject. The five remaining powders were examined, and, as they gave a violet color with a solution of perchloride of iron, were declared "to consist wholly of salicylate of soda." It was stated, however, that salicylate of soda could not be detected in the viscera or in the blood, and the urine was not tested. In the discussion which followed the reading of the paper, doubts seem to have been expressed by several gentlemen present, one member suggesting that it was acute congestion of the lungs, whilst several thought that it was not a case of poisoning at all. The President, with a foresight which does him credit, gave it as his opinion that the powders consisted of morphia, with a small quantity of salicylate of soda as an

impurity. The matter would probably have remained for ever in doubt had not the widow brought an action against the druggist for £750 damages as compensation for the loss of her husband. The court ordered one of the powders to be sent to Dr. Stevenson Macadam, of Edinburgh, for analysis. From his report, just received, we learn that it contained 49.6 per cent. of morphia, equal to 52.63 per cent. of muriate of morphia! This, then, effectually disposes of what was supposed to be a very remarkable case of poisoning by salicylate of soda. We may mention incidentally that the case was compromised for £400, the druggist having succeeded in showing that he sold the drug just as he purchased it from an eminently respectable firm of wholesale dealers. There is no reason, as far as we know, to suspect anything but carelessness as the cause of this admixture. But it was carelessness of a very coarse character. It is to be regretted that in the public interest the whole course of the drug and its supply was not traced. Next to the lesson of the necessity for a little more hesitation in diagnosis, and a little more thoroughness in investigation, is the lesson taught by this case as to the insufficiency of legal investigations of this kind in Scotland. Such facts as obtained in this case would scarcely have eluded exposure under the jury system of England led by a medical coroner.

YELLOW FEVER.

A SERIES of investigations into the origin of this pestilential fever have just been made by Dr. Domingas Frieze, a Brazilian physician. He has discovered that the blood of the patient contains a micro-parasite, which appears as a minute point (micrococcus), and in one form or another continues in existence after the death of the patient. By experiment it was shown that the injection of a little of the tainted blood into the veins of a rabbit caused death in fifteen minutes. Although this might only seem like ordinary blood-poisoning, it was remarkable that all the blood of the dead rabbit was filled with the peculiar organisms. Moreover, a guinea-pig, kept closely upon earth taken from a yellow fever cemetery, died in five days, and the same peculiarity also appeared in its blood; and from this the experimenter argues that all such burying-places are constantly liable to distribute the disease. The most interesting part is the detection of the micro-parasite. Objections will readily occur to the minds of all in connection with the experiments mentioned above. The conclusion that the body dead of the fever should be burnt is only natural if the parasite be the cause of the disease.

YELLOW FEVER appears to be prevalent at Panama. The records, however, are defective, owing, it is said, to the managers of the canal being apprehensive that injurious reports may affect unfavorably their ability to procure laborers on the works.

A WRITER in the *Boston Medical and Surgical Journal* records a case of rheumatism in the horse in which salicylate of soda administered in drachm doses every two hours was of the greatest service. Most marked improvement followed treatment for twenty-four hours, and in ten days the animal was as well as ever.

DR. WILLIAM S. JANNEY has been unanimously elected Professor of Practical Anatomy and Clinical Surgery in the Medico-Chirurgical College of Philadelphia. Dr. Janney is the present coroner of the city of Philadelphia, and is well known to the profession as an anatomist and surgeon of extended experience.

Correspondence.

"Audi alteram partem."

ON MILK DIET AND THE USE OF ANTI-PYRETICS IN ENTERIC FEVER.¹

[Letter to Professor Gairdner, by J. W. Allan, M.B., Superintendent and Physician to the City of Glasgow Fever Hospital, Belvidere.]

DEAR PROFESSOR GAIRDNER—In reply to your note regarding the diet of enteric fever cases, I can only say that as yet I know of nothing which can take the place of milk. You taught us that milk was the food for fever patients, and my clinical experience has not shaken my faith in your teaching, but, on the contrary, has confirmed it. No doubt objections are urged against the use of milk in enteric fever, but I think that these objections either disappear or are reduced to very small bulk when closely investigated. As you ask for a short note, I shall be as brief as possible in discussing the subject.

Patients often object to milk. They say that it gives them "a bad taste in the mouth," that it makes the tongue and throat thick and glutty, and that it causes sickness. But we know that the "bad taste in the mouth" and the glutty state of the throat are due, not to the milk, but to the patient's condition. As to the sickness and vomiting, these may be due either to the irritable condition of the fever patient's stomach, or to the fact that pure—i.e., undiluted—milk or too much milk has been taken. If a person suffering from fever is allowed to slake his thirst with undiluted sweet milk, it is easy to understand that the overtasked stomach will soon reject its contents. It is clear that when the patient is thirsty the milk must be diluted with water, and this dilution must be in proportion to the patient's thirst. I do not think that any relative proportion can be fixed for the milk and water, nor that the amount of actual milk can be reduced to a hard and fast allowance. On these points, as in stimulation, "each case must stand on its own merits." But I should incline to put the maximum daily allowance of pure milk at, say, four pints. Of course it is clear that when a patient drinks little milk copious dilution is out of the question. When the patient's stomach is very irritable and vomiting persists, we add lime-water to the milk in varying proportion, from a tablespoonful to the mug up to "half-and-half." The results as a rule are satisfactory, and I think that this safe and simple remedy should never be forgotten. Soda-water in the milk is also good; ice is often very useful; but I have great faith in the value of lime-water in these cases. I have said that the patients often grumble against the milk. What would they like? Cold water, lemonade, etc. But we know that there is not much nourishment in water or lemonade. Certainly they could not take the place of milk. Occasional moderate drinks of cold, and more especially iced water, are very grateful, and I believe beneficial, to the enteric fever patient. Lemonade I fight shy of because some patients will not taste milk if they are indulged in lemonade, and I think the latter is apt to cause flatulence. It has been urged that milk in undigested curdy lumps and masses passes from the stomach into the bowels, and there gives rise to pain, flatulence, and severe diarrhoea. I do not doubt that this sometimes occurs, and I will even admit that in some cases such an occurrence may occasionally

be unavoidable. But I am convinced that, as a rule, this misfortune is due to the same causes and is amenable to the same remedies as the vomiting to which reference has already been made. In a word, I think that when this happens the patient has been drinking rich or undiluted milk, or that he has loaded his stomach with too much at a time. The remedy is to dilute the milk, add lime-water freely, and to drink in moderate draughts.

I think that you, Sir, used to draw our attention to the familiar but instructive case of the teething child. The infant being out of sorts and irritable, the fond mother gives the unhappy little being the breast whenever it cries, the nipple being regarded as a panacea. We all know the results: vomiting, gripes, diarrhoea. It is simply an instance of a stomach overloaded with milk which cannot be digested, and is therefore got rid of by vomiting and purging. The case seems exactly parallel to that of the enteric fever patient who is gorged with pure milk.

We see that the patient frequently prefers water or lemonade to milk, but now let us ask what the physician would propose to substitute for milk. The reply seems to be "animal soups," let us say beef-tea and chicken soup. But neither chicken soup nor beef-tea is an equivalent for milk from a nutritive point of view, and patients in the acute stage of enteric fever do not generally relish these things; even very good beef-tea disgusts them; and we find that these soups have a very marked tendency to originate diarrhoea or to aggravate it if present. I am quite prepared to acknowledge that beef-tea and chicken soup may be admissible in enteric fever when cautiously administered along with milk: nay, more—I think they are useful in cases where constipation is a source of annoyance; but I am certain that they cannot take the place of milk, and in many cases their use is clearly contraindicated for the reason already mentioned—viz., their tendency to cause diarrhoea. No one would seriously propose arrowroot or cornflour as substitutes for milk, although sometimes they may be added to beef-tea with advantage. We come back to this, then, I think, that milk is the staple article of diet in the acute stage of fevers, more especially enteric fever. In typhus and scarlet fever considerable latitude in diet may be permitted in some cases, even in the acute stage, such things as porridge and milk and tea and toast being frequently taken with relish, and apparently well borne and digested.

I may mention here, as an experience of this hospital, that if by accident our milk "turns," or we are disappointed in our supply, we are at our wits' end, for there is nothing that can take the place of the precious milk. And milk is not only a safe and suitable food for enteric cases; when diluted and iced, it is also a grateful drink, and it forms as well a valuable vehicle for stimulants, and even medicines. Where there is great prostration and exhaustion, egg-flip (composed of eggs, brandy, and milk) is excellent. Our experience clearly points to the fact that nothing but milk diet and fluids should be allowed till the evening temperature is steadily normal. If this rule is broken by way of concession to the patient's cravings for food "stronger" than milk, almost inevitably the penalty has to be paid. The temperature rises again; the patient is not so well; it may be that a "relapse" ensues. Chicken soup and arrowroot, or cornflour and milk, are generally the first concessions in diet. Our nurses remark that common bread is very apt to induce a rise of temperature in the early stage of convalescence. The probability is that the patient "bolts" the bread without thorough mastication, and there-

¹ Published with Dr. Gairdner's permission.

fore it should not be given dry at first, but rather in the form of panada.

As regards the employment of antipyretics in enteric fever, I can only say that I have not much faith in the administration of such drugs as quinine and salicin. Of course, I do not mean to deny the interesting fact that these agents lower the patient's temperature, but I have not been able to satisfy myself that they really better the patient's condition. If the temperature went very high I might employ large doses of quinine or salicin, but in the great majority of cases I should certainly abstain from their use. I have no proof that they really improve the patient's state or shorten the course of the disease. Of the use of the cold bath in enteric fever, I have no personal experience, and therefore I shall say nothing concerning it. The warm pack has little or no effect in reducing the temperature, but I have found it to be a most valuable means of treatment in restless, irritable, delirious cases. The soothing effect is very striking. Sponging is a safe and simple method of relieving a feverish patient. Vinegar and tepid water may be employed. As a rule the process is enjoyed by the patient, who is cooled, soothed, and refreshed by the grateful application.

I have tried to keep to the two points indicated in your note—viz., milk diet and antipyretics in enteric fever. There is nothing new in my experience; I have made no discoveries; I am still guided by the old landmarks. In conclusion, I shall say that there may be a more suitable diet than milk for fever patients, but it has not been discovered as yet.

Your affectionate old pupil.

JAMES W. ALLAN.

City of Glasgow Fever Hospital, Belvidere, Jan. 20th, 1882.

ON THE NECESSITY OF EXPOSURE OF SOFT CHANCRES WITH REGARD TO TREATMENT.

To the Editor of THE LANCET.

SIR—Too often one sees in hospital practice a condition of sloughing phagedæna which has extended around the corona and involved the glands, with a history of its having begun as a small sore. These cases are much worse where the prepuce is long, for the pent-up putrescent discharge finds no escape owing to the œdema, and the mischief commencing as a chancre involves the opposed surfaces of mucous membrane, and sooner or later the whole glans and foreskin are one sloughing offensive mass. Besides several others which have lately been admitted, there are now under treatment here three patients the subject of extensive sores of the penis.

In the first case phimosis had existed one week; there was a fetid discharge from the orifice; no sore felt on external manipulation, but a large ragged ulcerating surface, covered by a detached slough, was exposed by an incision through the prepuce; this ulceration surrounded the neck of the glans, and had invaded the tissues nearly down to the urethra. Again, in the second case we had to deal with a sore of the corona, and another at the urethral orifice; both these had the appearance of extending, and were completely hidden by a long œdematous foreskin.

The third case was characterized by sloughing phagedæna of the penis and fore part of the scrotum, with brawniness of the perineum and pubic region. Here multiple incisions were made, tension relieved, and the sloughs removed. The surface of the penis was black and gangrenous. The above patients are up and about the ward, and shortly will take their discharge.

The plan advocated is simply to slit up the prepuce upon a director with a curved sharp bistoury, without anæsthetic. The fear sometimes entertained that the recently cut surface may become specifically affected is practically groundless, so long as it is kept clean. The form of local application is second in importance to the prevention of coaptation of the opposed mucous surfaces.

As gonorrhœa is so frequently concomitant with chancre, it is obvious that this can only be diagnosed and treated with certainty by completely exposing the orifice of the urethra. The formation of bubo with its long-lasting sinus is obviated, the local treatment of sore greatly hastened, and the prevention of cicatricial tissue between the glands and prepuce prevented by the above operation, and I think the results are superior to circumcision, because the incision is not so long in healing, and the organ rendered by no means more unshapely than by the complete removal of the foreskin.

The object of these brief remarks is not to claim any novelty or originality in the treatment, but to enforce the importance of exposing the mischief early, so that it can be treated locally with the best possible result.

I am, Sir, yours obediently,

PERCY POTTER, F.R.C.S.

Kensington Infirmary, July, 1883.

"FITS" OF AN UNUSUAL KIND.

To the Editor of THE LANCET.

SIR—An account of the following case, which is under my charge in the European Station Hospital here, will, I think, be interesting to your readers.

J. C—, aged twenty-eight, gunner R.A., was admitted to hospital on Feb. 28th, suffering from ague, which was cured in a few days by the administration of sulphate of quinine. As he was suffering from general debility, anorexia, and anæmia, and was unable to perform his duties, he remained in hospital till March 14th. On that day he told me that for three months he had been subject to fits, which he thus described: first there was a rushing sound or sensation in the back of his head, then he lost all power of motion, his eyes closed, and he was unable to speak, and although he could hear people talking he could not make out what they said. These fits always occurred when he was in bed lying on his left side or back, and he was sometimes able to put them off by jumping up or turning when he felt them coming, but they usually came when he was asleep. When found in a fit the body is covered with cold perspiration, and when revived he comes to with a great sigh and feels weak for some time. I have not been able to see one of these seizures myself, but have questioned some of the patients in the same ward and also the apothecary in charge of him. They state that he lies on his back moaning, with his eyes shut (apothecary reports pupils contracted), and without any working of the limbs or frothing at the mouth. If an arm or leg is raised, it falls again as if the muscles were all relaxed; the pulse is slow but regular, and the sphincters are not relaxed. His family history is as follows: Father dead, cause unknown; mother dead, "fever(?)"; grandfather dead, paralysis; one brother and three sisters alive and healthy. Patient had syphilis in 1879, and dates his illness from last year, when he was 128 days in hospital with abscess somewhere about the ankle-joint, which is supposed to have been due to syphilitic deposit. He has not had an attack since March 25th; has not slept in bed since the 23rd of that month, but sits in an arm-chair all night and generally sleeps well in

that position. The seizure on the 25th was not nearly so severe as usual. The treatment was quinine, iron, and strychnine; arsenic and quinine; blisters to the nape of the neck; light nourishing diet and a little wine or brandy. At one time the heart's action was a little irregular, but three minims of tincture of digitalis three times a day soon made it all right. Within the last week he has complained of nervous shivering at night, keeping him awake. His bowels have been quite regular throughout, and the urine normal.

If any of your readers can throw any light on this case, I shall be glad to hear from them through your columns. The case does not seem to be epileptic, nor, what is more rare, cataleptic. If syphilitic, it is very extraordinary, and such a case has not been heard of before by yours faithfully,
M. B., India.

Dinapore, Bengal.

SOUND CLARET.

To the Editor of THE LANCET.

SIR—No stimulant is so frequently ordered for patients by doctors as claret, and no wine is so excellent when free from acidity; it therefore becomes, both for sanitary and luxurious reasons, of the greatest importance to prevent the fermentation which produces vinegar. How often does it happen that in drinking, day by day, a dozen of claret, at say 1½ ls. per dozen, one or two bottles are found deliciously free from acidity and in just as prime condition as when the wine was first made? Why is this? Obviously because (every precaution notwithstanding) air has permeated through the corks of the unsound claret. One can buy claret quite sour at about 18s. a dozen, for which, if sound, scores of people would give treble the amount. I now offer as a suggestion that bottles should be manufactured with such a neck as could easily be broken when they were required to be emptied, and which, at the time of filling, could be rendered hermetically air-tight by the glass being fused, as is done to a thermometer.

I am, Sir, yours obediently,
M.D.
Brighton, Sept. 29th, 1883.

CASE OF BEAD-SWALLOWING.

To the Editor of THE LANCET.

SIR—I send you the following case, thinking it may be of interest as showing both what a child may go through and what may go through a child without harm resulting.

On the evening of the 15th inst. I received an urgent message to go and see Mrs. S—'s child, who had "got something in its throat," and they were afraid it was choking. Putting a probang in my pocket, I quickly reached the house, and was astonished to find the child, a little thing eighteen months old, sitting in its mother's arms, and, except for a slight paleness, looking quite well. The mother's tale was to the effect that the child was sitting playing on the floor while she was washing, when suddenly it began to vomit. She immediately took it up, thinking it must have picked up something and swallowed it, as the vomiting came on so suddenly. Nothing but its food came up. None of the vomit was saved, so I had no chance of examining it. There was no difficulty of breathing or swallowing, and no pain on pressure over the stomach. I was inclined to think the mother mistaken as to the cause of the vomiting, but, as a precautionary measure, told her to feed it on dry food—biscuits and the like, and give it as little fluid as possible. The vomiting ceased, and no further symptoms declared them-

selves. On the following Monday, however, the child passed a somewhat hard motion, and with it a number of glass beads, well wrapped up in the motion. Again the bowels were moved and a like result; this time a bone button was passed as well. Very little pain was caused by the passage of these matters. The beads, when counted, numbered seventy. They are hexagonal-sided, measuring each about three-tenths to one-fourth of an inch in length, and about two-tenths of an inch in diameter—not large certainly, but numerous. The edges of the beads were sharp and ragged. The button is three-quarters of an inch in diameter, and is an ordinary horn coat button. The child, I am glad to say, has not experienced as yet (it is now a week ago) any bad effects from its curious, if ill-chosen, meal. When the child's age is taken into consideration (eighteen months), I think we may congratulate it on its safe deliverance from such indigestible materials as glass beads and coat-buttons.

I am, Sir, your obedient servant,
ARTHUR H. BOISSIER.

Pocklington, Yorks, June 22nd, 1883.

LENGTH OF INCISIONS IN OVARIOTOMY.

To the Editor of THE LANCET.

SIR—I read Mr. Sydney Jones's paper on "Five Consecutive Successful Cases of Ovariectomy," with, I must confess, a certain amount of astonishment. I refer to the length of his incisions. The length of the incisions in the five cases average 5.1-5 in.; of course, such a length of incision facilitates the ease with which an operation may be performed; but what about the future comfort of the patients? Now, it may be presumption in me to say so, but I think such an incision as 6 in. unnecessary in almost any case, let alone in such a case as E. J., where the solid weighed only 1 lb. 10 oz, after the eighteen pints of fluid were removed. Think of the future trouble that E. J. may suffer with her 6 in. cicatrix, compared with a patient with a 2½ in. incision. The operations being done in hospital, doubtless Mr. Sydney Jones had several on-lookers, and perhaps each of them carried away the idea that there must necessarily be a long incision in all ovarian cases, and so the long incisions are likely to be perpetuated as far as they are concerned. It has been my privilege during the last few months to have seen a very great many abdominal sections in Birmingham, both with Dr. Savage and Mr. Lawson Tait, and I here tabulate the last nine consecutive successful cases of ovariectomy I have seen under Mr. Tait. J. K., 2 in.; E. S., 1½ in.; E. L., 1½ in. (bad pelvic adhesion); E. W., 2½ in.; M. F., 3½ in. (both ovaries removed, bad adhesions); S. R., 2 in.; R. E., 1½ in. (dermoid); M. H., 1½ in.; J. P., 1½ in.; the total being 17½ in.; not quite 2 in. per case. These are not picked cases, but the last ovarian cases (all successful) I have seen. I may say that in small myoma cases Mr. Tait's incisions rarely or ever exceed 1½ in. Of course, it is more difficult to get hold of the tumour and break down adhesions with such a small opening, and here is the operator's skill, and the benefit to the patient is incalculable, both in rapidity of recovery from the operation and her future comfort and safety. I also note that all the cases were dressed antiseptically, and in all of them the temperature was over 100° at some period after the operation. In No. 3 it was 101.2° once, and in No. 5, 101.4°. Neither Mr. Tait nor Dr. Savage uses any antiseptic whatever, and yet they hardly, if ever, have a case where the temperature reaches 100°. If all abdominal sectionists had my opportunities of seeing abdominal surgery as car-

ried out by Mr. Tait and Dr. Savage, they would relegate Listerism in that particular branch (however useful in other surgery) to the things of the past.

I am Sir, yours obediently,

EDW. M. OWENS.

Leamington, August, 1883.

P.S.—Mr. Tait, on Saturday last, in private removed an ovarian tumour that weighed 120 lb., and his incision for this was only 3½ in.

ETHER AS A RESTORATIVE.

To the Editor of THE LANCET.

SIR—I am desirous of adding my testimony to the value of ether subcutaneously injected. I have used it for some years, and with good results, while in some cases, as in the one detailed below, with marvellous success.

In March, 1877, I was asked to meet Mr. H—, of Croydon, to see Mr. J. B—, aged about forty-five, suffering from typhoid fever in its last stage (I think the fifth week of the attack.) I found him in a state of muttering delirium, pulse scarcely to be felt, picking the bedclothes with his fingers, sinking down in the bed, etc. His tongue was black and quite filled his mouth; lips swollen and covered with black sordes, and very pinched and exhausted aspect. It was quite evident there was no possibility of giving any medicine by the mouth in his present state. I therefore suggested to Mr. H— that we should inject ether. He agreed to the proposal, so, as I had brought both syringe and ether with me, I proceeded to inject twenty drops deep into the muscular tissue of the right thigh, to be repeated every four hours. We arranged to meet for another consultation on Monday (this being Saturday) if the patient were still alive, when, meeting Mr. H— on the Monday and asking after the patient, he said, "Oh! he's all right, and setting up in bed drinking a glass of champagne." His tongue was clean, and, in fact, he was what is called "out of danger." He made a quick recovery without a drawback, except tenderness and pain in the soles of the feet, which he has had for months.

I think there can be no doubt that in this case the ether had a marvellous effect. From the recollection of this case I have determined to use ether, or perhaps some other acid, subcutaneously, should cholera come under my care.

I am, Sir, yours truly,

JOHN LACEY.

Cornhill, E. C. August, 11th, 1883.

REMOVAL OF A PIECE OF STEEL EMBEDDED IN THE LOIN FOR TWENTY YEARS.

To the Editor of THE LANCET.

SIR—The following case I think worth bringing under your notice and that of the medical profession.

John H—, seaman on the s.s. *Lord Gough*, American liner, came to consult me on June 27th, during our voyage from Liverpool to Philadelphia. He complained of great pain and a hard swelling in the left lumbar region, which prevented him from attending to his duties. I examined the spot, and found it very much inflamed and hard, and something black protruding from the centre. I then questioned the man as to whether he had received a hurt of any kind, and he stated that about twenty years ago he was a sailor on an English ship named the *Henrietta*, and was lying in Shanghai, and alongside of them were a number of Chinese junks. He went on board one of them, and when returning to his ship was set upon by

some foreign police and stabbed by one of the same in the back with a cane-sword. He was under the doctor's care for about three weeks suffering from what he thought to be a fractured rib, but after that time he was considered cured, and did not feel any pain or inconvenience until May last. Having received this history, I proceeded to make a closer examination, and found a piece of sharp-pointed steel about 3½ in. long and 3-16th in. wide, corroded, about 1½ in. from the point, and presenting at the other end an old fracture. This had become encysted in the muscles of the back. I at once extracted it, and then applied linseed poultices to draw away the pus which had formed, and after a few days' treatment the man was perfectly well, and able to go back to his duty.

I am, Sir, yours truly,

L.R.C.S.I.

August 6th, 1883.

FACTS ABOUT TYPHOID.

To the Editor of THE LANCET.

SIR—An epidemic of typhoid, which I am pleased to say has subsided, has afforded me an opportunity of recording some few cases which, I think, may possibly be of interest to your readers. I well remember my esteemed old master, Professor Rainey, taken to task by my friend, a first-year's student, on some slight apparent discrepancy between his statements and what the text-book taught. For many months afterwards he would often turn to my friend in his ever kind but sarcastic way, and ask, "What do the books say, mister?" I almost think I might put the same query in regard to the following cases, and what would their answer be?

A. B., aged thirty, married, pregnant four months with her third child, had well-marked typhoid. Temperature 104°; pulse 120. Diarrhoea spots and deafness. Did not abort.

M. R., aged thirty-six, married, pregnant seven months with her fifth child, had well-marked typhoid, diarrhoea, spots and deafness. Temperature 104°. Labour did not come on; went full term. The husband died with typhoid at the same time the wife was lying ill.

G. B., aged seventeen, M. B., aged thirty (mother-in-law and stepson), had well-marked typhoid. After the disease had been in existence for a week, the two youngest children, C. B. and E. B., were sent away into the country, a most healthy part, leaving the father and one child, F. B., and the servant to nurse G. B. and M. B. After an absence of five weeks and three days C. B. sickened with typhoid fever, as well as A. C., a child staying in the house where C. B. and E. B. were lodging. How can we account for the appearance of typhoid in the fresh locality—viz., after the lapse of five weeks and three days? I may here state that F. B., who had been left behind to nurse G. B. and M. B., or rather assist the nurse, went over to see her younger brother, C. B. This occurred three weeks before C. B. and A. C. sickened at all. During her stay of two days she slept with C. B. and A. C. F. B. had not been sick or sorry for a single moment. Might I ask, how did C. B. and A. C. get typhoid? Did C. B. have typhoid latent in his system, and so infect A. C., or did F. B. infect both C. B. and A. C.? What would the books say about infection here?

E. S., aged twenty-two, sickened with typhoid; symptoms well marked. There was not the least doubt as to the nature of the case, as three houses in the same row had typhoid fever; in none of these were diphtheritic symptoms present. After a lapse of seven days the patient complained of

sore-throat. I may say I had examined the throat carefully during the week. The whole back of the throat was covered with a thin white film, having the most peculiar appearance, almost suggestive of a thin coating of milk, as if one could see through the thin membrane. It covered both tonsils, and extended into the uvula. The following day the membrane had become much more characteristic, and had extended over a considerable part of the hard palate. It was now yellow and much thicker, and no doubt could possibly be made in its diagnosis—typhoid complicated with diphtheria. The patient hovered between life and death for the next five days, at the end of which time the membrane had entirely disappeared, and only left the patient weak to struggle on against the typhoid fever. I cannot say whether the treatment used had anything to do with the almost magical disappearance of the membrane—viz., constant spraying the throat with lactic acid. The patient made an uninterrupted recovery when once the typhoid had reached the turning point. The temperature did not go beyond 105° at any time. The pulse once reached 140.

I am, Sir, yours truly,
MONTAGU H. C. PALMER.

July, 1883.

PUBERTY IN NEGRESSES.

To the Editor of THE LANCET.

SIR—It seems a very common opinion, generally admitted all over Europe, that puberty occurs earlier in hot climates than in those lying within the temperate zone. Müller says some are of opinion that in the hot regions of Africa the changes of puberty take place in the female sex as early as the eighth year, and during the ninth year in Persia. It is also stated that young Jewesses menstruate earlier than other females in England. I am of opinion, however, with Mr. Robertson, of Manchester, who some time ago essayed to controvert this belief, that it is no other than a vulgar error. To enable me to obtain the necessary information with respect to negroes, and my interest is great, as I am from the tropics myself, I have strained every nerve to "hunt up" the necessary statistics, which I now append. These statistics I have obtained from a register of births, the registry being important in fixing the date of the first appearance of the catamenia. The under-mentioned will, I consider, confirm the belief that menstruation does not commence earlier in negroes than in female Europeans. (*Vide* Dr. Copland's Dictionary of Practical Medicine, article Age, and also Dr. Good's Practice of Medicine, article Puberty.) Out of twenty-one cases, menstruation appeared in one aged sixteen, in three at fifteen, in three at fourteen, in three at thirteen, and in two at twelve; whereas it had not appeared in one aged fourteen, in two aged thirteen, in one aged twelve, in one aged eleven, in another aged ten, one aged nine, and in two aged eight. It is further stated that many cases of negroes from eight to eleven years of age might be instanced who have not yet had any menstrual secretion.

I am, Sir, yours obediently,
C. S. TAYLOR.

Woburn-place, Russell-square, W.C., Sept. 19th, 1883.

ANALGESIA BY THE PROPOSED NEW METHOD.

To the Editor of THE LANCET.

SIR—My pupils, not I, have proposed to employ on our species the method I have discovered of producing analgesia in monkeys, dogs, and

other animals. I am not prepared to make such a proposal; not that there is any danger in the method, nor that the degree of analgesia is insufficient, but because I have not yet succeeded in devising for clinical use an easy means of applying carbonic acid or chloroform vapor to the mucous membrane of the larynx, without allowing these substances to go into the lungs. This last point is of absolute necessity, as when these substances enter the blood, they can no longer produce, by irritation of the mucous lining of the larynx, their wonderful effects.

My experiments, some already published, others quite new, show that an irritation of the laryngeal mucous membrane (and also, but in a much slighter degree, of the lining of the upper part of the trachea) can, through the superior laryngeal nerves, or even through one of them only (but then the analgesic effect is chiefly unilateral), act on the nervous centres in such a way as to produce a more or less complete inhibition of either the power of perceiving impressions able to give rise to pain, or of the power of transmitting those impressions. Every kind of irritation (mechanical, thermic, chemical, or galvanic) of the terminal ramifications of the superior laryngeal nerves can produce that effect; but none in the same degree and with so great a persistence (in monkeys sometimes the analgesia lasts more than twenty-four hours) as the excitation due to carbonic acid or chloroform vapor, the first especially. The power of the parts I have named in producing an inhibition of the kind of sensibility relating to pain, without disturbing any other power or function of the nervous centres, is so great that sometimes a partial section of the larynx or trachea produces a temporary and almost universal, but incomplete, analgesia.

I am, Sir, yours faithfully,
C. E. BROWN-SÉQUARD.

Paris, Sept., 1883.

SULPHO-CARBOLATE OF SODA A REMEDY AGAINST BEE-STINGS.

To the Editor of THE LANCET.

SIR—The following case may prove of some interest to your readers. Mrs. T—, married, aged forty, consulted me upon Aug. 25th, having been stung by a bee upon the upper part of the forehead. I was unable to discover the exact position of the sting, the whole of the face being in such a swollen condition. I therefore prescribed a hot soda bath, a saline aperient, and lead lotion to be applied to the face. On the following morning I was hastily summoned to the patient's house. I found her suffering from great nervous excitement, at times delirious, the head and neck enormously swollen; the upper and lower extremities were cold, stiff, and also much swollen; pulse almost imperceptible; breathing labored. I returned home and, with the aid of a brother practitioner, discovered in an old medical journal that Dr. Klamann had given carbolic acid hypodermically in a similar case with success. I, however, tried fifteen grains of the sulpho-carbolate of soda in an ounce of water, every four hours, which was administered with some difficulty, with the following results. After the second dose the swelling and other symptoms rapidly diminished in intensity, she became bathed in a profuse perspiration, and, during the administration of several more doses, the patient steadily progressed towards convalescence.

I am, Sir, your obedient servant,
THOMAS EDWARDS, M.R.C.S., L.R.C.P. and L.M.
Harrold, September 4th, 1883.

News Items, Medical Facts, &c.

DR. JAMES DOWLING THRASK, of New York, died recently, aged sixty-two. Dr. Thrask was one of the founders of the American Gynecological Society, and had contributed somewhat largely to obstetrical literature.

THE death is announced, at the age of eighty-two, of Dr. John Allen, of New York, who, it will be remembered, was the first to reach the side of President Lincoln, after receiving the fatal wound from the pistol of Wilkes Booth.

WE learn that a young physician practicing in Chicago, Dr. Frank Lee Rea, died a short time since from malignant carbuncle of the lip. He was a man of very good abilities, and had greatly endeared himself to all who knew him.

AN interesting paper on the Destruction of Fish and other Aquatic Animals by Internal Parasites, read by Dr. Spencer Cobbold at the Conference at the International Fisheries Exhibition on July 12th, has been printed, in which the life history of the *Ligulæ* is traced at considerable length. Much useful practical information is being disseminated by means of this excellent series of "Conference Papers" of the Exhibition.

A SERIES of thermometric observations on patients suffering from uncomplicated fractures has been recently made by Dr. Grundler. He found that in every case but one of those examined a rise of from 2° to 4° F. above the normal, and that the degree of fever is in proportion to the size of the broken bone and to the degree of extravasation. The highest temperature observed (102.5°) was in a case of fractured femur, and the lowest (100.5°) in fracture of the forearm. The rise began on the evening of the first day, and reached its highest point on the evening of the second to the fourth day.

REMARKS ON HYDROPHOBIA.—As an interesting, lucid, and pleasant brief paper on hydrophobia, we may call the attention of our readers to some remarks by Dr. Dulles, read before the Philadelphia County Medical Society. Dr. Dulles would strongly recommend every investigator to peruse a very valuable series of articles—not referred to by a single writer on hydrophobia—on the physiology and pathology of the saliva, by Dr. Samuel Wright, which were published in *THE LANCET* during 1842 and 1844. Dr. Dulles gives a brief sketch of the history of rabies in regard to the various features of the disease. The amount of information pressed into eight pages is truly remarkable.

DR. JACOB S. MOSHER, a distinguished physician of Albany, N.Y., died suddenly on Aug. 13th. He graduated at the Albany Medical College in 1863, and early in the following year entered the corps of volunteer surgeons for New York troops, and was attached to the Army of the Potomac as it lay before Petersburg. He was subsequently made Assistant State Medical Director of the State of New York, and went on duty at Washington. From 1869 to 1873 he was Surgeon-General on the staff of Governor Hoffman, and was afterwards Deputy Health Officer of the port of New York. Since vacating that appointment he had practiced in Albany with considerable success, gaining the respect and esteem of all with whom he was brought into contact.

WE have received the first three numbers of the new weekly journal of the American Medical Association. It consists of thirty-two pages of scien-

tific matter, and is evidently being conducted with energy and skill. In the first number we find the minutes of the recent annual meeting held at Cleveland, Ohio, and the addresses then delivered and papers read are being published in the succeeding numbers. The journal promises to be of much greater value than the annual volume of the "Proceedings," which it supersedes.

[The *Journal of the American Medical Association* is published at 65 Randolph Street, Chicago, Ill., by the American Medical Association, and is edited by N. S. Davis, M.D., LL.D. Yearly Subscription \$5.00.]

COCOANUT AS FOOD.—Some extraordinary stories are told of the value of cocoanut as an efficient food. The following instance is given by the *Fiji Times* :—

"A vessel that once left San Francisco with 400 passengers for Sydney had, in consequence of running short of stores, to put in at Samsa, where a large quantity of cocoanuts were obtained. During the remainder of the passage very heavy weather was encountered, in which the vessel became waterlogged, and only reached Sydney after a perilous journey of eighty days, during which time all the provisions ran short, and men, women, and children were fed only upon cocoanuts, being at last reduced to one per diem for each adult. Notwithstanding the diet, not a life was lost, not a single case of sickness occurred, and all the passengers landed in a healthy and well-nourished condition."

IMPORTANT DECISION OF THE SUPREME COURT, ON IMITATIONS.—In July, 1882, the Supreme Court of Rhode Island, by Final Decree, enjoined William H. Hughes, Theodore S. Hughes, and the Hughesdale Manufacturing Company from offering for sale "Acid Phosphate," so called, in any package which shall be a substantial or colorable imitation of Horsford's Acid Phosphate.

Sept. 24th, 1883, the Court decided that William H. Hughes and Theodore S. Hughes, had violated said Injunction by selling the "Hughes Acid Phosphate," so-called, and that a writ of attachment must issue against them, whereupon the said respondents were fined \$300 each.

The Rumford Chemical Works again warn all persons from selling any imitation of Horsford's Acid Phosphate, or any Acid Phosphate under any style of label, or form of package, for use as a medicine or article of diet, or ingredient to be employed in beverages or food; or any proprietary article for use as a medicine or beverage, under the name of "Acid Phosphate," as they will thereby infringe their trade-mark, copyright, or patents, and render themselves liable for damages.

With reference to the above, it affords us pleasure to note the prompt and vigorous action taken by the Rumford Chemical Works in this case, and the recognition by the Supreme Court of the rights of said corporation. The disreputable and growing practice of infringing upon well-known and meritorious articles, after they have acquired reputation, popularity and value, should be discountenanced by all respectable dealers, as it is by the Courts, and the attempts of unscrupulous persons to build up a business upon the capital of somebody else, and thus perpetrate a wilful fraud upon the community, should be everywhere condemned; and the trade, moreover, should do all in their power to protect the rights of individuals and corporations in the exercise of a legitimate business.

THE LANCET.

A Journal of British and Foreign Medicine, Physiology, Surgery,
Chemistry, Criticism, Literature, and News.

JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

PUBLISHED MONTHLY.

No. 6.

NEW YORK, DECEMBER, 1883.

Clinical Lecture

ON A

CASE OF HYDATID DISEASE OF THE LIVER REQUIRING OPERATION;

WITH REMARKS ON THE MODES OF MIGRATION OF
EMBRYOS.

By THOMAS OLIVER, M.D., M.R.C.P. Lond.,

Physician to the Newcastle-on-Tyne Infirmary, and Lecturer
on Practical Physiology in the University of Durham.

GENTLEMEN—Most of you have seen with me in the ward upstairs a patient who was the subject of hydatid disease of the liver. By this is meant a condition in which the liver is the seat of a cyst or cysts in which are found echinococcus vesicles floating in fluid, these vesicles being the immature form of a parasite known as the *tænia echinococcus*. I will give you briefly the history of the case.

Edward S—, aged twenty-seven, an iron-roller from Middlesborough, was admitted into the Newcastle Infirmary on Oct. 30th, 1882, complaining of pain and a sense of fullness over the region of the liver. He is unmarried, and was a healthy man until two years and a half ago, when he began to feel pain in the right chest and a sense of weight in the right hypochondrium. He has never partaken of raw meat, but has eaten largely of pork and pork sausages. He is a great dog-fancier; at the present time there are five dogs at his home. The supply of drinking-water to his house is direct from the main, and there are no wells in the immediate neighborhood of his dwelling. The patient has a peculiar sallow look, and has lost considerably in weight. He is the subject of extreme constipation, but has never suffered from epistaxis or hæmorrhage from the bowel. He says that he had jaundice in boyhood, and that it lasted a very long time. Some time before the bulging appeared in the right hypochondrium he was obliged to seek medical advice on account of pain which he felt there. As the bulging increased, shortness of breathing came on, and he had distinct rigors. In the early part of October he was tapped by Dr. Hedley, of Middlesborough, and sixty ounces of clear serum withdrawn. For a few days he was somewhat prostrated, but the bulging disappeared.

Three weeks after the tapping rigors set in and the swelling returned, accompanied by a feeling of pain. On admission his abdomen was somewhat prominent and resistant to the touch, while the sides were rather bulging. From the level of the right nipple down to the lower margin of the lowest rib an absolutely dull percussion note was heard; a similar area of dullness was detected on the left side. Both were continuous in front, so that hepatic, cardiac, and splenic areas seemed to run into each other. The area of dull percussion measured eight inches vertically. The bulging affected particularly the right hypochondrium, for it measured one inch more than the left. Pain was more or less a constant symptom; it was increased on pressure over the epigastric and hypochondriac regions. A well-marked wave of fluctuation was detected over the right lobe of the liver. His urine, which was amber-colored and acid, had a sp. gr. of 1032, and contained just a trace of sugar. On examination, the chest above the level already mentioned exhibited nothing abnormal. Posteriorly, however, it was noticed that the dullness did not begin for at least two or three inches below the line noticed in front. Over the lower part of the right lung there was detected small moist crepitation; the same was noticed over the base of the left; otherwise the respiratory sounds were normal. The cardiac sounds were healthy.—On Nov. 8th, ninety-two ounces of a greenish-yellow fluid, having a sp. gr. of 1012, of alkaline reaction, and containing a large quantity of albumen, was removed from the right lobe of the liver by means of the aspirator. In this we found numerous hooklets, broken-down cells, and fat globules. The removal of the fluid was attended by a good deal of pain, and was followed by a feeling of prostration and a sense of coldness. A few days after the operation the patient felt remarkably well; the large area of dull percussion over the hepatic region had undergone great diminution. Over the area under the right nipple, where previously a dull percussion note was audible, there was clear percussion, and the breath sounds were distinctly heard, accompanied at the end of inspiration by small crepitation. On November 15th it is reported that the patient had suffered a good deal from pain in the abdomen and from headache. The temperature on the previous evening had reached 103.4°, and in the morning had fallen to 102.4°. There had been slight rigors during the night. His pulse was 120, skin hot, tongue coated, and his lips dry. His respiration was 36 per

minute, and he complained of shortness of breath, but there was no stitch-like pain in the chest or abdomen. There was a degree of tympanitic distension of the abdomen, and the area of percussion dulness was carried somewhat upwards. Under the administration of small doses of opium, effervescing mixture, and the application of poultices, the patient somewhat improved. The temperature fell to 100.4° and the pulse to 104; the breathing improved, but he still complained of feeling chilly. From this time onward the temperature oscillated between 100° and 103.4°. The pain in great part disappeared, but the dull area of hepatic percussion increased in all directions. Fluctuation was easily detected from right to left, or vice versa, and a coarse friction sound could be heard on auscultation over the region of the liver. Pressure of the stethoscope gave rise to great pain. It was noticed that the patient lay with his knees drawn upwards, and that he was gradually getting thinner, and was beginning to look haggard. By Dec. 4th the patient was suffering very severely from pain in the right side, extending round to the spine. The dulness on the right side extended from the second intercostal space down to an inch above the level of the umbilicus, and on the left from the third intercostal space to near the level of the crest of the ilium. Fluctuation was distinct, and there was marked bulging of each costal arch. There was evidently fluid in the peritoneum. The heart was felt beating almost in the left axilla, three inches above and two inches external to its normal situation. Bronchial râles were heard over the upper part of each side of the chest. It was now decided to cut down upon the liver and give free exit to its contents. Accordingly, two days after this, my colleague, Dr. Hume, performed the operation of abdominal section, with incision of the liver, taking care to stitch together the walls of the cyst and abdomen. A small quantity of serum escaped from the peritoneum. On incision of the cyst, which was partly adherent, seven pints and eight ounces of a thick purulent fluid escaped, in which we noticed shreds of a delicate membrane. While the fluid drained away the heart could be seen returning to its normal position. A drop of this fluid submitted to microscopical examination was found to consist of pus cells and a few rod-like bodies of a brownish color and with bulbar extremities; the membrane exhibited delicate lines running across a granular matrix. The operation was performed under antiseptic precautions, and for some time after similar care was given to the dressings. Beyond suffering from a little bronchitis the patient did remarkably well, nothing occurring worthy of note until Dec. 28th. On this and the preceding day thick pieces of membrane were discharged through the abdominal opening, particularly on coughing. About six ounces came away, evidently portions of the cyst-wall. It appeared to the naked eye to be composed of three layers—two outer, white and seemingly fibrous, and between these a brownish-yellow gelatinous substance. It had an offensive odor. Its surface was studded with small whitish nodules, varying in size from a pea upwards, the contents of which exactly resembled semi-coagulated albumen. Portions of this membrane placed under the microscope exhibited a well-marked stratified arrangement, not unlike fibro-elastic tissue. From this date onward nothing occurred, save an occasional attack of bronchitis, to mar the convalescence. Ere the abdominal opening contracted to the extent which you see it now, I had an opportunity of exploring the interior of the cyst by means of the electric light endoscope, and of observing that a granular condition existed similar to that which

is seen in the healing of large external wounds. No bad effects followed the illumination. The patient is about to leave the infirmary cured of the hydatid disease of the liver.

Those of you who have had a course of lectures on zoology will readily understand the meaning of the term "alternation of generation;" it is reserved for a feature in the life-history of many of the hydrozoa and entozoa, in which you have a condition of matters something like this. An organism, to start with, contains male and female organs, and as a result ova are developed within it. These ova, when liberated, develop into sexless forms of life, entirely unlike the organisms from which they sprang. Although sexless, they are yet capable of bringing into existence, by a process of budding, myriads of organisms like themselves, and these, again, by a process of budding extend the chain. A time comes, however, in the history of these immature forms when they change their character. They revert to the original bisexual type, and in this way exactly resemble the organism which started the chain. Such is the life-history of the echinococci which cause hydatid disease. They are the immature sexless brood of a parasitic worm known as the *tænia echinococcus*, and, like the sexless brood to which I have referred, they are capable of perpetuating themselves for a time by a process of gemmation.

Repeated examination in countries where hydatid disease is more or less endemic has caused the dog to be regarded as the victim of the adult worm, or *tænia*. The *tænia*, according to Cobbold, is a small cestode, seldom more than a quarter of an inch in length, and composed of four segments, the foremost of which is capped by a pointed beak and armed with a double row of hooklets. It is the fourth or final segment which is sexual. Mature links of the worm are discharged from the bowel of dogs thus afflicted, and by some means or other the ova find their way to drinking water or come in contact with food. Having reached the human stomach by means of these media, the ova lose their shelly covering and the embryos are set free. With their six hooklets they are said to bore their way into the organs of circulation, and in due time reach the liver, lungs, or brain. Ultimately they become fixed, and immediately thereafter begins the metamorphosis by which these embryos become hydatids. Spherical from the first, the hydatid becomes surrounded by a layer of connective tissue which is derived from the proliferating connective tissue in the neighborhood—rather that, I think, than a secretion from the hydatid itself. At this period the hydatid can be lifted from its bed of connective tissue. On examination it is found to be composed of a membrane enclosing a granular mass. From this granular mass is formed another membrane, more delicate than the other, and lined by nucleated cells. To these two layers Huxley has applied the term ectocyst and endocyst. With the outer of these two layers we have little to do; it is structureless, and is formed of a substance not unlike chitine. The endocyst, though only 1-2000 of an inch in diameter, is very important, for it is from it that all future development proceeds, the first indication of which is seen in the alteration in form which its layer of nucleated cells undergoes. From being flattened they become round, and afterwards elongated, and sooner or later, according to Leuckart, many of them are to be seen as small papillæ projecting into the granular mass. It is to these papillæ, the future scolices, that developmental activity is now transferred, further change in which soon follows upon vacuolation of their contents. A vacuole is detected in their interior, and in time this is

found filled with fluid. A stage further on and we find the cavity lined with a delicate cuticular membrane. Beyond this the further steps of development are with difficulty traced. Suffice it to say that each papilla becomes, after an increase in its size and alteration of its form, a true echinococcus head. At times it sacrifices itself, develops an internal germinating membrane similar to the one I have mentioned, from which arise papillæ, and from these again a brood of echinococci. These are the brood capsules that become the daughter vesicles, the parental name being retained for those from which they originated. We have then mother vesicle or original cyst, and daughter vesicles, the larger of which become free and float in the fluid of the mother cyst, while the smaller remain adherent to the wall, and may give rise to a brood of capsules, granddaughters of the original.

Compared with other countries we see little of the effects of echinococci. Not more than thirty-four deaths per annum are reported as due to hydatid diseases—a return which Cobbold is inclined to question, four hundred being, in his opinion, nearer the truth. Even with this higher mortality the death-rate is simply nothing compared with that in others countries. In Iceland, for example, where the disease is so frequently met with as to be considered endemic, it is said that one-sixth part of all the inhabitants annually dying fall victims to the echinococcus epidemic. Australia a few years ago gained for itself a reputation for its high death-rate from hydatid disease. None of the inhabitants of that continent seemed to be exempted: the rich suffered equally with the poor, the shepherds on the plains with the miners underground. As for Iceland, there is something peculiarly unique in its geological conditions which render it a fertile soil for the development of these parasites, especially, too, when taken with the fact that the peasantry of that island maintain a very close intimacy with dogs. Without these animals it is impossible that the disease could be contracted. The possessor of several dogs, the Iceland peasant shares with them his compartment, and allows them to eat off the same plate with himself. Not less than 28 per cent. of these animals are effected. With this relationship maintained between peasant and dog in an island possessing hot springs, etc., and with the river-water warm, which is the source of drinking-supply to the inhabitants, who are heedless of sanitary arrangements—with these facts before us we have sufficient explanation as to the prevalence of hydatid diseases in Iceland. One point, too, is of interest, and it is this. According to Schel-eisner, hydatids are more frequently met with amongst women than men in Iceland, and this can only be explained by the different habits of the sexes. The water which the women use for drinking is obtained from supplies in the immediate neighborhood of their dwellings, from places to which the dogs have easy access, whereas the men are engaged in fishing or hunting, in pursuits, at least, which take them away from the immediate vicinity in which they live, and, as a consequence, they suffer less.

It is noteworthy that certain organs in the body are affected more frequently than others. Taking my statistics from Cobbold, it appears that out of a total of 700 authenticated cases, the liver has been affected 326 times; the lungs have been affected 62 times; the kidney and bladder, 53 times; the brain has been affected 42 times; the bones have been affected 33 times; and the heart and vessels, 25 times.

Briefly, the liver is affected in 46½ per cent. of those who suffer from hydatid disease; the brain

in 6 per cent.; and the heart in 3½. These facts are not, I think, satisfactorily explained by the ordinary theories; bearing upon the migration of embryos. Niemeyer and other authors maintain that once the echinococcus ova or embryos have been discharged from the bowel of the dog and have entered the human intestine, the embryos, freed from their capsule, bore their way by means of their six hooklets through the wall of the stomach or intestine, and, wandering further, finally reach the liver, where they develop subsequently into a true hydatid cyst. I do not question the possibility of this occurring. It is mentioned by so many writers of note that it is probably one of the modes of migration. But what are we dealing with? We have a microscopic object armed with six hooklets, and we are told that by means of these it bores its way through the wall of the stomach or intestine, and such a thing as the capsule of the liver. To my mind the difficulties to the progression of the embryos are by this mode so very great that there must be other channels by which they travel. I do not say that this mode of migration is an impossible one; for we know that parasites travel long distances under the skin. All I say is that the establishment of embryos in the various organs is not always due to their own propelling powers. Echinococcus ova or embryos swallowed along with food, or imbibed with drinking-water, having reached the stomach, are therein subjected to the chemical and triturating process of digestion, the immediate effect of which is the dissolution of the envelope, and the liberation of the embryo. The probabilities are that the embryos do not remain in the stomach any length of time. They pass on into the intestine along with the rest of the food. From the stomach, then, the chances are that the embryos do not make their way by boring into the tissues. They leave the stomach along with the chyme and pass on into the intestine. It is in this part of the digestive tract that the food lingers longest, and consequently it is from it that the embryos pass out into the various organs, their progression accomplished not by boring, unless it be into the venous radicles of the intestine, which pour their contents into the vena portæ. In this way they may reach the liver. By means of the venous system therefore many echinococcus embryos reach the liver, and there they develop into hydatid cysts. The work of preparing tissues at the College for the class of practical physiology has given me many opportunities of detecting scores of ova of parasites, probably of the distoma or fasciola hepaticum in the villi of the intestines of rabbits; and further examination of the liver in the same animal has shown the deposition of ova in that organ. I have been struck by what seemed to be a coincident deposition of ova, or what might more accurately be described, because I believe this is what takes place, as a rapid appearance of ova in various parts of the liver while the intestinal villi remained here and there full of them. This, and the additional fact that the liver is in both cases the seat of parasitic selection, lead me to believe that the mode of migration of embryos must be the same. The echinococcus embryos, according to this view, find their way into the intestinal villi in the first instance, thence into the lymphatics, or more properly speaking the lacteals, which run at the base of the villi, and as these pour their contents, interrupted no doubt in many cases by lymphatic glands, into the thoracic duct they easily reach the blood; hence the explanation of hydatid disease of lung, brain, kidney, etc. If their onward course is interrupted by the intervention of a gland, then we have them deposited

there, and an explanation of hydatid disease of mesentery. From the intestinal venous radicles into which echinococcus embryos may have got by boring, not an unlikely thing, they easily reach the liver, but I see no reason why they, too, do not reach that organ by means of the lymphatics. Lacteals and lymphatics are continuous, and I see from Quain's Anatomy that the deep lymphatics of the liver join, at the side of the coeliac artery, one of the large lacteal trunks, previous to its terminating in the thoracic duct. If the intestinal villi are the easiest mode of ingress for parasitic ova or embryos, as I think they are, since it does away with the idea of propulsion by their own efforts, then by means of the lymphatic connection which I have shown, the liver would be the organ first reached, because most of the upper intestinal lymphatics pour their contents into large lacteal vessels, and do not communicate with lymphatic glands. Transference of parasitic ova from the intestine is accomplished through the lymphatics. Such a mode of migration not only explains why the liver is in the largest number of cases the organ affected, but it also explains those other cases of hydatid disease of mesentery, and also through the medium of lymphatics, thoracic duct, and subclavian vein, hydatid disease of lung, brain, and kidney. I fail to see how any amount of boring on the part of echinococcus embryos will explain the fact of the right lobe of the liver being most frequently the seat of the disease unless it be by boring into venous radicles. Taking everything into consideration, however, I regard the lacteals of the intestinal villi as the medium by which parasitic ova gain admission into the economy.

Another question of interest crops up in the development of hydatids. The drinking of water contaminated by echinococcus ova, or the eating of raw meat infected with these embryos, is in many cases followed by the development of hydatids in man; and in the case of dogs in Iceland, if these hydatid vesicles are eaten the mature worm or tænia is the result. Suppose man, however, should swallow hydatid vesicles, would he develop the mature worm? There is no instance of this recorded, so far as I know; and yet portions of hydatid vesicles must have tainted the food or drinking water of men in countries where the disease is more or less endemic. Knochenmeister considers it not improbable that echinococci, reaching the bowel of a person in whom hydatids exist, develop tænia. I am not sure that man ever develops the tænia. Our knowledge of his relationship to the parasite is that it is the vesicular condition we meet with. There is no absolute reason why the vesicular stage should not be repeated in man. I quite think with Davaine that the hydatid corresponds to a phase in the development of an animal which lives a certain period and which may be produced a certain number of times under the vesicular form. Reverting to my remarks on alternation of generation, you observe a resemblance to the intermediate phase there spoken of.

Trousseau says that the absence of albumen is a distinctive feature of the fluid taken from hydatid cysts. On the first occasion we aspirated S—we removed a thick, greenish, ropy fluid, which contained a very large quantity of albumen. The cyst had previously been tapped by Dr. Hedley, who kindly sent me the patient, and consequently we had to deal with, not the ordinary fluid of a hydatid cyst, but of fluid which was in great part the secretion of a cyst somewhat inflamed.

Of the treatment of hydatid disease of the liver I need say very little. Medicine can do but little good. The removal of the fluid which bathes the

vesicles, and probably nourishes them, is the surest mode of destroying them. Frequently one or twoappings by means of the aspirator will suffice; when it fails, it may, as it did in this case, set up suppuration of the cyst, and require free incision—a procedure not without danger, although most cases, I think, end favorably.

Clinical Remarks

ON

ABSCESSSES IN THE UPPER PART OF THE ABDOMEN.

Delivered at St. Thomas's Hospital.

By JOHN S. BRISTOWE, M.D., F.R.S.,

Senior Physician to the Hospital.

GENTLEMEN—Cases of abscess arising in the upper part of the abdominal cavity are always extremely interesting, for their diagnosis is generally difficult, and they are often not only sources of anxiety to the medical man, but attended, as regards the patient, with much distress and danger. The cases which I am about to recount and comment upon are remarkable in these respects. The first was very instructive, at any rate to myself. It was that of a young woman who, a few years ago, was transferred from the Westminster Hospital to my care here, at the time when that institution had to be closed for the purposes of cleaning and alteration. She came to me with the history that she had been suffering from ulcer of the stomach, that perforation of this viscus into the peritoneal cavity had taken place, that she had consequently had sudden and intense peritonitis, of which she had nearly died, but that her acute symptoms had subsided, and that there had been for two or three months slow but on the whole progressive amendment. On admission her symptoms suggested to me that she was suffering from general tuberculosis, with special implication of the peritoneum. It is true that cases of recovery after rupture of the stomach into the peritoneal cavity are recorded, and especially I recollect that one such apparently undoubted case was published many years ago by the late Dr. G. H. Barlow, of Guy's. But knowing that recovery after such an accident is one of the rarest incidents in medicine, and never to be admitted in any case without the strongest evidence in support of it, I was naturally predisposed to disbelieve in the diagnosis made at the Westminster Hospital, and am afraid that I did not hesitate to express myself irreverently with respect to the diagnosis of the distinguished physician under whose care she had been. I know, indeed, that I repeatedly pointed out that the symptoms she presented on admission into St. Thomas's were exactly such as one observes in tubercular peritonitis, and that, taking all things into consideration, it was much more probable that the acute attack she had had some months before, and which had been attributed to perforation, was an accident, so to speak, of her abdominal tuberculosis, and had been misinterpreted. Her progress while under my care seemed to accord with my diagnosis; and the fact that she had a slight cough, attended with some indications of mischief at the apices of the lungs, and that shortly before her death she expectorated some very fetid fluid, amply, as I thought, confirmed it. Now, at the post-mortem examination there really were found tubercles in the peritoneum and tubercles in the lungs; and so far, of course, I was

right. But I could not help admitting that the tubercular disease was not sufficiently advanced to have caused her death, or even to have been the chief factor in the causation of her symptoms. And, indeed, we found something more. We found that she had had an ulcer of the stomach, and that this had perforated the organ; and we found further that a circumscribed abscess between the stomach on the one hand, and the under-surface of the liver and diaphragm on the other, had resulted from the perforation, and that the fetid matter expectorated from the lungs shortly before death had been derived from the abscess, which had opened through the diaphragm into the base of the left lung.

It will be admitted, I think, that my diagnosis was not quite unjustified by the event, and that even the expectoration of stinking fluid was, on the whole, calculated to confirm me in my opinion of the case. But I am bound to confess that I failed to recognize or admit the main facts of the case, and to acknowledge that the physician under whose care the patient was originally was essentially correct in his views, and that he deserves high credit for both his accurate diagnosis and his skilful treatment of a very obscure and interesting case. I take off my hat to Dr. Sturges, and promise never again to treat his medical opinion with disrespect.

CASE 1. Perforating ulcer of stomach; rupture into peritoneal cavity; formation of circumscribed abscess between liver and stomach, subsequently opening into the lung; miliary tubercles in lungs and peritoneum; death; autopsy.—Ellen R. H.—, a girl nineteen years of age, was brought from the Westminster Hospital and placed under my care in St. Thomas's on June 18th, 1877. Her history was that she had been suffering for some time from ulcer of the stomach, with vomiting of blood, and that she had been three or four times in the Westminster Hospital for that malady; that last March she was sent thence to the Convalescent Home at Walton; that while there she was attacked suddenly with severe epigastric pain and faintness, and was consequently brought back to Westminster Hospital; that on readmission she had extreme general abdominal pain and tenderness, with tympanites, vomiting, collapse, and other characteristic signs of peritonitis of a very severe form. It was assumed that perforation of the stomach had occurred at the seat of ulceration; but under judicious and careful treatment she emerged from her condition of collapse, and the more acute of her abdominal symptoms subsided. Since that time her condition has varied a great deal, and she has remained very ill and weak, but on the whole has improved. She has been sick at times, and has had a slight cough. On admission into St. Thomas's she was anæmic, emaciated, and very weak. Her abdomen was tumid, tense, tympanitic, and tender on pressure; and she suffered from pain and uneasiness in it. Her tongue was coated; she was thirsty, frequently sick, and had little appetite. There was no marked dulness at the apices of the lungs, but there was a little variable subcrepitation, and a little wheezing over the rest of the lungs. Pulse 100; respiration 24; temperature 100.2°. There was no further evidence of disease. She was treated with ice to suck, a mixture containing bismuth, and nutrient enemata. She remained very weak, perspiring profusely at times, and presenting a temperature which usually varied between 101° and 103.5° down to July 9th or 10th. But, notwithstanding, she seemed to improve; her sickness diminished, she took food by the mouth, felt stronger, was able to sit up in bed, and looked bright and cheerful. At this time her tongue was clean; her chest was resonant, but there was a little subcrepitation and

wheezing at both apices, most at the right, and at the left base; she had a little dry cough; and the abdomen was only slightly tumid and tender, mainly below. Soon after this, however, a change for the worse occurred, and on the 12th or 13th her cough became very troublesome, and attended with copious expectoration of a very offensive, turbid, brownish fluid. Her tongue remained clean, but she lost her appetite again, her pulse rose in frequency, she became excessively weak, and, continuing to the last to spit up large quantities of the fetid fluid above described, died exhausted on the morning of the 16th.—Autopsy: The lungs were studded with miliary tubercles, and the peritoneum presented abundant old adhesions with scattered tubercles of the same kind. Between the stomach below, and the under surface of the left lobe of the liver and the diaphragm to the left of this above, was a flat abscess-cavity occupying an area about equal to that of the hand. It was bounded elsewhere by old adhesions. Its parietes were dirty-looking and flocculent, and it contained a small portion of fluid resembling that which had been coughed up during life. This cavity communicated on the one hand with a small perforated ulcer situated at the posterior part of the stomach, near the pylorus, and on the other by a fistulous opening, through the diaphragm and adherent pleura, with the base of the left lung. The gastric ulcer was small and quiescent; the orifice in the base of the lung was irregular and flocculent-walled, and was the channel by which the contents of the abscess had been recently evacuated. All other organs were healthy.

The second case was also one of much interest, and one in regard to the exact nature of which I was long in doubt. The patient was a young married woman, who for eighteen months before I saw her had been suffering from pain in the splenic region, and who had had rigors. On admission into the hospital she presented a tumour of considerable size in the situation of the spleen, which differed from the spleen apparently only in the facts that it was distinctly adherent to the abdominal parietes, and consequently moved only with them, and that its anterior edge was obtuse, and presented no notch. The patient was very weak and ill, and during the ensuing two months or more complained of a good deal of pain and throbbing in the region of the tumour, which remained stationary; she presented a very fluctuating temperature of hectic type, which often rose above 105°, and on one occasion reached 106.8°, and, on the other hand, frequently descended to the normal, and even below that; she had occasional rigors, and suffered from nausea and sickness, from alternations of diarrhoea and constipation, and from occasional pains in her limbs. Moreover, the urine at times presented traces of albumen. In the early period of my treatment of the patient I had some inclination to think that her symptoms were due to malarial poisoning, although the apparent incorporation of the tumour with the abdominal walls was adverse to the view that the tumour was simply an "ague-cake." Before long, however, I began to suspect the presence of multiple embolism, with special implication of the spleen: an interpretation of the case which seemed in accordance with the peculiarities of the temperature, and most of the other phenomena above enumerated, but which the absence of obvious heart disease contra-indicated. It must be borne in mind, however, that vegetations are not unfrequently present on the auricular aspect of the mitral valve, and on the adjacent walls of the auricle, which cause no interference with the due action of the valve, and are consequently unattended with murmur. Later, it was concluded

that suppuration was going on; but the continued hardness of the lump, the total absence of fluctuation or even of any yieldingness, and its invariableness as regards size and shape, threw some doubt on this opinion. The view to which there was an inclination at this time was still that the patient was suffering from multiple embolism; but that some of the infarcts, which were presumably present in the spleen, had broken down, and were suppurating. A week or two before death some important changes took place in her condition. Diarrhoea came on, but the character of the stools unfortunately was not noted; she vomited a yellowish fluid of the consistence of gruel, with a manifest faecal smell; and about the same time the tumour almost wholly disappeared. Finally she brought up from the stomach solid lumps of faeces. It had now become perfectly clear that there had been an abscess in the situation of the supposed tumour, that it had opened both into the colon and into the stomach, and that a pretty free communication had become established between these viscera. The post-mortem examination showed little more than the correctness of this last inference. I assume, however, from the appearances found that the disease had begun in the colon, and that the inflammatory lump simulating the spleen was in some way or other (probably by the formation of a circumscribed peritoneal abscess) secondary to the intestinal disease.

CASE 2. *Abscess in the splenic region, between stomach and transverse colon; communication between these viscera; vomiting of solid faeces; death; autopsy.*—E. C., a married woman, aged twenty-seven, was admitted under my care on July 21st, 1880. She had had no illness of any importance, and there was no suspicion of syphilitic taint. She had had six healthy confinements. She first complained of illness eighteen months previously, just after the birth of her fifth child. At that time she began to suffer from pain in the left side, between the ribs and the crest of the ileum. There was tenderness, but, so far as she knew, no tumour. About that period, too, she had attacks of shivering. The pain and tenderness have never left her, and she has gradually lost flesh. Two weeks ago (July 8th) her last child was born, since which time the pain in her side has been much worse, and a tumour has been discovered in the splenic region. The pain has been of a throbbing and shooting character. She had some rigors before her confinement, but none since, until the day of admission. She had become very weak, had lost appetite, and vomited frequently. There had been no cough, no disturbance of the bowels, and no unhealthy symptoms referable to the reproductive organs. The patient on admission into the ward looked careworn and ill; tongue furred. In the splenic region was a hard tumour which did not move with respiration, and which seemed to be adherent to the parietes. It extended, in the mid-axillary line, four inches and a half below the ribs, and thence towards the median line of the abdomen, which, however, it did not reach. The general surface was rounded, its edge was obtuse, and presented no notch. It was dull on percussion, and dulness, continuous with it, extended to three inches and a half above the ribs in the mid-axillary line. The liver appeared to descend a little below the ribs. There was a little fine crepitation at the base of the left lung on deep inspiration. All the other viscera were apparently healthy. Urine 1015, no albumen. For the next four weeks her symptoms presented slight fluctuations, and on the whole improved. During this time the swelling underwent little or no change in size, but remained painful and tender, and at times she felt much throbbing in it. It continued hard, and

with no sense of fluctuation. Her appetite was bad, and she was occasionally sick; her bowels were confined; her temperature was very irregular, varying from 99° to 103.4°; and from time to time she had a rigor. There was a good deal of improvement, however, from the 11th to the 17th, during which time the temperature never rose above 99.5°, and was generally either normal or subnormal; the pain and tenderness also diminished. On the 18th her temperature rose from 101.6° in the morning to 103° in the afternoon, and she was very ill. During the next ten days she remained in the same condition. Her temperature presented the hectic character, rising on several occasions above 105°, and once to 106.8°, and often falling to the normal, or even to 97°. She had frequent rigors, and occasional pains in her limbs. Her appetite failed entirely, but she did not suffer from sickness. On the 24th she passed a small clot of blood with her motions, but she had no diarrhoea. The urine, which was of rather high specific gravity, contained a trace of albumen. She became exceedingly weak, prostrate, and very anæmic. It was observed that the lump remained about the same size, without bulging or fluctuation, and that its anterior and lower margin was distinct. After August 28th the temperature only once reached 105°. It fluctuated a good deal, however, and, excepting that she got manifestly weaker, she seemed on the whole to improve. On Sept. 4th and 5th she suffered from diarrhoea; but the character of the stools is not recorded. On the 4th, after feeling nausea for some time, she vomited about a pint and a half of yellowish-colored fluid of the consistence of gruel, with an offensive faecal smell. On the 9th she vomited half a pint of greenish fluid. The bowels continued to be moved freely. About this time the pain and tenderness in the region of the tumour diminished greatly. And on the 24th the following note was taken: "Patient weak; appetite very bad; no vomiting; no tenderness or pain in the region of the tumour; and all that can now be felt of the tumour is a cord-like hardness about the size of the finger, extending vertically downwards from the cartilages of the ribs." She continued from this time henceforth to be free from pain or material tenderness in the left side; the region of the tumour became resonant, and no indication of its presence, beyond the band just referred to, remained. Her temperature moreover became normal, and latterly even subnormal, and there was no recurrence of rigors. But pains, apparently rheumatic, affected the joints of her lower extremities, mainly those of the right side; her appetite remained very bad; and she steadily lost flesh and strength. She vomited occasionally, and a few days, eight or ten perhaps, before her death she brought up for the first time solid lumps of unmistakable ordure. This was repeated on several occasions, and was regarded as a clear proof that some direct communication had become established between the stomach and the colon. She died on Oct. 12th. It may be added to the above account that there was never any sign of heart disease, or of change in the constitution of the blood, and, as regards treatment, that in the early part of her residence in the hospital a few leeches were applied over the tumour on several occasions, and also poultices; that when the temperature was excessive quinine and salicylic acid were both tried in large doses without material effect; and that generally she was treated with tonics and opiates. Post-mortem examination: On opening the abdomen a large, irregular, shreddy-walled cavity was found in the left hypochondriac region, between the left extremity of the transverse colon and the cardiac end of the stomach, bounded above in part by the

left lobe of the liver and in part by the abdominal parietes in the left hypochondrium. It contained shreds of tissue and blood, but no pus. It communicated freely both with the colon and with the stomach. In the transverse colon, near its splenic flexure, was an area of deep ulceration, surrounding the gut, and measuring about two inches and a half in length. Its edges were thick and spongy, but there was no evidence of new growth. The orifice of communication with the cavity was towards its posterior part. The openings into the stomach were several ragged holes clustered together, and had evidently taken place from without. The mucous membrane around them was quite healthy. The liver and spleen were healthy, and no other viscera presented any evidence of disease.

In connection with the last case I may recall the facts of another (Case 3) that was under my care in the hospital some years ago, but of which unfortunately the notes have been mislaid or lost. The patient was a tall young man, of about nineteen, with rickety curvature of the tibiae and other bones. He had, however, generally had good health, until, I think, a few months before I saw him, when he began to suffer from pain and tenderness below the left ribs. He went for a time into one of the large metropolitan hospitals, and there the tumour which was discovered in the splenic region, was taken for the spleen. On his discharge at the end of a month or two no material change had taken place in his condition, and his disease was still assumed to be splenic enlargement. On admission into St. Thomas's a tumour was recognized, which from its situation and form might certainly have been taken for the spleen. But it was as in the last case, unaffected by the movements of the diaphragm, and evidently adherent to the abdominal walls. So far the case was an almost exact counterpart of the one just narrated. But there were also manifest bulging of the lower ribs on the left side and of the adjacent part of the abdomen, and a great sense of resistance: phenomena which are always strongly suggestive either of an abscess or of a new growth, and of its incorporation with superficial parts. Accordingly I came to the conclusion that the patient was suffering from a new growth or abscess, arising in the spleen or its neighborhood, but involving the abdominal walls. I forget whether there were any additional facts in his history, or any peculiarities of temperature or symptoms when he first came under my care, to lead me to prefer one of these alternative views to the other. I also forget whether I was tempted make an exploratory puncture for diagnostic purposes. But I know that after a time I had an incision made into the swelling, that a large quantity of thick pus was evacuated, and that at the end of a few weeks the patient left the hospital well.

I do not know that one learns any very important special lessons from the above cases. But there are two or three points suggested by them to which I may call attention in a few words. In the first place, in the two cases that ended fatally, the cause of the circumscribed peritoneal suppuration was found to be perforation of one of the hollow viscera. It may be assumed, from this fact, as well as on other grounds, that abscesses in the upper part of the abdomen, not due to abscess of the liver, are largely dependent on this cause. In the second place, all the cases suggest the importance of evacuating the contents of abscesses in this situation as early as possible. Abscesses here, if left wholly to nature, are liable to burrow in various directions, to discharge themselves into and through various organs, and to lead in the course of their extension to irreparable mischief.

By a free external opening made at an early period such disastrous consequences would obviously be to a large extent averted. And, in the third place, it seems clear that the recognition of abscesses in the upper part of the abdomen is often extremely difficult, if not impossible, and that to diagnose them correctly demands the most careful and continued observation, and to treat them effectively calls for both skill and courage. I make these latter remarks without intending to imply that in dealing with my own cases I showed conspicuously any of the qualities here specified.

I venture to add, in conclusion a brief account of a post-mortem examination which I made many years ago on a girl whose case in many respects obviously resembled that with which I commenced my lecture. Unfortunately no clinical account has been preserved. But the post-mortem record shows clearly that she had an ulcer of the stomach, which had perforated that viscus; that as a result of this perforation circumscribed peritonitis had ensued, with the formation of fetid pus in the neighborhood of the spleen; and that the circumscribed abscess had both penetrated into the substance of the spleen and perforated the diaphragm. It is interesting, however, to note that the fetid abscess was separated from the perforation, which had doubtless caused it, by a tract of simple inflammatory adhesion; that although the abscess had perforated the diaphragm there was reason to think that inflammatory changes which were present in the chest had not been caused by this perforation; and that gangrenous cavities whence fetid pus might well have been expectorated were present in the bases of both lungs. The case is further interesting because the abscess connected with the spleen was mainly in front of it, and must, if it had been recognized during life, have presented the local features exhibited in my last two cases.

CASE 3.—C. H—, a girl, aged eighteen, was admitted into St. Thomas's Hospital on March 27th, 1854, and died there on April 6th. At the autopsy the pericardium and heart were found to be healthy. The lower lobe of the left lung was adherent to the diaphragm and sides of the chest by a layer of recent lymph; it was more solid than natural, congested, and soft, and presented numerous patches, from the size of a filbert downwards, in which the tissue was solid or broken down into a stinking gangrenous pulp. The upper lobe of the left lung was healthy. The upper and middle lobes of the right lung were healthy, but the lower lobe was in the same condition as the left lower lobe, though less extensively affected, and recent lymph was deposited on its surface. Abdomen: All the peritoneal membrane below the stomach and great omentum was healthy; but the left lobe of the liver was attached to the diaphragm by recent adhesions, and the under surface of the anterior half of the right lobe, and the whole of the under surface of the left lobe were similarly united to the anterior surface of the stomach and to the spleen. On separating the liver from the stomach, a circular opening, about half an inch in diameter, was found in the anterior wall of the stomach close to its lesser curvature and midway between the oesophageal orifice and the pylorus. On separating the spleen from the parts surrounding it a circumscribed cavity was laid open, the walls of which were formed by the anterior half of the spleen, the diaphragm, and the cardiac end of the stomach. This cavity contained a considerable quantity of thick greenish fetid pus and was lined by soft discolored lymph. It was further found that a diverticulum of the abscess extended into the substance of the spleen, and that a little above this point the dia-

phragm presented several perforations due to ulceration. Direct communication between this abscess and the pleural cavity appeared to have been prevented by adhesions between the diaphragm and ribs; and further no direct communication could be traced between it and the ulcerous perforation of the stomach. The mucous membrane of the stomach was generally healthy, but at the seat of perforation it was destroyed to a considerable extent. The ulcer was one of the ordinary character, and partly cicatrized. All the other organs were healthy.

An Inaugural Address

DELIVERED IN

UNIVERSITY COLLEGE, LONDON,

On Oct. 1st, at the Opening of the Session 1883-4,

By PROFESSOR JOHN TWEEDY, F.R.C.S.

GENTLEMEN—As the spokesman, for the nonce, of the Medical Faculty of this College, my first duty is to give you all a hearty welcome; not less to you, old friends, who, mindful of the happy associations of former years, grace these proceedings by your presence, nor you who are the actual participators of our current labors, than to you, young scions of a hopeful race, who are, here and now, to be engrafted upon an ancient and honorable stock. It is, indeed, to celebrate your initiation into the medical profession that we are chiefly gathered together; and custom has prescribed, and good fellowship enjoins, that the occasion should not be allowed to pass without our giving you the assurance that you have here friends to greet you, hands to help you, and willing hearts to serve you. Let me, then, congratulate you on the choice you have made of the profession of medicine as the sphere of your labors, and of this College as the place of your studies.

Whatever may have been the considerations which have led you to enter the medical profession—whether the accident of birth, social relationships and family ties, or the exercise of a deliberate choice—it is not likely that you and your friends have selected this college without some thought and inquiry. This circumstance might seem to render it unnecessary for me to attempt to add strength to your convictions; but I cannot forbear from dwelling upon some of the special advantages which I believe will accrue to you from studying in this place. No vindication is needed of the general scope and character of the education that University College affords. The continued and unvaried success of half a century is a sufficient testimony to its efficacy and its worth. Scarcely a city, town, or village throughout the British Empire but cherishes one or more of her sons. They sit in seats of honor in high places; Royalty calls in their aid; the State avails itself of their knowledge and acumen; Science applauds their genius; Learned Societies award them enviable honors; and Schools of Learning accept their co-operation with delight. The practical sagacity and the true political insight of the founders of this College, the energy and enthusiasm of our predecessors, and the enlightened enterprise of our executive body, have furnished many of the elements of our success. Our museums, laboratories, class-rooms, and libraries, afford facilities of observation, study, and research, which in their entirety are unsurpassed by those of any medical college in the world. Our hospital has supplied the material of the public

experience of some of the greatest teachers and practitioners of this age. It has been the scene of the clinical and scientific achievements of Elliotson, of Anthony Todd Thompson, of Robert Carswell, and of Samuel Cooper; and, among those, happily, still living, of C. J. B. Williams, of Walshe, of Jenner, and of Reynolds; of Richard Quain, of Erichsen, of Henry Thompson, and of Wharton Jones. Here, too, Liston performed those marvellous feats of surgical skill and daring that made him the wonder and delight of his contemporaries, the envy and despair of his successors. But it is not only in the practical departments of medicine and surgery that University College has been renowned. From this college and hospital have emanated some of the most famous and permanent contributions to medical literature. The comprehensive Surgical Dictionary of Samuel Cooper, the classical treatise of Erichsen on the Science and Art of Surgery, that fund of clinical record blended with philosophical reflection in Walshe's works on Diseases of the Heart and the Lungs, and Quain's copious and authoritative text-book of Anatomy, had their birth and have received most of their nurture within this fold. Nor have we been behindhand in the higher departments of scientific thought and investigation. This college has, from its very foundation, been distinguished from most other medical schools by the plan and method of its studies. Its guiding principle has been to teach by great authorities, by specialists and experts in their particular departments of learning. This has given to its teaching a thoroughness, reality, and dignity that have enabled a large proportion of its pupils not only to excel as practitioners, but also to attain distinction as students of science. Nor have these results been casual or fortuitous; they have been, rather, the anticipated culmination of a sagacious and well-regulated system.

There is a collateral advantage, amounting almost to a privilege, which the medical student in this college may enjoy. This institution is not a medical school only; it is a large educational establishment, embracing also the Faculties of Science and Arts, and employing the services of men eminent in every department of thought. Its range of studies is therefore wide and encyclopædic, and exhibits many of the social and intellectual characteristics of a university. Though a student cannot, of course, pursue every subject that is open to him, even in his own Faculty, and still less in other Faculties, he cannot fail to be a gainer by living among those who represent the entire circle of knowledge. He breathes an intellectual air, and profits by traditions which are independent of particular teachers. Though the relationships between the students in the medical and other faculties have not always been so close and so harmonious as might have been wished, there are real and substantial benefits to be gained by a freer intercourse and a closer intercommunication. In the Faculties of Science, and of Arts and Law, you will find many earnest and anxious toilers after truth, who are doubtless destined to take high places among the thinkers and the workers of the immediate future; and it is to your intellectual and moral advantage, to say nothing of your social interest, to make the acquaintance of such, and to grow up in friendly communion with them.

Though I have given precedence to your connection with University College, I would not have you suppose that I regard this as the permanent order of relative importance. While I wish you to cherish sentiments of affection and loyalty to this college, I am not so devoid of the sense of relativity as to

place this institution in the forefront of your thoughts. It is Medicine, its aims and aspirations, that is to be the absorbing passion of your lives. You are to be medical men first, and University College men afterwards. To this end it is necessary that you should have clear notions of what Medicine is, in order that you may comprehend its character, be faithful to its traditions, and zealous for its honor and advancement.

What, then, is Medicine? To most of you it may at present seem enough to call it the art of diagnosing disease and prescribing remedies. It is this; but it is something more. Medicine is essentially the Science of Health. So long as the idea of medicine was limited to the study and treatment of disease, its progress was slow and uncertain, and its place in the hierarchy of intellectual pursuits doubtful and ill-defined. Now, however, the medical profession would still retain the most important part of its duties, and all, or more than all, its present share of honors, if every drug in the Pharmacopoeia were to become extinct. The credulous faith in the efficacy of drugs is, and always has been, the secret of the success of every form of charlatanism. Medicine, then, being not merely the art of healing, but the science of life in its organic relations, the duty of studying and investigating the phenomena and conditions of health becomes paramount. It was the recognition of this truth that raised Hippocrates and his school out of the region of mere empiricism. Before his time, medicine in Greece had been cultivated in the priestly schools of the Asclepiadæ, and had remained a mere technical craft, based upon hereditary experience. But Herodicus, who is said to have instructed Hippocrates in the use of gymnastics in the treatment of diseases, sought to fix the rules of a scientific promotion of health. Inquiry was instituted into the influence of various nutriments and ways of life, and thus was created a new art, which had reference, not to the treatment of particular diseases, but rather to the invigoration and preservation of the human organism as a whole. The efforts of Hippocrates and his followers were, however, rather to promote the health of individuals, whereas the aim of modern medicine is, in addition, to conserve and protect the health of communities. Imagine the condition of a large city like London, with four millions of persons congregated upon the comparatively small area of a hundred and twenty square miles, without the sanitary and other resources which medical science has bestowed upon civilization. What a light has hygiene thrown upon the relations existing between the character of the soil, drainage, light, ventilation, food, water, clothing, and occupation, and the origin and spread of disease. Consumption, pneumonia, typhus and typhoid fevers, various epidemic and endemic diseases, malaria, dysentery, gout, and paralysis of many forms, are now known to depend upon preventable physical conditions. Small-pox, which up to the beginning of the present century inflicted such ravages, and even now makes frightful havoc upon unprotected communities, has been rendered practically eradicable by the means of vaccination. Cholera, as we have lately had experience, has not for us the terrors which it had for our fathers; its conditions have been ascertained, its secret discovered, and its malignancy disarmed. The experimental investigations of pathologists—and among them those of our Holme Professor of Clinical Medicine, Dr. Wilson Fox, have an honored place—aided by the beautiful microscopical researches of Koch, are elucidating the causes and origin of consumption, and have already kindled eager hopes of its effectual prevention.

The scope of medicine is therefore far-reaching, and in order to comprehend the whole science of medicine in the sense just defined, as the art of treating disease and the science of health, it is necessary to premise the study of the natural behavior of living matter—that is, Physiology. Strange as it may appear to uninitiated minds, the grandest discovery and generalization of modern medicine is that disease is healthy action gone wrong, or, as Mr. John Simon has described it, "Pathology consists in the science of life under other conditions than those of ideal perfection." Physiology is therefore the true foundation of medicine. This may seem heterodoxy to those who have been brought up under the influence of the older doctrine that anatomy is the basis of medicine. True, anatomy is indispensable to the study of Physiology; but anatomy is notoriously incapable of solving the simplest biological problem. Dr. Daremberg, in his learned history of the medical sciences, has observed that an examination of the history of medicine shows that the fate of pathology is bound up, scientifically and historically, with the fate of physiology; and that anatomy has not only at all times failed to reform physiology, but that ancient physiology, which was for the most part only a tissue of *a priori* speculations, has not unfrequently contributed to corrupt anatomy. Modern physiology has, however, amended itself by the experimental method, and henceforth is not likely either to miss its own way or to allow anatomy to go astray. On the contrary, it has opened up for anatomy new paths, and has, at the same time, furnished more solid bases of support for the reform of pathology. Do not mistake my meaning. I do not wish to say anything that can in the smallest degree be construed as depreciating the *absolute* value of anatomy. I merely protest that its *relative* rank needs to be readjusted. Anatomy is of primary importance to the study and practice of medicine; it is the very A B C, without which no real progress can be made. As without an acquaintance with the alphabet there can be no literary culture, so without anatomy there can be no medical attainments. Were it not for this, and for the help which a knowledge of topographical anatomy renders to the operating surgeon, the educational value of human anatomy, consisting as it does almost exclusively of the observation and remembrance of unrelated facts, would be extremely small, while its utility as a means of intellectual culture is absolutely nil. It is only when anatomy takes on a synthetic character, and becomes comparative in its method, that it first assumes the quality of a science. Nevertheless, anatomy is indispensable in a medical education, and to be of any service it must be almost exclusively practical. Now, practical anatomy means dissection, and this study is, to a beginner, revolting and disgusting. No man of nice feeling can at first take any pleasure in dissecting a human corpse. To remain unmoved in the presence of death indicates a callous rather than a courageous disposition. I envy not that man who enters a dissecting-room for the first time without an "inward horror." Men who have afterwards become enamoured of anatomy and acquired authority in it have recorded their first repugnance to dissection. Aristotle, the founder of comparative anatomy, and who is said to have dissected as many as five hundred different kinds of animals with his own hands, expresses the repugnance that he felt at the sight of the primordia of the human body. Haller observes that the "nature of death impresses us with horror, and that there is nothing sadder than a deadhouse." George Henry Lewes, distinguished alike as an anatomist,

physiologist, and philosopher, has eloquently described the repugnance which human dissection creates, and the fascination by which it can alone be suppressed. "The fascination must," he says, "be strong, for the disgust is powerful. Our senses are affected by the sickening scent of a corrupting body, by the painful sight of blood-stained instruments, and the scattered shreds of a dismembered corpse. There is also a deeper moral disgust, peculiarly affecting to imaginative minds. The spectacle of death is always accompanied by a certain awe. At the bedside or on the battlefield no gazer remains unmoved; pity, and a sense of community in death, steal over every mind when unshaken by violent emotions. How much more painful the dissecting-room, where the corpse is untended by affection, and unpitied by strangers! none of the sanctity of death surrounds it; none of the tenderness of love watches over it; none of the ceremonials of respect defend it. There it lies, naked, and alien alike from affection and respect, flung upon the table in oblivious disregard of its having once been the temple of a human life. It is no longer that temple; it is not even a corpse; it has become a *subject*. Yet all these sources of repulsion have been, and daily are, overcome. Men sit patiently for many hours, inhaling the nauseous odors, exploring with their scalpel the winding intricacies of vein and nerve, steadfast, patient, victorious. They have suppressed the suggestions of the scene by firmly fixing their minds on the object of their task. It is not because their sensibilities have become obtuse, but because their power of abstraction has overcome the solicitations of suggestion. They have not become hardened; they have simply learned to concentrate their thoughts upon a definite pursuit. Were it not for this we might wonder that men did not consent to remain for ever unenlightened on the marvels of their organization, rather than acquire the knowledge by so repulsive a route." But when the prejudice against anatomy is finally overcome by the passion for knowledge it even intensifies the finer sensibilities of our nature. Bossuet, of whom it has been said, "he is not so much a man as a human nature with the temperance of a saint, the justice of a bishop, the prudence of a doctor, and the might of a great spirit"—Bossuet, with all his delicate and tender sympathies for everything that was pure, noble, and refined, was not repelled from the study of anatomy, and even wrote a tractate upon it; and Goethe, though a practiced anatomist, could not look upon the body of Schiller dead.

While anatomy furnishes the material substratum of physiology, there are other studies equally necessary in the investigation of the phenomena of living matter. Botany and chemistry are only second in importance to anatomy; and though it is the fashion nowadays to decry botany and to advocate its abolition from medical studies, I entertain a very strong opinion that in the whole range of natural science there is no subject so well adapted for initiating a student into the Inductive Method. It encourages observation, it affords the opportunities of generalization, and, at a very small expenditure of time and money, enables the student to gain an insight, pure and experimental, into the operations of living matter. Standing, as it does, midway between the animal and mineral worlds, botany, it has been observed, indicates their relation to each other, and at different points touches the confines of both. It throws great light on the functions of nutrition, and on the laws of development; while from the marked analogy between animals and vegetables, there is every reason to hope that its further progress, assisted by that of

electricity, will prepare the way for a comprehensive theory of life to which the resources of our knowledge are still unequal, but towards which the movements of modern science are manifestly tending. Botany, it is true, may not now be of the same technical value to the practitioner as formerly, but its educational value to the student has correspondingly increased. It will be an evil day for medicine when all its studies are regulated only by considerations of utility. This word "utility" is the bane of modern education. It is tending to eliminate all culture from scientific pursuits. It is an *ignis fatuus* that is leading us into a bog of stolid dullness. Those who cannot see any relation between a liberal education and the requirements of practical life are constantly clamoring for the substitution of technical instruction for classical and literary studies. The pernicious influences of the doctrine of utilitarianism have not, perhaps, made such havoc in England as they have in America, but they threaten sooner or later to confound us. Over fifty years ago Longfellow raised an eloquent protest against the absorbing utilitarianism of the age. "With us," he says, "the spirit of the age is clamorous for utility; for visible, tangible, utility; for bare, brawny, muscular utility. We would be roused to action by the voice of the populace and the sounds of the crowded mart, and not 'lulled asleep in shady idleness with poets' pastimes.' We are swallowed up in schemes for gain, and engrossed in contrivances for bodily enjoyment, . . . as if this particle of dust were immortal, as if the soul needed no aliment, and the mind no raiment." We too often limit the application of the word *utility* to those acquisitions and pursuits which are of immediate and visible profit to ourselves and the community, regarding as comparatively or utterly useless many others which, though more remote in their effects and more imperceptible in their operation, are, notwithstanding, higher in their aim, wider in their influence, more certain in their results, and more intimately connected with the common weal. "The word 'utility,'" continues Longfellow, "has a wider signification than this; it embraces in its proper definition whatever contributes to our happiness, and thus includes many of those arts and sciences, many of those secret studies and solitary avocations, which are generally regarded as useless or as absolutely injurious to society. Not he alone does service to the State whose wisdom guides her councils at home, nor he whose voice asserts her dignity abroad. A thousand little rills springing up in the retired walks of life go to swell the rushing tide of national glory and prosperity; and whoever in the solitude of his chamber, and by even a single effort of his mind, has added to the intellectual pre-eminence of his country, has not lived in vain, nor to himself alone." In the medical profession, the greatest and the best have usually been the most cultured and the least tainted by this spirit of utilitarianism. Hippocrates, Galen, Linacre, Boerhaave, Haller, Mead, Friend, Francis Adams, and Daremberg were all scholars; and even among the men of the greatest practical skill, not a few have been distinguished by their attainments in elegant and polite learning.

As to the way in which you are to pursue your studies, there is little for me to say. Of advice you have no doubt already had as much as you care for, and despite any suggestions or recommendations I might make, you are more likely to fall in with the traditions of the place, and with the practices of your fellows, than with any theories of mine. But take care that the traditions you follow are the best traditions. Do not forget that diligence and industry will make up for many

intellectual imperfections. Remember, too, that your organization is multiplex, and that you need to train your senses, your understanding, and your reason, and have all your faculties under the governance of a resolute and vigorous will. "All our knowledge," says Kant, "starts from the Senses, goes on from them to the Understanding, and ends with Reason, than which nothing higher is found in us, either to work up the material which we derive from the intuitions of sense, or to evolve the highest unity of thought." To be, then, useful and accomplished men, it is necessary for you to engage in those exercises which will train your external senses, cultivate your understanding, and refine and ennoble your reason. The medical curriculum embraces studies adapted to each and all these purposes. What they are and how they are to be pursued, I will not now stop to explain. But a caution is needed. There are two extremes to be avoided; almost equally dangerous, though in different ways—working too much is nearly as bad as working too little; perhaps of the two the more grievous damage is done by excess. An idle and desultory student may, by resolute application, do something to redeem the follies of the past; but a student who, through misguided zeal, or over-anxiety, or from fear, has lavished his strength too prodigally on his task, to the neglect of his physical well-being, may find too late his forces undermined and his energies consumed. Regulate, then, your hours of work, and study so that you may have ample leisure for the needs of recuperation, recreation, and refinement. Learn the secret of losing time rationally. Literature, music, the drama, the fine arts, and the society of persons of refined, though simple, tastes afford abundant opportunities for instruction and amusement and facilities for the best æsthetic culture. Out-door exercises, as walking, boating, cricket, Volunteering—whether you enlist in the service of Mars or in that of Hygeia, to shoulder the rifle or attend the ambulance—will invigorate your body, refresh your mind, and repair the damage your growing frame sustains in the noxious atmosphere of hospital, laboratory, and dissecting-room. These exercises, too, supply the only opportunities of witnessing and admiring the natural beauty of earth and sky and sea; the variegated hues of gem and flower; the painting of insect, bird, and beast; the brightness of sunshine, the iridescence of the rainbow, the rippling of shallow streams, the sheen of still water, the flash and roar of storm and tempest. A memory plenished from the storehouse of poet and philosopher, artist and orator, novelist, historian, and divine; a mind that gives "to forms and images a breath and everlasting motion;" "an eye made quiet by the power of harmony and the deep power of joy" will soothe the tired brain, bring solace to the careworn heart, brace the unstrung nerves, and lighten the weary tread. Cultivate the habit of wishing to discover the Good and the Beautiful in all that meets and surrounds you; the disposition that

"Finds tongues in trees, books in the running brooks,
Sermons in stones, and good in everything."

Gentlemen, no education should be exclusively technical or even intellectual, and certainly not that of a medical man. Hippocrates gave ethical dignity to medical practice. No one showed more respect than he for patients, more solicitude for their welfare, or at least for their solace and consolation. No one has ever had a more correct appreciation of the relations which should exist between medical men themselves and between the medical practitioner and his patient and the public. Guy of Chauliac, who flourished in the middle of the

fourteenth century, was equally exalted in his ideals. "A surgeon," he says, "should be learned, expert, ingenious, and well mannered; he should be bold when sure, cautious in danger; kind to patients, gracious to colleagues, modest in giving an opinion; chaste, sober, pitiful, and merciful, and not greedy of gain." These are noble teachings, which each of us may follow, however haltingly and afar off. Whatever may be our ideals, they have only moral value when they amend our lives. Grave deep upon your hearts the moral maxims of the master mind of medicine, and of the illuminator of modern philosophy. "With purity and with holiness I will pass my life and practice my art" was the pledge demanded by Hippocrates of every novice of medicine; and "Never act otherwise than so that you can will that your maxim should become a universal law" is the unsurpassable ethical dictum of Immanuel Kant. Inexperienced in the course of the world, incapable of being prepared for all its contingencies, ask yourself: Can I will that my principle of action shall be a universal law for the guidance of every other man? Be not deceived; the study and practice of medicine are not of themselves refining or ennobling to the natural man. Among those who are engaged in the treatment of disease are some of the meanest and cruellest of their race. Quacks and pretenders have been the pests of every age. What elevates and ennobles medicine is Science—that "fair, effusive ray" which Akenside, himself a distinguished physician, invoked as the guiding principle of his life.

"That last best effort of thy skill,
To form the life, and rule the will,
Propitious power! impart;
Teach me to cool my passion's fires,
Make me the judge of my desires,
The master of my heart."

"Raise me above the vulgar's breath,
Pursuit of fortune, fear of death,
And all in life that's mean;
Still true to reason be my plan,
Still let my actions speak the man,
Through every various scene."

It is Knowledge that purifies our nature; it is Science that gives moral dignity and value to our calling. To a worldly-minded man the rewards of medical labor are not worth the toil. The remuneration is not adequate to the anxious and arduous care of professional life; to the struggles against opposition, adversity, and disappointment; to the lack of honors, luxuries, and even comforts. But to a mind imbued with the modest and unselfish spirit of science, the rewards of a good conscience and of a sense of duty properly performed, are sufficient. You, and all of us, are engaged in the pursuit of this science, and in a work of humanity and love. We are inheritors of a useful art, the heirs of a noble learning, the depositories of godlike knowledge. On our efforts, collectively and individually, will depend in a large degree the character and the influence of our art and our science during the coming generations. The way in which we discharge our duties and fulfil our obligations to the profession, to ourselves, and to the world, will influence for good or for evil medical and social life for years to come. Higher than mere earthly honors and earthly dignities, the reward we covet is that of being numbered among the true workers in science and searchers after truth—Science that has revealed the mysteries of our organization, eradicated superstition from our minds, extended wide the bounds of knowledge, and put back the limits of the unknown, abridged both space and time, strengthened our intellectual

gaze till we almost pierce the veil of Eternity and realize the Life beyond.

Gentlemen, my task is nearly done. I have only to add my own good wishes to those of my colleagues for your health, happiness, and success.

An Introductory Address

DELIVERED AT

MIDDLESEX HOSPITAL, LONDON,

On Oct. 1st, 1883,

By A. PEARCE GOULD, M.S., F.R.C.S.,

Assistant-Surgeon to the Hospital, and Fellow of University College, London.

GENTLEMEN—With my first word I would, in the name of my colleagues, welcome you, one and all, to-day. Some of you are stepping over the very threshold of that professional life to which you aspire. Others of you have advanced more or less far along its path. But whether here as freshmen, as seniors, or as past students, we are equally glad to meet you, and to wish you well, at this the commencement of another medical year.

Those of you who met here twelve months ago will not have forgotten the sad cloud which then hung over the proceedings, and threw a cold gloom over the opening days of the session. He who was to have addressed you lay dead, called upon, apparently far too soon, to lay aside the toil which had been so pleasant to himself and so beneficial to you. Mr. Lyell had not lived long enough to win for himself loud-tongued popular applause; but here, in his adopted professional home, he had lived so well and worked so earnestly, that he quickly won, and to the last held, a very high place in the esteem of all who knew him. It was never my privilege to know Mr. Lyell intimately, and it would therefore be unbecoming in me to speak of him in anything more than general terms in the presence of many who knew him well and who watched him day by day in his patient labors. You know his sterling uprightness, you have seen his earnestness of purpose, you are witnesses of his ability, and his thorough knowledge of his profession, and many of you have profited largely by his marked success as a teacher. I scarcely need to remind you of these things nor to urge you to cherish and to honor the memory of so good a man. It may well fill us with painful wonder when we have to stand by and to see a life so full of promise so soon cut off, when an abundant seed-time has no harvest, and bright hopes are early blasted. But happy is it when with the feeling of wonderment is blended the grateful recollection of large powers used with a noble unselfishness that withholds not life itself. And such is our memory of Robert Wishart Lyell! Believe me, sirs, the years of such men's lives are weighed, not counted.

By the death of Dr. Alexander Patrick Stewart at the ripe age of seventy, which occurred towards the close of last session, we have lost a member of our consulting staff whose name will never be forgotten while the history of medicine is preserved, and whose memory will always be affectionately cherished by those who were honored with his friendship. It is now seventeen years since he severed his connection with the school and the active duties of the hospital, but to the last he retained a keen interest in both, which he was quick to show when any occasion demanded it. A sketch of his life, could I have drawn it,

might have worthily formed the subject of the address to-day; but that was only to be attempted by one who, from constant association with him, could appreciate his private worth and professional attainments. When but a young man of twenty-seven he wrote a paper, founded upon observations made while he was house-surgeon at the Glasgow Infirmary, whereby he established his claim to rank among the very first physicians of the age. In it he suggested that typhus and typhoid fevers are two distinct affections, unlike in their origin, course, and mode of propagation, and in this he was the first. It is but just to his memory to assert that the service he thus rendered scarcely met with due acknowledgment; but he, happily, sought elsewhere for approval of his actions, and his blameless life secured him that which no popular applause could ever have won for him. Dr. Stewart was a man eminent for his Christian virtues. Possessed of high birth, and a finely cultured mind, he happily combined with these a gentle spirit, and cheerfully accepted as his guide in life the precepts of the New Testament. He was thus enabled to live above the touch of slander, a praise among his friends—of enemies, he had none. In his early devotion to his profession, his careful and accurate observations, and in his Christian integrity and manly defence of all that he held to be true and just, he sets everyone of us a worthy example. And whenever in after life you meet with his name—as often you will—and are reminded of his great work, do not think of him simply as a wise physician, with remarkable insight into disease, but remember him also as a good man. Notwithstanding his professional attainments and charming personal character, Dr. Stewart failed to attain the highest rewards of his profession. And it is well that you should know that this was simply due to habits of unpunctuality, which in him became so exaggerated that it was impossible for him to undertake many of the responsibilities of his calling. This peculiarity he seems to have inherited from his father; but it is very remarkable that one possessed of so much strength of character, so strict in his views of duty, so unflinching in his adhesion to truth, should have been enslaved by a habit that men of far inferior gifts and motives find no difficulty in withstanding. But so it was.

There is one event in medical politics that has occurred during the recent session of Parliament that calls for a brief notice at my hands. A Royal Commission having been appointed to examine into the mode of granting licenses to practice medicine and surgery in the United Kingdom, reported against the system at present existing, and made certain excellent recommendations. A Bill was introduced by the Government embodying these proposals, and was quickly passed through the House of Lords. But the obstructive tactics of individuals and bodies, not wholly disinterested, prevented its being read a second time in the House of Commons. There can, however, be no doubt that the Bill in its main provisions gave intense satisfaction to the general body of the profession, and it is to be hoped that the only result of the tactics of the representatives of the obstructive corporations will be that they will obtain less generous terms when the Bill is next presented to Parliament. These particular corporations have degraded the profession and deceived the public, and are not worthy of the sympathy of either of the parties so deeply interested in this great question. The points dealt with in the Bill on which there is a consensus of opinion are three:—1. That everyone shall be required to pass a final examination in the three branches of medicine, surgery, and midwifery, before being

eligible for registration as a qualified medical practitioner. 2. That this necessary examination shall be conducted by some body other than any of the existing corporations. 3. That the general body of the profession shall be represented on the boards controlling these examinations. Legislation on these lines is urgently needed, and is confidently expected as one of the earliest results of the coming session of Parliament. I hope that he who addresses you next October will be able to refer to it as an accomplished fact, and it may then be his duty to explain to you the effect of the Act upon your studies and your future course.

[Mr. Gould cautioned his hearers against setting too high a value upon success in competitions for prizes, and urged them to try rather to conquer themselves than to over-reach their fellows.]

Not the smallest of the difficulties that beset the introductory lecturer of to-day is the choice of a subject on which to address his audience. There are very few matters in any way connected with the science and art of medicine that have not formed the theme of introductory lectures. History, biography, philosophy, and morals have all been spoken of over and over again; minute directions as to the best mode of study, the medical curriculum, medical examinations, and the preparatory training for the profession, have all been dilated on year by year; and exhortations, warnings, encouragements, and even discouragements have been lavishly given. I feel it impossible to say anything new to you, and not less so for me to put old truths or arguments with as much force as has been done by others, and had I the courage of my convictions I should discharge my obligation to you to-day by reading one of the classical addresses that are admitted to have a permanent value. I propose, however, to refer briefly to some points connected with the manner in which your studies here should be conducted. I offer no apology for this subject. It is important that you should commence your work with an intelligent appreciation of its purpose, and of its method; and as, in the hurry of your student life there is danger that these may be lost sight of, it is well from time to time to have your attention recalled to them. To take up every subject in the curriculum, and to dilate upon its value, and upon the mode of study best adapted to acquaint you with it, would of necessity be very wearisome, and I purpose to deal with two points only—one of them having a special bearing upon the work of freshmen, the other being of interest rather to the seniors.

We are all of us apt to be unduly influenced by the pressing matters of our daily life; and I should not be surprised if some of you therefore regard as the object of your highest ambition the possession of a double diploma in the shortest time allowed by law. It may appear to you that if only you are able to pass your primary examination at the Royal College of Surgeons at the end of your second winter of study, and then to pass the final examinations for the diplomas of member of the College of Surgeons and licentiate of the College of Physicians two years later, you will have good reason for self-gratulation, and that you will never be able to reproach yourselves with having mispent these precious years of your life. But the science and art of medicine is one thing, and the science and art of passing examinations in it quite another. Yet, as the demand for the one is immediate and pressing, it is often difficult to keep the mind always engaged in the higher, grander work of unravelling the secrets, and becoming acquainted with the laws, of Nature.

I know of no reason why I should speak evil to

you of examinations; there is an element of evil in them, as in most things human, and were I so inclined I might seize this, exaggerate it, and, disregarding all their countervailing merits, win the hearty applause of those of you who have not yet finished with them, by assuring you that they are fallacious tests of knowledge, the chief cause and encouragement of faulty modes of study, and, as being both deceitful in their results and encouraging deceit in the candidates, to be avoided and spurned by all honest men. But examinations properly conducted are of the highest value, if the limit of the test they afford be steadily kept in mind. Good as they are, however, the concurrent experience of all candidates is that no examination has yet been devised which is so good as to justify its repetition; and although there are some who linger fondly round examination halls and coquet with their diplomas in strange fashion, they are in the habit of explaining their conduct by the malign action of some ogreish examiner rather than by their high appreciation of the delights of oral examinations. Pass your examinations as quickly as you can; but remember that unless you have far better qualifications for practice than the possession of two parchment rolls you will come short of success both as students and as practitioners. Dismiss from your minds at once all such crude notions as that our work as teachers has no higher aim than to enable you to obtain diplomas in the shortest possible time. Diplomas are but the outward and visible sign of a minimum of inward knowledge and education, and in that they testify to *knowledge* rather than to *understanding* they fail, and always must fail to some extent, in their chief purpose.

It is now generally recognized that the purpose of education—as indeed the word itself denotes—is not so much to store the memory with facts as to develop and train all the mental faculties, of which memory is but one. The study of medicine and the sciences upon which it rests is eminently adapted to render this training of your natures complete. Your work will educate many of your bodily powers to a high degree. The practical study of anatomy, of histology, and of ophthalmology will train your eye; the careful practice of stethoscopy will develop your ear; and how can you better train your muscular sense than by dissecting or operating, or by acquiring that gentle strength so valuable in such manipulations as the setting of fractures? You will, however, need to supplement this by some athletic exercise; which should be more vigorous than the act of drawing a pipe, and taken in air clearer and purer than is to be found in a public billiard room. In regard to your mental faculties, it is the case that few pursuits are better adapted for training the memory than are anatomy and *materia medica*. The faculty of observation may be cultivated to its highest pitch by dissection, botany, histology, and the clinical observation of disease. You will find that the development of your powers of imagination is amply secured by a credence of therapeutical records, and the problems of diagnosis will train your judgment as few other pursuits can. Nor is the moral side of your nature uncared for. No thoughtful man can witness unmoved the unrelenting course of Nature, or her wonderful adaptation of means to ends, her patience, or her mystery. To be brought into contact with all classes of your fellow men, under all the varying conditions of pain and disappointment that form so great a share in the lot of everyone of us; to have the responsibility of life and death resting with you, and to be the depository of secrets more sacred than those of priest—for while his refer only to the hidden past, yours often reach on into the veiled future, and enable

you to foretell the slow but certain march of events unborn—these things, with many other incidents of your daily life, are fitted to raise you above the level of our common fallen humanity, and to cleanse the inner currents of your life.

You will believe me when I say that your first aim should be to understand the body in health. The processes and conditions of disease are but modifications of those of health, even although their causes may, in some instances, be organized bodies introduced from without, and the events in their life history. Nor is there a sharp boundary line, on the one side of which is health, and on the other disease; the one state passes by imperceptible gradations into the other. We speak of a standard of health, but it is easier for physiologists to define than for physicians to recognize; and while we can formulate in our minds the earliest steps in morbid processes, they are so minute that we can only observe them in the mass. It is like the growth of the individual. We can define an infant, a boy, a youth, a man, and an old man. We can recognize at a glance well-marked examples of each class, but the progress from one stage to another is so gradual that it is impossible to state precisely where the infant becomes the boy, the boy becomes the youth, the youth the man, and the man becomes senile.

Much of your work in the future will consist in preventing and treating affections which, so far as we know at present, originate in trifling and imperceptible disturbances of the processes of health, and which, allowed to go on unchecked, culminate at length in obvious disease. The *anæmia* met with so often in the inhabitants of large towns, the combined result of bad air, deficient sunlight, unsuitable food, injurious habits of various kinds, overwork and worry, is a case in point. Nor could I choose a better example than is afforded by chronic alcoholism, the sum of the effects of a long-continued indulgence to excess in alcohol. Your first two years will be devoted almost exclusively to the study of the body in the condition of health, and inasmuch as the knowledge then gained is the foundation on which all that follows after must rest, and sets limits to it, and as in those years habits of study, good or bad (to say nothing of habits of life), will be formed by everyone of you, which will help or hinder you in all your subsequent career, you cannot be too intent upon setting out upon the right road under wise guides. This study you will carry on in the classes of anatomy including histology, and physiology including all that part of chemistry which refers to the tissue-changes of the body. Anatomy deals simply with the structure of the body, the form, relations, connections, and consistence of its various component parts; it is a study of physical characters only, and can therefore be conducted on the body after death. Physiology, on the other hand, has nothing to say to structure as a physical phenomenon, but deals with the function, the use of every part, explains the "why" and "wherefore" of every physical feature, and is an exposition of all by which a body during life is distinguished from the same body after death. The wide extent of each of these studies necessitates their being taught in separate classes; but the severance thus made—partial though it be, and of quite recent growth—has rather tended to obscure the essential unity and interdependence of the two sciences. Of late we have heard eloquent dissertations on the *relative* value of these twin sisters, which is as well worthy of discussion as is the relative value of maiden beauty and the power of vision to discern it. The relation between structure and function is a problem of the greatest in-

terest, and the degree in which each is dependent upon the other is by no means a settled point. Viewed historically, anatomy certainly precedes physiology, and the starting-point of physiological science—the discovery of the circulation of the blood—rested chiefly upon anatomical observations. The growth of physiology was coincident with a more detailed study of anatomy; then came the microscope, with its wonderful revelations of intimate structure, and, again, physiology expanded; and this aspect of the science having been fully developed, she is now busying herself with the forces of life itself. So, gentlemen, must it be with you; proceed from anatomy to physiology. If you would learn either well—and this is what I want chiefly to impress upon those who are commencing their medical studies—you must disregard the fact that these two sciences are taught by two lecturers, and view them as one and inseparable. Structure without function is death, and you are here to study life. Function apart from structure is impossible. Unless you study anatomy from the physiological standpoint, you will at best be ignorant of the living body, and blind to the charm that is associated with every scientific pursuit when properly conducted. The mind soon wearies under a load of disconnected facts, but the powers of observation never tire when their acquirements are assimilated by those of the imagination, and association has ever been found to be the chief aid to memory. If therefore you would learn anatomy easily and pleasantly, and would remember it without difficulty, you must search for the physiological equivalent of every anatomical fact. Never be content with any observation until you have grasped the association it has with other facts, and its influence upon the function of the part. To know that the artery of the arm courses along the front of the elbow, while that of the thigh runs along the back of the knee, is to you of small value until you realize the reason for the arrangement, and notice the ill effects that would follow the movements of the joints were the conditions different.

Gentlemen, all this must appear very self-evident to you. But I offer no apology for referring to it, for I have seen only too often the neglect of this truth and practice lead to the shipwreck of the student. It would be no great exaggeration to say that it is the exception rather than the rule for students to study anatomy with what I will call physiological eyes and minds. In place of that they regard it as a dull exercise of memory; the mere addition of fact to fact soon loses all interest to them, and they either lay aside the unwelcome task and abandon themselves to other pursuits not included in their curriculum, or they plod on wearily in their useless work of piling up lifeless "fact-heaps." This is no fancy of mine. The great danger that imperils every one as he enters upon the study of medicine is an unintelligent mode of study; only set out upon your course along the right path, aided by the helps that lie ready to your hand, and you will be safe from the snares and pitfalls that have entrapped the feet of many of your fellows. If you thus study anatomy, not only will you acquire a true scientific knowledge of it, but you will form a habit of thought which will be of the greatest value to you in all your other medical pursuits. What I have said in reference to anatomy applies with equal force to physiology, pathology, medicine, surgery, chemistry, or therapeutics. For example, influenced by this habit of mind, you will not be content to learn simply the mere phenomena of life as described to you by physiologists, but you will push your inquiries into their causes and results, their influence upon each other, and the

consequences of their modification. Thus, to be told that the normal frequency of the pulse is seventy-two beats a minute will only prompt you to inquire why it is of this frequency, how this rapidity is maintained, how it may be modified, and what effects such modifications have upon all the parts and functions of the vascular system. Similarly, you will supplement a knowledge of the fact that the temperature of the body is kept at one uniform level independently of the temperature of the surrounding medium, by inquiries as to how this is secured, and into the causes and consequences of its variation. And so he who converts the science of anatomy into a department of physiology will elevate the study of physiology from a survey of the phenomena into an unravelling of the processes of Life. By working thus you will not only train your minds while you are gaining an intelligent—albeit imperfect—knowledge of the living body in health; but the acquisition of a sound knowledge of disease, and insight into its treatment, will be robbed of its chief difficulties. While your faculties of observation, sharpened by daily use, will quickly make you familiar with the commoner and more important features of the disease, your physiological knowledge and instinct will enable you to assign them to their true causes, and to determine the lines along which your efforts at treatment must be planned. You will see in your patients a series of unwilling physiological experiments of endless variety. You will be struck with the fact that in leaving the laboratory for the wards you have not entered upon a new departure in your work, but that health and disease are but manifestations of the reign of the same laws under different conditions. Indeed, if physiology be understood as the science of Life, then all your studies here will be physiological, and should be continuous, as the subdivisions of one great whole.

The same state of mind is just as essential in the study and practice of therapeutics; the difficulties that beset you there are so great that it requires the utmost vigilance to escape from the domination of "rule of thumb" which satisfies too many among us. Your chief safeguard against this danger will be the early formation of the scientific habit, which becoming a second nature, will render the practice of empiricism almost impossible. Surgical therapeutics, as more scientific and better understood than the uncertain treatment of the physician, will present to you the greater attractions; but each should command your approval only as it can be shown to be in conformity with established physiological laws.

We have lately seen great advances made in the localization and the precise diagnosis of disease. No one can doubt that this has been of great advantage. But, as students, let me caution you against giving your attention too exclusively to this side of disease, to the neglect of its more general aspects. Remember that you always have in your patient, not a disease so much as a disturbance of the workings of that complex machine whose mechanism you become familiar with in the earlier part of your course. You won't understand me to minimize the importance and value of precise diagnosis, but let not precision in one detail or in one direction be associated with carelessness in and neglect of others. It is quite possible to define with the greatest nicety the extent of consolidation of a lung, and yet fail to distinguish between a case of pneumonia that will quickly end in death and one that will as quickly be recovered from. The best example I can give you, however, is that of fever. The condition of fever is met with in association with very varied states, and

the distinctions between different fevers are points to which you will of necessity have to devote much careful attention. But beware lest your desire to be able to distinguish accurately and readily the different febrile diseases from each other lead you to neglect the most careful study of that element which is common to them all—the fever. Among local conditions inflammation affords me a parallel example. Occurring in all tissues, and in many varieties of intensity, with associations the most diverse, it yet is one and the same nutritive disturbance in every case. And therefore, while endeavoring to distinguish different inflammations, don't lose sight of the great uniformity of the process, wherever existing. Degenerations, hypertrophy, tumour formation, and the effects of irritation, are all other examples which I could have used to illustrate the importance of general pathology. Pathology is primarily and mainly general. When you remember that the chief factors in morbid processes—the influence of the nervous system and the circulating fluid—are the same in all tissues and organs, and the intimate processes of nutrition, if not identical, are so closely similar as to be governed by the same general laws, and influenced alike by the same conditions, you will be prepared to find a uniformity in disease as it affects different parts of the human frame. Every local change is a study in general morbid processes, and you will notice that the fact of locality has far more influence upon the effects of disease than upon disease itself. For instance, a cancerous tumour, occurring where it will, affords you a picture not simply or chiefly of a tumour of one special part, but far more strikingly of a particular variety of morbid growth in general; and the knowledge you may gain of its life-history as observed in one region is applicable to a similar growth wherever met with. The importance to the patient of whether the cancer be in the lip or the liver is no doubt vast, but is due to considerations quite other than the nature of the disease from which he suffers.

Take the case of wounds also, and by wounds I mean, of course, all breaches in the continuity of tissues; the modes in which they are produced are but little modified by locality. But of greater interest is it to notice that the healing process is, with insignificant exceptions in matters of minute detail, identically the same in all wounds, whether cutaneous or subcutaneous, whether implicating skin or muscle, or bone or brain; the recognition of this fact simplifies your task as students very greatly. What you see in the healing of a harelip is just what takes place hidden from your view—when a tendon is divided subcutaneously, or in the repair of a well-set fracture; and the healing of an ulcer in the skin is a picture of the re-formation of a bone after its death and removal by the surgeon. The healing process is not only identically the same in all cases—for it consists essentially in the effusion and subsequent organization of coagulable lymph—but the conditions which modify this process, such as position, movement, blood-supply, irritation, and the like, have precisely the same influence upon it in all situations. Thus, it does not require a broken bone to illustrate the causes of non-union of a fracture; a harelip will serve equally well; and from the study of a cut finger we may learn to carry out the treatment of the largest amputation wound.

This fact is not without importance to you. It should add to the interest and zeal with which any case is observed and studied, to reflect that from it lessons can be learnt of general, or even universal, application; the experience gained from any case should extend far beyond that

particular example of disease. It is only as you bear this in mind that you can become in any way qualified for practice by the brief term of study demanded by the curriculum. In four short years you cannot become familiar with disease in all its phases, and with every variety of injury. But you can by diligence, and by patient observation, acquire a knowledge of all varieties of morbid processes, and of physiological therapeutics. As new cases of diseases come under your care you will then be able to unravel and treat them by the application of this knowledge.

But if this be true, it also has some bearing upon the latest fashion in the profession—that of specialism. There is a spirit of evil abroad that would map out the body into cubic inches, and place each segment in the care of a "special" medical attendant. Each of the natural orifices of the body already has its swarm of "specialists," who buzz about it like some cloud of pestilential flies; and attempts are being made to place every artificial orifice under similar false protection, and to hand over the performance of each single operation to those "specially" devoting themselves to its performance. A certain kind of "specialism" is an unmixer good, and a necessary result of the variations in our lot in life, and in our individual tastes. I need not define this accurately to you. In our hospital staff alone there are several distinguished men, who have added to a wide knowledge and ripe experience of the general domain of medicine or of surgery a special acquaintance with the diseases of particular parts. The department of ophthalmic medicine and surgery has always been distinguished by being largely in the hands of general surgeons, and both it and surgery as a whole have greatly profited thereby. And just in proportion as it slips away from the hands of general surgeons into those of men whose purview is limited to the tiny orbs of vision will it be in danger of falling from its present high position.

But of the common form of "specialism," which may not improperly be called a disgrace of our time, I should be ashamed, in this public place, to tell "the truth, the whole truth, and nothing but the truth." If, however, you are seeking for ignorance of the science they profess, for the dishonest arts which degrade a noble profession to the level of a huckstering trade, it is to the consulting rooms of some of these "specialists" that you must go. Some of the fraternity have one good claim to be called "local specialists," in that they are entirely ignorant of every thing that is outside the small portion of the human frame they have chosen to take under their special care. But lest I should be tempted to speak evil of some of my professional brethren I will not further characterize them. One or two of the evil results of "specialism," however, it will be well for you to be on your guard against. The first of these is the tendency to multiply operative methods of treatment. While not saying that these operative measures are, all of them, or of necessity, bad, yet I believe the measure to which a practitioner resorts to them is a very fair working test as to his position in the descending scale of "specialism." A second result, closely connected with the first, is a tendency to complicate these said operations, to invent elaborate instruments, and to make small and unnecessary modifications in recognized proceedings, so that the individual's practice becomes "special" to himself at the same time that it is limited to one narrow region. In this way a clever "specialist" (of the bad order)—who will, of course, have started a hospital of his own—quickly differentiates his practice completely from that of his better-informed fellows. We won't fol-

low him further. But the result which tells most disastrously upon medical students is the fact that as soon as the diseases of any part are relegated to a "special" department, the study of them is neglected by the general body of students. It thus happens that when they leave their hospital, students are, as a rule, less well-informed in regard to the diseases of the eye, ear, throat, and nose than of any of the maladies which are treated by general physicians and surgeons. This again tends to throw the treatment of such cases into the hands of the "specialist," and a vicious circle is produced. We are bidden, however, to look at the great gains that have resulted from the concentration of experience and observation in certain "special" directions. The fact of the advance is incontestible, but by whom has it been made? The valuable aid afforded by examination of the eye, in cases of diseases of the brain, has resulted from the labors of physicians, not of "pure" ophthalmologists. The modification in the operation of lithotomy, which has reduced its mortality by more than one-half, while extending its range, and which has secured it a permanent place in surgery, was made not by "specialists," who perhaps could count their operations by scores, or even hundreds, but by a general surgeon, whose experience, as measured numerically, was small. I believe that an impartial study of the operation of ovariectomy would show the same fact—viz., that the improvements in the operation which have won for it so high a place in surgery have not been evolved by specialists out of their experience in that operation, but have been the result of the application of general surgical principles, worked out by general surgeons, to this particular case. But I do not make any assertion as regards ovariectomy, lest it should lead to discussion, and a perusal of our medical periodical literature of quite recent times will show you that such discussions are prone to degenerate into unintelligent displays of bad temper.

An examination of the causes of "specialism" would lead me too far; but accept my assurance that none of them apply to you as students, and that the idea of "specialism" should never be for a moment entertained by you. And let me again beg of you not to be ensnared by its existence to neglect the study of any part of the body or of its affections, and to avail yourselves of every opportunity of becoming familiar at least with the apparatus used for the diagnosis of the so-called "special" diseases.

And now, gentlemen, it only remains for me to ask you to give yourselves to your work in no half-hearted way. The task before you is no easy one, and it demands and deserves your best energies. The most richly gifted among you will find in it full scope for all his powers; the most humbly endowed may, by patient perseverance and diligent waiting on Nature, learn some of her secrets, and aid her in her task of healing. Your time is short; the graver responsibilities of life will soon be upon the youngest of you, and you must be up and doing if you would not be distanced in your race with Time. You are here to study Nature; take her not alone for your theme, but also for your pattern. You will find her painstaking, persevering, never disheartened by obstacles, full of resource, patiently carrying out her designs through long years or even centuries. Copy her in these things. You will also find that however secret her plans may be, when they are discovered and brought to light they are such as only to excite our admiration as worthy of a God. Imitate her in this, too, and the pure in heart shall see God.

Original Papers.

A CLINICAL AND PATHOLOGICAL STUDY OF LARYNGEAL PHTHISIS.

By GORDON HOLMES, M.D.,

Physician to the Municipal Throat and Ear Infirmary.

History.—Disregarding descriptions of and allusions to throat maladies by ancient and mediæval writers,¹ who doubtless in some instances refer, though indiscriminately, to laryngeal phthisis, we find that the existence of a laryngitis peculiar to phthisis was adumbrated by Morgagni² in 1764, advocated inconclusively during the succeeding half century by Petit,³ Sauvée,⁴ and others, but first clearly insisted on by Louis⁵ in 1825. The latter author, indeed, remarked, that "ulcerations of the larynx, and especially those of the trachea and epiglottis, must be considered as lesions proper to phthisis."⁶

The dictum of Louis, however, being too indefinite, caused most observers of this period to confound all ulcerations of the windpipe under the name of laryngeal phthisis. To terminate this state of confusion, which was more than suspected by certain of the more acute pathologists, notably Trousseau and Belloc, the Academy of Medicine of Paris intervened in 1836, by proposing the "History of Laryngeal Phthisis" as the subject for a prize essay. Upon this the matter was taken up vigorously by Trousseau and Belloc,⁷ who, working conjointly, gained the prize, and proved indisputably by their researches the existence of three kinds of ulcerations in the larynx—viz., phthisical, syphilitic, and cancerous.

The knot being thus far unravelled a new question for elucidation immediately presented itself—i.e., as to whether tubercle is actually deposited in the laryngeal structures. Louis, in fact, had expressly stated that he could find none, whilst Trousseau and Belloc mainly relied on the argument of analogy from the well recognized tubercular invasions of the intestines to prove the similar liability of the larynx;⁸ but they simultaneously confessed that they had never seen any tubercular matter in the latter situation. Subsequent investigations of French pathologists coincided with this view, and the most weighty authorities—such as Andral,⁹ Monneret and Fleury,¹⁰ and Cruveilhier¹¹—concurred in denying positively

the presence of true tubercles in the larynx. Against this statement Barth¹² and Lheritier,¹³ almost alone in their opposition, aver that they have seen unmistakable tubercle in that organ.

During this phase of the debate the German investigators are first heard in the discussion, and under the leadership of Rokitsansky,¹⁴ Günsberg,¹⁵ Tobold,¹⁶ and many others, affirm the existence of actual laryngeal tubercle. Amongst these the voice of Rühle¹⁷ alone is raised in dissonance to contest such a conclusion and uphold the doctrines of French pathology. At this juncture Virchow¹⁸ enters on the scene with a solution calculated to reconcile the adverse parties and rescue the subject from the field of controversy. This chief of pathologists explains in brief that most observers were accustomed to recognize tubercle only in its advanced or caseous form, whereas that "when miliary corpuscles are found in a membrane exposed to external injury they disaggregate, produce ulceration, simple and superficial, but do not become caseous or give rise to any tumour. To this class," he continues, "belong the tubercles of the larynx which give rise to laryngeal phthisis. . . . The larynx is recommended to those who wish to know true tubercle." And farther, he states,¹⁹ "I am absolutely convinced that laryngeal phthisis is due to tuberculization of the larynx; this conviction is based on thousands of observations."

Nevertheless there is still a band of inquirers in active contention over this disease; and we find those who argue that deposit of tubercle is the primary and continuous cause of laryngeal phthisis, and those who oppose this view with the assertion that it originates in some common inflammatory lesion. For the former body Heintze²⁰ is the chief exponent when he exclaims: "Ulceration of the larynx and trachea without simultaneous or subsequent tubercle of the mucous membrane never leads to laryngeal phthisis." And as a prominent partisan of those biased in the other direction, Lefferts²¹ may be selected from his statement: "Ample authority can be brought to substantiate the assertion that the disease is but a chronic ulcerative laryngitis existing in a consumptive patient, and modified in its course and results by the tubercular diathesis." But between the conflicting ranks the main body of laryngologists proceed inattentive to dialects, and engaged only with the clinical demands of the malady.

Semeiology.—Considered *subjectively* patients affected with throat consumption make the complaints inseparable from any condition of cachexia, such as loss of strength, appetite, etc., combined with such special troubles as direct the observer's attention to the state of the throat internally. Of varied prominence these latter are alteration of voice, dysphagia, pain locally, cough, and dyspnoea.

(a) The invariable first symptom is probably alteration of voice, progressing from a mere necessity for increased effort in producing the laryngeal

¹ See the numerous authors in Stephanus (*Medicæ Artis Principes*, 2 tom., Lutetia, 1567), under the headings in the index, "aspera arteria," "Asthma," "guttur," etc.

² De Sedibus et Causis Morborum, Lugduni Bat., 1767, lib. xv., 13, 14.

³ Dissertation de Phthisi Laryngea, Montpellier, 1790.

⁴ Recherches sur la Phthisie Laryngée, Paris, 1802.

⁵ Recherches sur la Phthisie, Paris, 1825, p. 51.

⁶ A traditional error has crept into some of our text-books respecting the views of Lennec on laryngeal phthisis. Ziemssen (*Cyclopædia of Medicine*, vol. vii., p. 834) has the following sentence: "As is well known, Laennec's teaching of the purely tubercular nature of laryngeal phthisis early met with opposition. Omitting the word 'laryngeal,' this statement would be correct. Laennec does not even mention laryngeal phthisis in his *magnus opus* (*Traité de l'Auscultation médiate*, etc., Paris, 1826), nor does he refer to it in any desultory paper.

⁷ *Traité Pratique de la Phthisie Laryngée*, Paris, 1837.

⁸ *Ibid.*, p. 23.

⁹ *Clinique Médicale*, Paris, 1830, t. iv., p. 183.

¹⁰ *Compendium de Médecine Pratique*, Paris, 1836, etc., art. Larynx.

¹¹ *Dictionnaire de Médecine et de Chirurgie Pratiques*, 1834, art. Laryngite.

¹² *Archives Générales de Médecine*, Paris 1839, t. v., p. 142.

¹³ *Mémoire sur la Phthisie Laryngée*, Paris, 1840, p. 20.

¹⁴ *Handbuch der Pathologische Anatomie*, Wien, 1846, Bd. v., p. 435.

¹⁵ *Klinik der Krieslaufs und Athmungsorgane*, Breslau, 1856, p. 388.

¹⁶ *Die Chronische Kehlkopfrankheiten*, Berlin, 1866, p. 65.

¹⁷ *Die Kehlkopfrankheiten*, Berlin, 1861, p. 261.

¹⁸ *Vorlesungen über Geschwülste*, Berlin, 1865, Bd. ii., p. 644.

¹⁹ In Krishaber, *Dictionnaire des Sciences Médicales*, Paris, 1868, art. Larynx, p. 672.

²⁰ *Die Kehlkopfschwindsucht*, Leipzig, 1879, p. 79.

²¹ Supplement to Ziemssen's *Cyclopædia*, New York, 1881, p. 235.

tones, through varying degrees of hoarseness, to complete aphonia²²—i.e., extinction of sonorous articulation. The vocal troubles do not, however, bear a constant relationship to the structural alterations in the larynx, for, as Gerhardt²³ has pointed out, pressure on the right recurrent nerve as it passes through the thickened pleura of a tubercular lung may cause paralysis of the corresponding vocal band with a decided dysphonia, whilst in the case of females a slight congestion of the larynx will often produce aphonia of a character chiefly functional. The interference with speech is usually the immediate cause of the patients applying for medical relief.

(b) At a later stage difficulty of swallowing is likely to present itself; but not without exceptions, and the malady sometimes attains a fatal termination without this symptom. Dysphagia, however, being once felt mostly advances until great pain in deglutition provokes frequent regurgitation of food, and almost prevents the performance of the act. In the worst cases the pain is described as being of an intensely burning character, as agonizing as an actual cautery, and remaining for some time after the throat returns to rest.

(c) In addition to the pain of swallowing there is always more or less tenderness of the larynx on pressure from without, as can be ascertained by grasping the thyroid cartilage between the forefinger and thumb, so as to approximate the cornua. This sign is present at a very early stage, and sometimes seems to precede all others. Nevertheless, pain when the larynx is quiescent is rarely present; a fact "the more remarkable," as Andral observes,²⁴ "because the larynx in health is the seat of an exquisite sensibility."

(d) With respect to cough, this symptom is more allied to whatever pulmonary lesions may exist than to those of the larynx. Great destruction of the laryngeal substance may take place, and cough be altogether absent. Should the lung affection be in abeyance, cough will commonly be so likewise. This fact is well illustrated in a case recorded by Krishaber,²⁵ in which ulcerative ravages proceeded in the larynx for five months without cough, whilst the lungs were not appreciably invaded. Subsequently, however, cough became a prominent symptom simultaneously with the chest lesions markedly declaring themselves. Cough in conjunction with laryngeal phthisis has the peculiarity designated by Trousseau and Belloc²⁶ as "eructant cough," from its similarity to eructation. This phenomenon is due to inability to close the epiglottis, and sounds like blowing through an open tube to expel the mucus. It much resembles the expectorative efforts through the cannula of patients on whom tracheotomy has been performed.

(e) Finally dyspnoea may be noticed as a subjective symptom. In most cases this complication does not originate in the larynx, because a pronounced narrowing of the glottis but rarely arises in the course of the malady. Like cough, therefore, dyspnoea must be relegated to the troubles more intimately dependent on chest lesions.

²² It is worthy of remark that aphonia, though meaning literally "no sound" and primitively speechlessness, is now practically applied to those who can speak only in a whisper. Thus Hippocrates remarks: "ἦν μεθ' αὐτὸν ἐξαίφνης ἀφωνος τις γένηται, σταθεὶς ἀποθνήσκει." *Observationes*, lib. 14, Schol. 33.

²³ Studien und Beobachtungen über Stimmbandlähmung, Virchow's Archiv, 1863, Bd. xxvii., pp. 68, 296.

²⁴ Op. cit., p. 186.

²⁵ Op. cit., p. 653.

²⁶ Op. cit., p. 35.

The objective study of laryngeal phthisis having now to be considered, the general appearance of the patient will often be noticed as very suggestive of consumption. As he enters the practitioner's consulting-room his stooping attitude, his gait indicative of muscular enfeeblement, and the peculiar pallor of his countenance, are usually an instant revelation of the nature of the case, which is often further assured by the first tone of the patient's voice.

The laryngoscope being then called into use will complete the picture of disease, as far as can be seen in the living subject. The appearance of the larynx differs not only according to the stage of the malady, but also with respect to its form. Two varieties of laryngeal phthisis are practically familiar to all workers with the laryngoscope.

1. The first presents itself as a congestion of the mucous membrane of the larynx, scarcely differing perceptibly from a case of subacute catarrh. It is, in fact, generally set down as such until its persistence and progress to considerable thickening, chiefly of the interarytenoid fold, together with the development of the tubercular cachexia, guide the observer to diagnose phthisis. In the beginning of this form the lung symptoms are always least appreciable, sometimes indeed difficult to be recognized with certainty. Many authorities, therefore, agree in calling it *primitive*.²⁷

2. The second variety, less frequent, appears in many respects an antithesis to the first. It is denoted by a well marked anæmia of the larynx, succeeded in a few weeks, perhaps months, by a remarkable swelling of the tissues covering the cartilages of Wrisberg, and the arytenoid cartilages and of the interarytenoid fold. This tumefaction has a peculiar pale, smooth, and somewhat glistening appearance, suggestive of a passive œdema. It produces those pyriform swellings of the margin of the larynx, diminishing in extent from the arytenoid cartilages towards the epiglottis, sometimes unilateral, but mostly symmetrical, noticed by Mackenzie²⁸ and others as pathognomonic of laryngeal phthisis. Although this kind of tumour never exhibits a uniform congestion, it often shows hyperæmia of the inner parts in the form of a capillary injection or a punctiform redness. It may, however, be accompanied by congestion of other portions of the larynx. These are the cases corresponding to the "tubercular infiltration" of some laryngologists, and as the chest lesions are usually in an advanced state they are most patently consecutive.²⁹

Whatever differences may be perceived in cases of laryngeal phthisis at the advent of the disease, in its later stages the condition is alike one of progressive ulceration. The ulcers, having once begun their task of destruction, almost invariably advance without cessation, and consume the tissues of the larynx by superficial and deep extension. Their floor is usually covered with an unhealthy pus, often streaked with blood, whilst their edges are irregular and frequently show an inflamed areola. At first, however, small ulcers of a lenticular shape are commonly observed, but these by their coalescence soon give rise to larger patches, which may present signs of their origin in having a festooned border. The ulceration attacks with nearly equal frequency the arytenoid cartilages, the ventricular bands, and the epiglottis. Türk,³⁰ indeed, considers that the first ulcers

²⁷ See Krishaber, op. cit., p. 660, Bœckel, Dictionnaire de Médecine et de Chirurgie Pratiques, t. xx., Paris, 1875, p. 258.

²⁸ Diseases of the Throat, etc., 1880, p. 372.

²⁹ See Bœckel, op. cit., Krishaber, op. cit.

³⁰ Klinik der Krankheiten des Kehlkopfes, Wein, 1866, p. 374, Taf. xvii., etc.

are situated on the posterior laryngeal wall, at the lower part of the interarytenoid fold, but under these circumstances it is very difficult to see them with the laryngoscope. The vocal bands participate early, and invariably in the morbid process, and become congested, swollen, and marked by small pink granulations; but ulcers, though always present, especially at the posterior part of the opposite edges, in the vicinity of the vocal processes, are scarcely so rapid and destructive as in the other localities.

Laryngoscopic inspection will generally reveal the cause of such subjective symptoms as emanate from the larynx. Difficulty in swallowing may thus be traced to swelling of the arytenoid cartilages and epiglottis, impeding the closure of that valve, and also, probably to stiffening of the perilaryngeal structures, by tumefaction, or otherwise, hindering the necessary raising of the larynx by the elevators of that organ in the act of deglutition. On the other hand, pain in swallowing is indicated visibly by ulceration of the epiglottis, chiefly at the margins, and often by ulceration of the arytenoid cartilages, so disposed as to be brushed by the bolus of food in its descent. Entry of food into the larynx can be explained by imperfect closure of the organ by the epiglottis or the ventricular bands through hampered action or loss of substance of those parts. Interferences with phonation will be found to result from fixity of the vocal bands, caused by swelling of the adjacent tissues, by immobility of the crico-arytenoid joints, by actual paralysis of their motor nerves, or by mere muscular paresis. But in advanced stages, when the vocal bands are almost completely eaten away, the patient may produce crude vocal sounds in various peculiar and abnormal ways, such as by approximation of the ventricular bands, or even, as in a case noticed by Krishaber,²¹ through a kind of glottis arising from an unnatural proximity of the epiglottis and arytenoid cartilages.

As regards expectoration, the bulk of it is furnished by the respiratory tract below the larynx. That which comes from the latter organ is peculiar in often containing fragments of ossified and necrosed cartilages; also straight elastic fibres which Rühle,²² in contradistinction to the looped fibres of pulmonary sputa in phthisis, thinks can be recognized microscopically as proceeding from the vocal bands. Hunter²³ once saw the entire cricoid cartilage rejected. It is not uncommon for the larynx to be almost filled with frothy mucus, which renders laryngoscopic observation almost impracticable.

Pathogenesis.—As all questions relating to the origin of tuberculosis have been reopened by Koch's discovery of the tubercle bacillus, so the etiology of laryngeal phthisis must, in some points at least, be reconsidered in the presence of the new light. Leaving out of sight, however, the great problem as to how the constitution becomes tubercular, it is evident that former observations as to the subsequent progress of the malady may not demand an entire readjustment.

One of the most indeterminate points of inquiry respecting throat consumption is whether the larynx is ever affected before the lungs have been actually attacked. The most acute observers in this field maintain that no laryngeal phthisis ever exists until after the lungs are invaded. The delicacy of the question may be estimated by instancing Ziemssen,²⁴ who, in trying to hold this ground,

appeals to the sign notified by Seitz as to the comparative height of the lungs: if one is found to be more depressed than the other at its apex, it is decided to give evidence of tubercular cicatrization. Yet some good authorities, such as Förster,²⁵ believe in a primary laryngeal tubercle.

Now, although the laryngeal lesions in an advanced state are never dissociated from pulmonary phthisis, yet it is certain that the disease may be very evident in the larynx whilst lung symptoms are almost inappreciable. And on this account formerly arose the question answered in the affirmative, though hesitatingly, by Cruveilhier²⁶—i.e., whether a simple chronic laryngitis could, by developing into laryngeal phthisis, lead to pulmonary consumption. But to this proposition a direct negative can now be returned, as, in the absence of any specificity, no tuberculosis could be established. At the same time it may be logically assumed that such a sequence could occur, not merely in semblance, but in a practical sense. For, by the presence of a simple chronic laryngitis the larynx might become a *locus minoris resistentiæ*, and hence, whilst being initially obnoxious to phthisis, be the point of first outbreak, either through increased liability to direct inoculation or general infection by the bacillus. In conjunction with this theory, however, the question as to the necessity for a constitutional bias or receptivity would have to be considered.

A further point for discussion concerns the morbid action of the sputa ejected from the diseased lungs.⁴ Most early authorities, beginning, it appears, with Sylvius, have argued that phthisical expectoration has an infective or corrosive quality. Amongst them we find Louis,⁵ Trousseau and Belloc,⁶ etc., who are inclined to recognize here the exciting cause of many, if not all, cases of laryngeal phthisis. So far, however, we have no conclusive evidence on this point, but Ziemssen⁷ believes the shallow, extensive ulcers, or rather erosions, of the windpipe so commonly seen at the autopsy in this disease own such an origin. Assuming slight excoriations of the larynx and trachea to exist, through the presence of simple catarrh provoked by cold or the irritating influence of a hacking cough, it has yet to be ascertained that the bacillus, being thus inoculated, would produce *in loco* a fresh deposit tubercle.

The proportion of cases of laryngeal phthisis met with amongst those of pulmonary consumption is shown by the statistics of Willigk,⁸ founded on 1317 cases, as 18 per cent.; by those of Heinze⁹ drawn from 1226 instances, as 30·6 per cent. Statistics given, however, by Mackenzie¹⁰ and Ormerod¹¹ based in each instance, on 100 cases, prove that, if slight morbid changes in the larynx are included, only about 25 per cent. of cases of lung tuberculosis can be pronounced free from laryngeal disease. It is left for the future to determine whether any uniform relations exist between the disease in the larynx and that in the lungs, as to the stage of the latter, and also as to its course, whether rapid or slow.

Sex and age are to be accounted as sources of

²¹ Op. cit., p. 653.

²² Op. cit., p. 265.

²³ Cited by Monneret and Fleury, op. cit.

²⁴ Op. cit., p. 43.

¹ Lehrbuch der pathol. Anat., Jena, 1875, p. 123.

² Loc. cit., p. 26.

⁴ Morborum internorum prope omnium Curatione, etc. (Parisii, 1545), p. 47.

⁵ Loc. cit.

⁶ Loc. cit.

⁷ Op. cit., p. 838.

⁸ Prager Vierteljahrschrift, 1856, Bd. xlii., 2, p. 10.

⁹ Op. cit., p. 25.

¹⁰ Op. cit., p. 366.

¹¹ St. Bartholomew's Hospital Reports, 1883.

predisposition to laryngeal phthisis. How far they are so effective is illustrated by the annexed table of 227 cases treated by the writer:—

Age.	Males.	Percent.	Females.	Percent.	Total.	Per cent
15 to 20	8	3.5	6	2.7	14	6.2
20 " 30	67	29.5	32	14.1	99	43.6
30 " 40	52	22.9	25	11.0	77	34.0
40 " 50	19	8.4	6	2.7	25	11.1
50 " 60	9	4.0	3	1.3	12	5.3
	155	68.3	72	31.8	227	100.2

These statistics show no marked divergence from similar calculations by other observers, but a few cases under ten years and over sixty have been met with by Mackenzie, Heinze, and others.

No decided predisposing influence with respect to laryngeal phthisis has been traced to occupation. There is, perhaps, some slight evidence that sedentary indoor employments favor the development of the disease.

Pathological Anatomy.—It is represented by Krishaber¹² that in the early or catarrhal stages the lesions are more serious than could be supposed from mere laryngoscopic observation. Rindfleisch¹³ has shown that in ordinary catarrh the mucous secretions make their way through the epithelium without destroying it, and Förster¹⁴ has carried the investigation further by proving that even in purulent catarrh the mucous membrane loses very little of its epithelium. But in laryngeal phthisis the epithelium desquamates at a very early period, and a purulent exudation is quickly established from the denuded surface.

The ulcers in laryngeal phthisis are found to have different modes of origin, and hence to exhibit several distinct forms. For, in addition to those pathognomonic ulcers arising from deposit of tubercle, three other kinds have been distinguished by various observers. These latter, though not indubitably peculiar to phthisis, have nevertheless characteristics which are apparent only when they are associated with that disease.

(a) The tubercles of the larynx have the intimate constitution of those found elsewhere. Their progress is best described by Fränkel,¹⁵ the most recent observer. They are first deposited in the mucous membrane beneath the epithelium, and then by the rapid destruction of isolated or conglomerate masses of tubercle a superficial ulcer is formed, which spreads more on the surface than by penetration. The border of the ulcers is round and shows an inflamed area, and their floor is caseous and covered with detritus. Tubercles are also deposited in the walls of the ulcers; indeed, as Heinze¹⁶ shows, their whole superficies may consist of a layer of tubercle. The tubercles are well supplied with myeloid cells, and appear to affect by preference the lymphatic tissue of Coyne.¹⁷ Heinze¹⁸ alone finds that, besides the fresh tubercles, there are others of "old date, with slight beginning of fatty metamorphosis or such marked caseation that only a small ring of the original form is seen."¹⁹ According to the same authority, when the mucous membrane is infiltrated with tubercle it is thickened three or four-fold, and he describes the state of the bloodvessels²⁰ in the

masses of tubercle. Thus the walls of the veins are entirely replaced by tubercle, whilst the adventitia and intima coats of the arteries succumb in the same manner, but the muscular tunic exists through all comparatively intact. In fact the muscular system of the larynx holds out to the last against the morbid process, although tubercle may pursue its ravages in the connective tissue between the fibres.

(b) Amongst the non-tubercular ulcers are found some which arise from disease of the racemose follicles. These have been studied by Rindfleisch²¹ and Rheiner²² with especial care. The pathological process appears to be at first quite similar to that which constitutes the characteristic lesion of follicular or granular sore-throat. These ulcers occur, of course, exclusively in the track of the glands—i.e., at the base of the epiglottis, over the arytenoid cartilages and ventricular bands, below the vocal bands, and in the trachea. The follicles become distended with inspissated secretion of a caseous or curdy consistence, which exudes slowly from their ducts, appearing at the orifices as a white patch or a thread-like filament. But in laryngeal phthisis this stage, which is permanent in the milder disease, is of brief duration, for a destructive process is quickly superadded, pus is mingled with the caseous contents of the gland, the duct is dilated and eaten out, and the whole mass discharged, leaving a cup-shaped pit or cavity, which secretes pus, and soon forms a progressive ulcer. These are the accretions some advocates of the tubercular larynx formerly exhibited as tubercle, to be triumphantly proclaimed in error by their opponents, who had demonstrated the real nature of the follicular lesion.

(c) A third kind of ulceration has also been brought to notice by Rheiner.²³ He describes it as originating in an infiltration of the subepithelial layer of the mucous membrane with cells and nuclei. He explains it to proceed from the peculiar vulnerability of the soft parts observable in tuberculosis; and hence all parts of the larynx exposed to pressure during the varied activity of the organ are liable to be attacked by an inflammatory cell-proliferation. Although Ziemssen accepts this view unhesitatingly, Heinze²⁴ rejects it altogether, alleging several not very cogent reasons for his dissent, such as that the vocal processes do not come into contact during phonation on account of adjacent swelling, etc. It must be remembered, however, that Heinze²⁵ is inclined to attribute a more universal rôle to tubercle in the larynx than it clinically appears to possess; although, by his own showing, in eight out of forty-seven cases examined microscopically he could not demonstrate the tubercle.²⁶ Logically it must be confessed there is good reason to believe in the correctness of Rheiner's hypothesis. Why, for instance, is the inter-arytenoid fold generally the first part attacked, unless by reason of the constant pressure to which it is subjected during phonation? Why have ulcers such a predilection for the arytenoid cartilages and under-surface of the epiglottis—parts squeezed to death, as one may say, when

¹² Loc. cit.

¹³ Virchow's Archiv (1861), Bd. xxi., p. 486.

¹⁴ Würzburger medizinische Zeitung, Bd. i., Hft. 2.

¹⁵ Berliner klinische, Wochenschrift, Jan. 22nd, 1883.

¹⁶ Op. cit., Taf. i., etc.

¹⁷ Recherches sur l'Anatomie normale de la Muqueuse du Larynx, Paris, 1874.

¹⁸ Op. cit., p. 64.

¹⁹ See also Förster, op. cit., p. 299.

²⁰ Ibid., p. 67, Taf. iii., 16.

²¹ Lehrbuch der pathologische Gewebelehre, iv. Aufl., 1875, p. 325.

²² Ueber die Ulcerations processe, im Kehlkopf, Virchow's Archiv, Bd. v., 1853, p. 534.

²³ Ibid.

²⁴ Op. cit., p. 83.

²⁵ Ibid., p. 43.

²⁶ Heinze rather dogmatically remarks: "The so-called phthisis of the larynx and trachea is henceforth to be applied only to tubercle of the laryngeal and tracheal mucous membrane;" and, at the same time, he proves that in his period, before the bacillus, the ulcers could only be recognized as tubercular at the post-mortem table with the microscope.

swollen by being jammed against each other in deglutition? Why are the edges of the vocal bands so prone to ulceration, even when no other part is affected, not only in laryngeal phthisis, but in syphilis and simple chronic catarrh? Because it is precisely these edges that bear the strain of extension and vibration during speaking, coughing, etc., being more constantly in action than any other part of the larynx. Similarly, the tissue covering the vocal processes is subjected to the most destructive kind of pressure by being stretched and strained over those hard points in phonation, even though they may not actually touch. So far, therefore, from allowing that Heinze "has disposed of" Rheiner's views,²⁷ a little reflection will show them to be as firmly established as ever.

(d) Finally, we have the shallow extensive erosions of the larynx and trachea noticed by Trousseau and Belloc as being uniquely found in phthisis. These scarcely penetrate the subepithelial layer of the mucous membrane, and have a flat grey floor, often resembling, as Förster remarks,²⁸ a diphtheritic exudation. Their margins are neither elevated nor indurated, and they are conspicuously absent on the anterior wall of the wind-pipe, where, it may be assumed, the mucous membrane is least exposed to the constant passage of sputa. The presence of such solutions of continuity is thought by Ziemssen²⁹ to force on us the acceptance of the theory of a corrosive action of the pulmonary sputa. Yet Förster thinks that even these may be tubercular. Whether this corrosive action is to be considered as something distinct from the infective nature of the bacillus, or whether the conflicting opinions may not be reconciled by allowing a local denudative power to the bacillus, especially when resting in congregation on a morbidly tender mucous membrane, are propositions awaiting solution.

The subject of perichondritis, leading to necrosis and caries of the cartilages of the larynx, does not come within the scope of this article, although the destructive ulceration of laryngeal phthisis naturally culminates in this lesion. In the cases examined by Heinze,³⁰ it was not observed in connection with undoubted non-tubercular ulceration.

Diagnosis.—In the earliest stages the advent or existence of laryngeal phthisis must be chiefly a matter of surmise, and the practitioner should be on his guard against predicting the misery of this disease for every consumptive patient who may fortuitously become the subject of some intercurrent congestion or catarrh of the larynx. When, however, pronounced symptoms of chronic laryngitis are present, or the peculiar tumefaction of the larynx is observed, the approach of destructive ulceration may be regarded as a matter of course, provided there is no doubt as to the chest lesion. But in the absence of decisive pulmonary evidence the ulcers have not, theoretically at least, pathognomonic characters. Fränkel,³¹ however, thinks that the lenticular ulcers with the red areola can be recognized unmistakably in the first periods of loss of substance. The same authority advises the examination of the laryngeal discharges for bacilli. For the purpose a quantity may be obtained by wiping it off the surface of the ulcers with a brush, the operation being carefully watched in the laryngeal mirror. By Ehrlich's method of staining and the

microscope the inquiry is completed. In practice it is seldom possible for the laryngoscopist to be mistaken about a case of ulcerative laryngeal phthisis. On the one hand the diagnosis is almost invariably affirmed by the state of the constitution and chest, whilst on the other it is clearly negated by the well-known collateral phenomena so prominent in syphilis, carcinoma, and lupus, the only other chronic maladies in which destructive ulceration occurs. The occasional coexistence of one of these diseases with consumption must not, of course, be lost sight of.

Prognosis.—All that may be doubtful respecting the course and termination of a case of pulmonary consumption may be practically considered as removed by the supervention of laryngeal phthisis. This manifestation of tuberculosis not only assures, but also hastens, the fatal issue. The indefinite prolongation of life so common in purely pulmonary phthisis, as well as the possibility of a virtual cure, must not be contemplated in the presence of phthisical ulceration of the larynx. All laryngologists may be taken as in agreement on this point. Ziemssen³² thinks that particular ulcers sometimes cicatrize, but without retarding the course of the disease, as the general destructive process continues unchecked. Out of many hundreds of cases Mackenzie³³ has only seen four in which the malady could be set down as arrested. Krishaber³⁴ believes that the form supposed to be initial may have an indefinite duration, but from previous statements in this article it will be readily understood that these instances cannot fairly be reckoned as laryngeal phthisis until the ulcerative stage is reached. The latter author, like the rest, allows that the disease is hopeless when fully developed. Mackenzie gives statistics as to the duration of life after the laryngeal symptoms have become prominent. Eighty-eight cases out of one hundred persons who died of the disease were fatal in periods varying from six months to two years and a half. Of the rest the longest survival was forty-nine months.

Treatment.—In addition to the treatment of pulmonary consumption, all laryngologists are agreed as to the palliative value of certain local measures in laryngeal phthisis. These belong chiefly to three classes—viz., application of astringents, of sedatives, and the performance of tracheotomy.

1. Astringents are of use in modifying the condition of ulcers, especially by reducing their irritability, and there is no doubt but that they will often cause the non-tubercular ulcers to heal. Solution of perchloride of iron (60 to 120 grains to the ounce) is probably better than any other remedy of this class. It may be applied to the larynx with a brush once or twice daily.

2. Sedatives are imperatively demanded when the pain of deglutition is severe. Under this heading morphia alone needs prominent mention. If administered by the mouth or hypodermically it is effectual; but when applied locally experience shows that it acts, not only directly, but in a more restricted manner as regards the laryngeal symptoms. An eighth of a grain of muriate or acetate of morphia mixed with three or four times its bulk of powdered starch may be blown into the larynx through the curved tube once daily, or every morning and evening. This insufflation is decidedly superior to any other means of applying the sedative. Some practitioners, however, prefer the drug in a fluid vehicle, mixed with glycerine, for example.

²⁷ Mackenzie, *Op. cit.*, 368.

²⁸ *Op. cit.*, p. 312.

²⁹ *Op. cit.*, p. 838.

³⁰ *Op. cit.*, p. 71.

³¹ *Loc. cit.*

³² *Op. cit.*

³³ *Op. cit.*, p. 333.

³⁴ *Op. cit.*, p. 661.

Krishaber employs a solution in cherry laurel water of equal parts of extract of opium and extract of belladonna, about six grains of each to the ounce.

3. Although tracheotomy in laryngeal phthisis has not found much favor in this country, it has been extensively practiced in America and on the Continent. Unless for the actual relief of dyspnoea, the operation has not hitherto been resorted to by British practitioners. Its performance is advocated, however, at a comparatively early stage, in order to bring the larynx into such a state of rest as will facilitate the healing of ulcers, or check their tendency to spread as far as it may depend on mechanical irritation. The experience of Leferts supports this view, and his opinion is that "tracheotomy when not left till too late is to be recommended in all proper instances, through being sometimes curative and generally palliative as a means of prolonging life by relieving suffering."

Finisbury-square.

ON THE TREATMENT OF MEASLES.

By D. MACLEAN, M.D. Glas.,

Physician to the Glasgow Public Dispensary, Chest and Throat Clinique.

In the present prevalence of this disease it may not be out of place to call attention to a method of treatment which has been found, in my hands, of what might be called universal success. Considering that this disease is one that must be passed through by almost all members of the human family at some period of their existence, we may take it for granted that it is something essential that the human frame should undergo for the purpose of perfect health. Taking also for granted that it is the cause of cutting short many lives, it behoves us to take advantage of every means that can abbreviate the duration of the disease and diminish the mortality which so unhappily springs from it. We see every now and again in the journals and newspapers that an epidemic of measles has taken place in such and such a quarter, and that it was necessary to close the schools, etc. Nor is it only in our own country that we learn of so many deaths taking place, but we read of how its fearful ravages decimate whole populations, such as have recently taken place in Fiji. It thus seems essential that any form of treatment (for we cannot apparently prevent the onset) that can diminish the mortality must be of paramount importance whenever these epidemic or even sporadic cases appear. The form of treatment which I propose to lay before the members of our profession, and the remedies which I have been in the habit of using for a good many years, will enable them to try the same in their own practices, and ultimately refute or corroborate the conclusions I have long ago arrived at.

As this disease is considered one of the zymotic class, we have in its treatment, to consider, principally two things—(1) the management of the ferment, or whatever it is; and (2) the management of the effects of this ferment upon the system. The most marked of these latter present themselves to us in the effects of the ailment upon the mucous membranes. The greatest action of the disease, as we all know, is upon the mucous membrane of the lungs, and it is from its action there we have the immediate cause of the ensuing death, or the prolonged ill-health afterwards. We have thus clearly set before us the line of action to follow:—(1) To relieve the congestion of the mucous membrane, which is the immediate cause of danger; and (2) to destroy or reduce the violence of

the disease itself. This I have been in the habit of doing, I believe successfully, by giving (say to a child of two or three years of age) a teaspoonful in water of the following mixture every three hours:—Ipecacuanha wine, half a drachm; syrup of squilla, half an ounce; quinine, two grains; acetate of ammonia solution to two ounces. Of course the quinine is increased according to age. We have thus in this mixture a stimulating expectorant and diaphoretic to relieve the tension in the mucous membranes and the skin, and also in the quinine a specific to destroy or abate the violence of the primary ferment. It may be necessary to add to or modify the form in which this plan of treatment is carried out; as when the irritation and cough are persistently great, then the addition of a little tincture of hyoscyamus is all that is necessary. So with the quinine; sometimes the stomach is so irritable that it is necessary to omit it from the mixture; but as it is essential that it be introduced into the system for the destruction of the ferment, it can be administered separately by giving it in powder, mixed with saccharated carbonate of iron, which diminishes the irritant action of the quinine that takes place when the drug is given alone.

This form of treatment for measles is good in all types of the disease, whether the attack be mild or severe, and more especially valuable when we have that dangerous form in which the eruption is of a deep-purplish color, a form which is generally recognized as being the most fatal. This style of treatment I have followed for a number of years. I have seen many cases, and, as a justification for submitting it to the notice of the profession, I do not remember having signed a certificate of death for either the disease itself or its effects.

Glasgow.

ON A CASE OF CYSTIC POLYPUS OF THE RECTUM, COMPLICATING PARTURITION.

By P. ENGLEDEUX PRIDEAUX, M.R.C.P. Lond., etc.

Mrs. H—, the wife of a tradesman, aged twenty-eight, was delivered of her first child on May 12th, 1881. The labour was long and tedious; the first stage was very prolonged, the os dilating very slowly. Then the head was arrested in the pelvis, and, in spite of very violent pains, made no progress. I could discover nothing to account for this; the pelvis seemed well-formed and of good development. After waiting for some time, in deference to the patient's wish, and finding the pains ceasing, I applied Barnes' long forceps, and after using some force, delivered her of a male child, which appeared to have been dead some days. The perineum was ruptured; I placed a deep stitch in it, and it healed completely in a few days. The patient progressed very well, and was convalescent in the ordinary time.

The second labour took place on April 27th, 1882. The first stage was very long, lasting over two days, accompanied by a persistent dragging pain on the left side of the body, which seemed to be from one spot. I noticed that the rectum seemed full high up, and thinking it was caused by feces, ordered an injection, which however brought away nothing. The labour progressed very slowly, and the patient complained of this intense pain, which seemed as much as she could bear, and was evidently quite different from the labour pains themselves. Finding that she was becoming exhausted, and the head did not advance in the least, and seemed arrested high up, I introduced Barnes' long forceps, and for a long time was unable to make any impression with these; at last, after con-

tinuous and firm traction, the head seemed to slip past very suddenly, coming out through the external orifice before I expected it, causing extensive rupture of the perineum right through into the anus. The rest of the labour was easily accomplished, the child, a fine girl, being born alive. I put in several deep wire sutures in a manner I always have found successful; banded the patient and left her fairly comfortable, but still complaining of pain in the side, for which I gave her a dose of opium. At night I found the abdomen distended apparently with flatus. I ordered a draught of morphia and a hot bran poultice. The next morning the abdomen was more distended, but no excessive tenderness; still complaining of acute pains from one spot. Temperature normal. The abdomen went on distending all this day and seemed full of gas, little or none being passed. There was no tenderness over the general surface. Temperature at night 99.5°. There was slight sickness in the night, otherwise food had been taken very well; gave some morphia and bismuth. On the morning of the third day the abdomen was swollen and tense, like an immense drum, evidently enormously distended with flatus; no pain; temperature 99.5°; pulse good, but somewhat quickened and varying. She looked well and cheerful. I made an examination, and found in the rectum a large swelling about the size of a foetal head, freely movable, and which I thought at first to be intrussuscepted bowel coming down. I was the more confirmed in this as I thought I detected a central opening. After spending a long time in trying to reduce this by gentle manipulation, I sent for, and obtained the advice of, Mr. Wm. Liddon, of Taunton. He made a careful examination, and came to a conclusion similar to mine. We found, however, that we were unable to pass a catheter up what appeared to us to be the central opening, whilst we found we could pass a long tube up between the tumour and the rectum; this let off a quantity of gas, and materially relieved the patient. As the case was so obscure, we determined upon reopening the perineal wound, and enlarging it up the recto-vaginal septum, thus exposing the tumour to view, the patient being placed in the lithotomy position. We at once saw that it was not covered with mucous membrane; its surface was rough, and much injected. The part we had taken for an opening was a dimple with a small appendix to the tumour. We then dragged it down, and found it to be a cyst as large as a foetal head, with a long narrow pedicle, reaching far out of reach up the bowel; we could make out at least six inches; we then tied it in two places, cut it off with scissors, and allowed the rest of the pedicle to remain. The tumour when opened contained about half a pint of a thick albuminous fluid, with one part a little thicker than the rest; its wall was found one-eighth to a quarter of an inch thick, much bruised and ecchymosed in parts, probably from the delivery by the forceps. After removing the tumour the abdomen soon went down, with great relief to the patient. The rent was carefully stitched with deep and superficial sutures, and a morphia suppository was inserted. The further progress of the case was satisfactory, and would have been more so but for an intractable diarrhoea which set in soon after the removal of the tumour. It appeared to me that the tumour had acted as a chronic obstruction to the bowel, and its removal, combined with the bruising of the bowel by the forcible delivery, were the causes of this diarrhoea. I found that with apomate powdered chalk and subcarbonate of bismuth frequently administered, together with morphia suppositories, I just managed to keep in check this diarrhoea, but it un-

fortunately retarded the healing of the wound in the recto-vaginal septum, and ultimately a small opening was left. By frequently touching the edges of this with acetum lyttæ it has, however, so contracted that it has not proved a source of annoyance to the patient. With regard to the rest of the details, the progress of the case was everything that could be desired, the patient never had a bad symptom, the temperature never rose above normal, there never was any tenderness over the abdomen, and the dragging pain ceased, and the convalescence of the patient became established in a time very little longer than after ordinary parturition.

The case is an exceedingly rare one, there being but one or two recorded cases, and the length of the pedicle making it quite unique. I am of opinion that the tumour existed during the first labour, and grew in size from the bruising inflicted on it by the delivery, and that it lay usually in a bend of the colon, but was pushed down in the second delivery by the descending child, and then blocked the bowel completely, like a blown-out Barnes' bag. There had been for some years trouble with the bowels, in the shape of constipation, but nothing to excite suspicion of any tumour.

Wellington, Somerset.

ON A CASE OF SPINA BIFIDA MASKED BY A FATTY TUMOUR.

By ARTHUR JEFFERSON, M.R.C.S.,

House-Surgeon, York County Hospital.

MARTHA M—, aged four, was admitted to the hospital under the care of Mr. Jalland in October, 1882. Her mother stated that from birth the child had had a tumour on her back, which lately had become larger, and commenced to give rise to a certain amount of pain, and that also there had always been more or less incontinence both of urine and faeces. On examination the patient presented on her left buttock a largish tumour, which gave to the gluteal region a unilateral Hottentot confirmation. The tumour had no apparent boundary, but gradually shaded off into the trunk and leg on the same side; on firm pressure no diminution in its bulk occurred; on gentler manipulation it gave to the fingers a semi-fluctuating sensation. The upright position caused no apparent increase in the tenseness of the enlargement, but in the erect posture the unilateral nature of the tumour, so very distinct in the prone position, was somewhat modified, and it became apparent that the vertebral column ran beneath the swelling, about one-quarter of which was to the left of the spine, the remaining three-quarters to the right. For about ten days the child was watched, and it was found that there was persistent incontinence of urine and occasional incontinence of faeces. It was now decided to explore the tumour with a trocar and cannula. This was accordingly done under the spray, the puncture being made to the left of the swelling, over the spine; but though many different-sized trocars were used still no fluid came away. In order to explore further an incision was now made vertically down the swelling, and carried through the fat to a depth of about two inches. On the sides of this incision was seen a stratum of vascular connective tissue which divided the fat into two layers, a superficial, thin, normal layer and deeper abnormal one. These two layers were now separated from one another; but no lateral limits to the new fat being found, it was resolved not to enlarge the primary incision, but simply to remove through it as

much of the fatty growth as could be got at. While dividing the deep attachments a cyst was suddenly punctured, and about half an ounce of clear fluid gushed out. The wound was now sewed up and a gauze dressing applied. After the operation the child suffered no pain; on the third day, the bandages having become moistened by urine, the wound was dressed. There was no pus, and it looked healthy; it was impossible to say whether any serous oozing had occurred, the dressings being so wetted by urine. On the night of this day the child, who previously had had no bad symptom, vomited once, her temperature being, as on all previous nights, a little over 98° F. On the following morning, fourth day after the operation, it was reported that the patient had been unable to keep anything down, her temperature was 96°, her body felt very cold, her pulse was feeble and slow, and she seemed very listless. These symptoms appeared to point to carbolic poisoning; the urine, however, could not be taken as a guide, being passed into a mackintosh in contact with the carbolized dressings. Eucalyptol dressings were applied, and stimulants with digitalis administered. In the evening the child's condition was more serious; she was quite conscious, but more listless. The vomiting now occurred about every ten minutes, quite irrespective of the taking of food. The surface of the body was peculiarly cold, the temperature still being 96°, and the radial pulse could not be felt. On stethoscopic examination the heart's action was found to be very feeble, the pulsations being much increased and varying in rapidity, with occasional intermissions. It was now evident that the vomiting and other symptoms had some cerebral cause. The child was wrapped in blankets, hot water bottles were applied, and enemata of brandy and digitalis administered at frequent short intervals. The symptoms continued, and ended the following morning in a convulsion, during which the patient died.

Post-mortem examination.—On forcing apart the edges of the incision, which had partly united, the opening into the cyst was seen; a director being passed through this the cyst was opened up. The cavity thus exposed was about the size of a pigeon's egg, smooth and glistening on its inner surface, bounded above by the lamina and spinous process of the first sacral vertebra, coming out from beneath which was the termination of the spinal cord, which, passing downwards and backwards, was attached to the cyst-wall, the spinal cord, parietal layer of arachnoid, dura mater, and fat being at this point fused into one mass. There was no cerebro-spinal fluid even on placing the body erect. On opening the skull, the sinuses and veins of the brain were found to be enormously engorged with blood, the ventricles were destitute of fluid, and the choroid plexuses much distended. Save some pulmonary congestion, the other organs of the body were apparently healthy.

Remarks.—In this case there was no internal hydrocephalus, the cerebro-spinal foramen being patent, therefore an opening into the spinal canal having been made, the cerebro-spinal fluid was naturally drained off, and its reaccumulation prevented. In consequence of the constant drawing off of this cerebro-spinal fluid the vessels of the brain, being no longer subjected to their normal pressure, with more or less rapidity dilated; it may be supposed that this dilatation increased gradually, step by step, until the third day, when the brain became so much engorged as to fall and press with more or less force on its base, on which the unsupported cord would also drag heavily. The resultant of these two forces—the weight of the brain and the drag of the cord—would pass down-

wards and forwards through the medulla oblongata, which would be pressed on to the basilar process of the occipital bone, the fourth ventricle being flattened out on the top of it. As a consequence of this, the various nuclei in the floor of the fourth ventricle became irritated; the first of these centres roused to activity would seem to have been the vomiting centre; next the vaso-motor and cardio-inhibitory centres, producing on the one hand pallor and coldness of the surface, in which the cerebro-spinal congestion would assist, and, on the other hand, weakness and irregularity of the heart's beat; finally, just before death, the respiratory centre was also involved and the asphyxial convulsion occurred which terminated life. This case illustrates some of the consequences of the withdrawal of the cerebro-spinal fluid. It is possible that had the child been placed face downwards, with its buttocks elevated, its life might have been prolonged.

York.

A CASE OF EPILEPSY.

OBLIVIOUSNESS OF DANGEROUS ACTS; MEDICO-LEGAL BEARINGS; VALUE OF PERCUSSION OF THE SKULL.

By A. ROBERTSON, M.D., F.F.P.S.G.,

Physician to the Towns Hospital and City Parochial Asylum, Glasgow.

THE following observations are largely based on a case which lately occurred in this hospital, of which a careful record was made by my late assistant, Dr. Williams, now of the Denbigh Infirmary. His report is as follows:—

W. K—, aged forty-five, a soldier, was admitted on Jan. 25th, 1882. Five years before admission he had a sunstroke in India. Epileptic seizures set in shortly afterwards, and recurred at intervals of from a month to six weeks till the time of his admission into the hospital. Under a combination of the bromide and iodide of potassium, half a drachm of the former and ten grains of the latter, thrice daily, the intervals were somewhat prolonged. On Feb. 23rd of this year he had a convulsive fit, which left him irritable and quarrelsome, but apparently quite conscious of all his actions. On the 24th, while in this mood, he suddenly attacked and knocked down an old man who was passing him in the ward, though there had not been the slightest quarrel between them. Next day he denied having struck him, and at the same time said that he had no recollection of anything that happened on the previous day. His whole bearing in saying so impressed me with the truthfulness of his statement. There was no further violence nor recurrence of the fits, but he was unsocial and somewhat obtuse. He complained of pain in the head, especially on the left side and anteriorly. The pupils were slightly dilated. On April 14th slight shivering occurred, and the axillary temperature was found to be 103° F. Headache was severe, and still most pronounced on the left side. I percussed the skull carefully. The patient stated that the taps of the finger did not cause pain on the right side or back of the head, but that they were very painful on the left side, in front of the ear, forward to the middle of the brow. Leeches were applied over the painful region, and mercurialunction prescribed. The symptoms, however, became more serious, and he died comatose on May 16th.

Necropsy.—There was about an ounce and a half of serous fluid under the arachnoid and in the ventricles; within the dura mater, on the left side, over the entire frontal lobe, and extending downwards to the base, there was a thin organized false

membrane, which seemed to have no adhesions either to the dura mater or arachnoid. The brain was firm; the specific gravity of the white substance in the frontal region was 1047.

Remarks.—Much attention has been given by Dr. Hughlings-Jackson and others to the mental automatism which not unfrequently occurs in epilepsy, particularly after attacks of petit mal. In these cases purposive acts are performed, sometimes nearly correct in themselves, but at improper times and places, and without the consciousness of the actors. But there is a condition following such seizures in which the mental defect is even less than that just stated, where consciousness is only very slightly impaired, where there seems only a little confusion of mind, scarcely noticeable to superficial observation. The remarkable feature of this state is that the patients may maintain a conversation, apparently correct or nearly so, and perform acts, of which they have not the slightest recollection a few hours afterwards. This is illustrated by W. R.—'s case. He knocked down his fellow-patient without the least provocation, though seemingly aware of what he was saying and doing, both then and afterwards in the course of the day; yet next day he declared, and I believe truthfully, that he had no recollection not only of that act of violence, but also of all the other events of the next few hours. The question suggests itself, Had he killed the old man at the time he struck him, ought he to have been held responsible for his death? I think not; at least, not fully so. A few months ago I was engaged as medical witness (case of George Miller) in a trial for murder by an epileptic, in which the accused, like W. R.—, declared that he had no remembrance of the fatal act, nor of what happened, for at least half an hour afterwards. The main facts of the case are as follows:—G. Miller, a soldier, who had been in the Egyptian campaign, was discharged on Dec. 30th, 1882, on the breaking up of his regiment in a small town about ten miles from Glasgow. He drank freely in the course of the afternoon, at night reached the city by train, when, being unable to take care of himself in the streets, he was conveyed to the district police-office. There he was able to tell his name, etc., and walked upstairs to a cell with assistance. He was laid on a fixed wooden bed beside another drunken prisoner, who was asleep at the time, and locked up with him about 8.15 p.m. The latter was stated by those who knew him best to be very inoffensive, and not quarrelsome either in drink or out of it. They were seen by the warder five different times at short intervals, the last time being at 10.45 p.m., and always found asleep. Twenty minutes later, when again visited, the accused was sitting at the side of the cell, with his arms crossed, and his comrade in the middle of the floor, lying with his face down, dead. The head of the deceased was fearfully bruised, and some of his ribs were broken. The conclusion arrived at was that the soldier had jumped on him or kicked him to death with his heavy boots. The gaoler stated that the accused said, on being questioned respecting his comrade's death, he knew nothing about it, and while saying so, appeared cool and collected, and so correct in every way that, had nothing happened, the officer in charge would have allowed him to go free. He was taken to the bar and formally charged with the crime of murder; the lieutenant on duty testified that he was apparently quite conscious of what was said to him. Thereafter he was removed to a cell, where he spoke for a short time freely about his Egyptian experiences to the officer appointed to watch him, and then fell asleep. He slept soundly for nearly five hours. When he

awoke he was told about his crime, but he appeared quite incredulous, and declared that he had not the least recollection of it or of any of the after circumstances. It was ascertained that he had been subject to attacks of petit mal, and that on one occasion he had a convulsive seizure. He had also been convicted of inflicting a severe blow on a woman, an entire stranger to him, who was passing him quietly in the street; he denied all knowledge of this assault also. He had likewise about two years previously made a determined attempt at suicide.

This history points to the fatal attack as having been of an epileptic character. No doubt the prisoner had previously been indulging in alcoholic liquors, but this does not satisfactorily account for his condition when first seen after the homicide. The seeming cool composure and indifference which he then displayed, the failure to realize his position, and the forgetfulness of the act, as well as of the events of the next half hour, all indicated a really imperfect consciousness, even though to ordinary observers he was apparently fully aware both of what he was saying and doing. At the same time the epileptic seizure, which I believe occurred on his awakening from the drunken sleep, was itself probably due to the action of the alcohol on his weak and susceptible brain. It only further remains to be said that the jury found the accused to have been of unsound mind at the time he killed his comrade in the cell, and he was sentenced to be confined in the Criminal Lunatic Asylum during Her Majesty's pleasure.

It is not improbable that the objection may occur to some minds that, after all, the chief actors in both of these cases may not have been so oblivious as they alleged and appeared to be, it being so very much their interest, and especially G. Miller's, to deny all recollection of their criminal acts. Such objectors will, I think, admit that the following case, very similar to the others so far as the mental condition is concerned, is free from that doubt. A gentleman, aged fifty, whom I see occasionally, has been subject to the minor, and much less frequently the major, attacks of epilepsy for several years, the intervals between the seizures varying from a week or two to some months. Though mentally not now quite equal to his former self, he is still active and intelligent, and, what is specially to be observed, possessed of fairly good memory. On several occasions he has had attacks of petit mal when attending to his occupation, and has afterwards found his way downstairs and through busy streets, returning quite correctly to his place of business, but entirely unconscious of all that had happened in the intervals, lasting for from five to twenty minutes. It is not known how far he may have seemed intelligent and correct to others while walking in that condition. What I have next to mention is, however, more to the point under consideration, and was told me by his wife, a highly intelligent lady. One afternoon, about four months ago, while he was seated on the sofa at home, she observed by the movement of his lips and one of his hands that he had taken one of his "turns." The ordinary medical attendant of the family was sent for, and arrived within a quarter of an hour. By this time the patient was apparently quite conscious, and conversed correctly with his medical friend for about five minutes. About half an hour after the latter had left the house, some reference was made by the patient's wife to the doctor's visit and his instructions, when she found that he had no recollection of his having seen him, and indeed positively insisted that the doctor had not called that day.

In W. R.—'s case the exact correspondence between the painful area on percussion of the head and the extent of the false membrane within the dura mater, so far as it could be ascertained, was very striking. Would it not have been warrantable, as my friend Dr. Macewen, of this city, suggests to me, to have trepanned the skull and removed the false membrane? In the light of the necropsy this might have been done, and with probable advantage, as the irritation due to its presence was, I think, the immediate cause of death. In any future case of a similar kind, in which percussion clearly defines a painful region, I should be disposed to try trephining, in the event of no improvement resulting from ordinary treatment.

As the method of diagnosis by percussion of the skull is still comparatively new, I may mention that there is at present in this hospital a patient in whom it revealed a painful area over the motor region of one side of the brain. He had been long subject to convulsive seizures, mainly unilateral, and has greatly improved since the application of a series of blisters over this region.

Glasgow.

ON THE USE OF CARBOLIZED SAWDUST AS A DRESSING IN ANTISEPTIC SURGERY.

By H. P. SYMONDS,

Surgeon to the Radcliffe Infirmary, Oxford.

ONE of the drawbacks of the usual antiseptic dressing is the rapidity with which the discharges come through on the first day or two after operation, often necessitating the redressing of the case within a few hours. To prevent this, and yet not to interfere with the aseptic condition of the wound, is a distinct advantage both to the patient and the surgeon. The material I have used recently in a considerable number of cases is coarse sawdust, soaked in (1 in 10) solution of absolute phenol and spirit of wine, then allowed to dry slightly so that the spirit may evaporate, leaving the sawdust charged with carbolic acid. When used it is enclosed in a bag made of several layers of gauze, and applied outside the deep dressing, the usual external dressing being put over it. The sawdust thus takes the place of the padding of loose gauze which is generally used. Its absorbent power is very great, and it has the additional advantage of keeping up an equable pressure on the divided tissues. I find that fourteen ounces of sawdust will readily absorb about one pint of fluid.

The following cases in which this dressing has been used form a successive series, taken without any selection.

CASE 1.—Amputation through the middle of the arm for disorganization of the elbow-joint and necrosis of the humerus. The operation was done on July 24th. The stump was dressed at the end of twenty-four hours in order to remove the drainage-tube. On July 30th the dressings were changed and sutures removed. The wound was quite healed, with good union throughout. The patient was discharged from the infirmary seven days after operation.

CASE 2.—A woman, aged sixty-one, with extensive scirrhus of the breast. On August 10th the whole breast was removed, and the axilla cleared of glands. Two drainage-tubes were put in the wound. Dressings changed on the 12th to remove the tubes, and again on the 17th, when some of the sutures were taken out. On the 19th the wound was thoroughly healed, and the patient left the infirmary.

CASE 3.—A man aged forty-eight. Amputation of forearm for large sarcoma in the back of the hand. Operation done on August 3rd. Drainage-tube removed in twenty-four hours. Wound dressed again seven days after the operation, when complete union had taken place.

CASE 4.—A middle-aged woman, with compound dislocation of the elbow, admitted August 11th. She had a small wound on the inner side of the right elbow. Both bases were dislocated backwards, and the inner condyle chipped off. The joint was dressed antiseptically, a counter opening made, and a small drainage-tube passed through. This was removed in twenty-four hours, and the dressing not changed again for four days. No soaking through took place, and the wound remained aseptic. The highest temperature 99.4°.

CASE 5.—Removal of an adenoma from the breast of a girl aged eighteen. This case occurred in private practice. Drainage-tube removed in twenty-four hours. Dressed again on the seventh day. The incision was quite healed.

In all these cases complete primary union took place without any formation of pus. In only one did the temperature reach 100°, and that on the day after operation, after which it became normal. I have not quoted these cases as being at all remarkable, but merely as common instances in antiseptic surgical practice in which the sawdust dressing was used. Surgeon-Major Porter, in "The Surgeon's Pocket-book," states that he has used sawdust as a dressing in suppurating offensive wounds; but I am not aware that it has been tried, when prepared in the way I have described, in antiseptic dressing. The three points in its favor are its powerful antiseptic qualities when saturated with carbolic acid, its great absorbent power, and its adaptability to any surface. I may add that the sawdust should be coarse, as I find that if it is very fine it passes through the gauze and irritates the skin.

Oxford.

ACUTE RHEUMATISM AND PHTHISIS.

By J. GORDON BLACK, M.D. Lond.

IN THE LANCET (October, p. 313) Dr. Austin calls attention to acute rheumatism as a premonitory symptom of phthisis, and gives the histories of four cases in illustration. The following particulars of a case attended by me last year may perhaps be of interest in connection with this subject.

On March 6th, 1882, I first saw a pale, delicate-looking young woman, aged twenty. Both father and mother were dead, the former of phthisis, and a sister was then suffering from that disease. My patient had been doing rough hard work beyond her strength in a cold damp atmosphere, for some months. At the previous Christmas she caught cold and a cough ensued. She had, however, been away from work only two days. The symptoms were on examination:—Short dry cough with pain under left axilla, sickness and vomiting of food, sleepless nights, and free perspiration. Pulse 100, weak, and pupils dilated. Tongue red in middle, furred at the sides. Temperature only slightly above, and respiration, normal. Menses regular, but discharge too pale. Some rough breathing below left clavicle; no dulness or crepitation. No increase of cardiac dulness, but sounds unduly accentuated. At this visit I was undecided as to the exact nature of the attack, fearing some lung mischief or impending febrile disorder. A diaphoretic and expectorant mixture was prescribed and the affected side ordered to be poulticed.

ticed. Next day I found that the cough and sickness had entirely left her. The pain was still bad in the side, and perspiration continued. Temperature 102°, pulse 100. A soft murmur was now heard with the first heart sound, loudest over the pulmonary cartilage, slightly conducted towards the apex, but not heard over the second right cartilage. The right knee and ankle were swollen and tender. Thus the affection had developed into rheumatic fever, and the signs of lung implication suddenly disappeared. Salicine treatment happily soon gave relief to the distressing symptoms, and by the second day of its use the patient was comparatively well. The cardiac murmur became much less audible, but never went entirely away. At the end of March the patient being rosy and plump, in complete contrast to her previous condition, was allowed to go to a farmhouse in the country.

On April 17th, a few days after her return, I saw her again, and was shocked at the serious change which had occurred. She was now in bed, complaining of excessive muscular weakness. The cough, fever, and vomiting of food had returned worse than ever. Some dulness was now noted in both infra-clavicular spaces, and at the top of the sternum. Pectoriloquy and mucous râles were heard on the left side below the clavicle, whilst on the right there was double respiration. Expectoration was copious and nummular. Pulse 120; temperature 101°. By April 27th the above symptoms had become greatly aggravated. The expectoration was tinged with blood, and there were signs of a vomica at the top of the left lung. For the next few weeks the disease progressed with the fearful rapidity of so-called "galloping consumption;" but afterwards, curiously enough, became quite chronic. The appetite had never failed, and from first to last colliquative diarrhoea was absent. Thus were the powers of nature sustained until the patient had become a veritable skeleton. Death occurred on the 24th of November.

The succession of symptoms above detailed arrested my attention as being unfamiliar, and I was therefore much interested to observe that Dr. Austin had recently attended four somewhat similar cases. Judging by my own experience, I should say that acute rheumatism is a rare complication of phthisis. The text-books are almost silent on the subject, nearly every other ailment, however, being mentioned in that category. Under the head of Acute Rheumatism we find no allusion to the existence of a tubercular variety, though others, such as scarlatinal and gonorrhoeal, are enumerated. At one time the phthisical and rheumatic diatheses were even thought opposed to each other. The following exceptional reference is made towards the end of the late Dr. Hughes Bennett's article on Phthisis, in Reynold's "System of Medicine:—"Pericarditis and other inflammatory diseases may occur, occasionally gout or rheumatism." And from the construction of what immediately follows, one gathers that Dr. Bennett did not consider such complications to bear "an essential or constant relation to phthisis."

Now, such a view seems to me more in accordance with symptoms than Dr. Austin's theory that tubercular deposit in the affected parts is the cause of the rheumatic manifestations. It is noticeable that when tubercle occurs in different organs and membranes during the course of phthisis pulmonalis, it does so as part of a general constitutional affection, with which the local developments do not tend to interfere and which the latter do not mask. It is perfectly different, however, when rheumatic fever intervenes. This seems completely to replace the signs of pulmonary affection by others peculiar to itself, which then

have their ordinary course and termination. Further, the well-known tendency of tuberculosis to produce chronic inflammation and ulceration does not accord with the equally familiar temporary and changeful character of acute rheumatism, in which disease ulceration is exceptional. If Dr. Austin's theory were correct, one would look for ulcerative endocarditis or serious disorganization of joints in cases of phthisis complicated by rheumatism. We know that such results are not uncommon where other specific agents of inflammatory action are present, such as gonorrhoea or scarlatina. Another argument may be adduced from a consideration of the results of treatment upon the phases of disease under notice. The well-known power of salicine to control acute rheumatism, a good illustration of which is furnished by the case related above, contrasts strongly with its utter uselessness in checking tuberculosis. If both sets of symptoms in my case had been due to one general cause—viz., tubercle—then one fails to understand the marked difference observable in the effects of salicine. Considered in connection with pulmonary consumption, I am therefore inclined to regard acute rheumatism as a somewhat rare accidental complication of the former, to which malady it bears no necessary relation. Although it cannot consequently be properly regarded as "premonitory," yet it is well to remember the possibility of its advent as an early complication. Unless this be kept in view during attendance upon a delicate patient suffering from rheumatic fever, especially where there is a family history of phthisis, a too favorable prognosis may be ventured, to the disappointment of the friends and possible discredit of the medical attendant.

Harrogate.

ON A CASE OF COMBINED SCROTAL AND ABDOMINAL HÆMATOCELE.

By Surgeon-Major W. GRAY, I.M.D.,

Senior Surgeon, Jarnsetjee Jejeebhoy Hospital, Bombay.

Essub E—, aged thirty-six, a cart driver, was admitted to the Jarnsetjee Jejeebhoy Hospital on March 6th last, suffering from great enlargement of the right side of the scrotum, and also from what appeared at first sight a distended bladder. The latter belief was strengthened by the fact that there had previously been some difficulty in micturition, and by the additional circumstance that the house-surgeon, on attempting to withdraw the urine, found it impossible to pass even the smallest catheter beyond the bulb. The history, so far as it could be ascertained, was that about a year ago the scrotum began to swell, and gradually attained its present size. A month before admission he first noticed the hypogastric tumour, and it was in consequence of the rapid enlargement of this during the last few days, and the increasing pain and discomfort which it caused, that he came to hospital for relief. The patient was unable to furnish any data that could throw light on the origin of the disease. All he could tell us was that up to a year ago he was in perfect health, and had nothing whatever the matter with either the scrotum or cord. Urine had always been passed freely until lately. He was emaciated and anæmic, passed urine with difficulty and in a narrow twisted stream, and complained of considerable pain and tension in both swellings. There was no history of injury. The scrotal tumour was cylindrical in shape, about six inches in diameter, and when the patient stood up it descended nearly to the knee. The hypogastric tumour looked and felt, as the patient lay on his back, almost exactly

like a case of retention of urine; it reached a little above the umbilicus.

On making a careful and detailed examination the day after admission, when I first saw him, it was noted that both tumours contained fluid, and that they communicated freely with each other. Placing one hand at the bottom of the scrotal tumour, and percussing the hypogastric swelling with the fingers of the other, a distinct wave of fluid was felt to pass. According to the position, too, either tumour could be considerably increased in size at the expense of the other. When he stood up the scrotum filled out, and the abdomen became less prominent; the reverse happened if the scrotum was elevated while he lay on his back. Coughing also made the scrotum swell up. Except this impulse, no evidence of hernia could be detected, either by local examination or from the history. The precise nature of the case was now the question to decide. Standing in front of the patient it was noticed that the hypogastric tumour was in the very slightest degree larger on the right side of the middle line. In fact, the difference was so small as not to be perceptible unless carefully looked for. This fact alone seemed sufficient to cast doubt on the distended bladder theory. Closer examination of the urethra and perineum showed that the obstruction to the passage of urine was due to the pressure of the upper part of the scrotal tumour on the urethra, and on further cross-questioning the patient it appeared that he had been passing, though with difficulty, the normal quantity of urine daily.

It now became sufficiently clear that the case was one of hydrocele or hæmatocele, presumably the latter, which had extended upwards along the cord and under the crural arch, and finally formed a second sac for itself within the abdominal cavity. A small exploring trocar soon showed that the tumour was filled with fluid blood, and a larger trocar and cannula having been inserted, nearly five pints of this were drawn off, and both tumours completely emptied. A large syringe of 5 per cent. carbolic acid lotion was then injected, the trocar wound carefully closed, and an ice-bag placed over the cord. There was now no difficulty in passing a catheter and removing from the bladder a small quantity of bloody urine. A noticeable circumstance was that the fluid drawn from the tumours possessed a distinctly urinous odor. This fact induces me to think that at one period or other of the case there may have been a communication between some portion of the bladder and the upper sac. Unfortunately, through some misapprehension, the fluid was not examined for evidence of the presence of urine. The blood in the urine withdrawn by the catheter was probably due to the attempts made to relieve the supposed retention: there was no blood noticed afterwards.

By the third or fourth day after the operation it was evident that the tumours were rapidly refilling. Early on the morning of the 12th the patient was found in a state of semi-collapse, with both tumours larger and tenser than ever. Percussion revealed the fact that they were tympanitic, and the hasty conclusion was formed that a hernia had descended, and had become strangulated. More careful examination, however, showed a drop of fetid matter oozing from the trocar wound, when it became at once apparent that the tympanitic note was due, not to intestinal flatus, but to the gases of putrefaction. The patient was immediately placed on the operating-table, chloroform administered with extra precautions, and the scrotal tumour then laid open from one end to the other. A quantity of decomposed blood-clot and fetid matter was turned out, the interior of both cavities thoroughly

cleansed with carbolic lotion, and a large drainage-tube was placed in the abdominal sac, with its end hanging out through the scrotal incision. The patient was then removed to bed, and appropriate general and local treatment administered. For some days he remained in a very precarious condition, but eventually rallied, and was able some time later to undergo a second and final operation. The walls of the scrotal sac were fully a quarter of an inch in thickness, and were composed of tough fibrous tissue. Its inner surface was rough, and in general appearance was not unlike the mucous membrane of the stomach in a case of arsenic-poisoning; in color it was dark purple. The opening of communication under the crural arch, between the two portions of the sac, was wide enough to admit four fingers or a small hand, and the interior surface of the abdominal sac was felt to be similar to that of the scrotal sac. The source of the hæmorrhage was sought for in vain.

The patient having regained strength, and the parts looking sufficiently healthy, he was, on March 28th, again placed under chloroform, and the redundant portion of the scrotal integument, together with the whole of the sac wall below Poupart's ligament, were excised. As the testicle had atrophied to a mere nodule, it also was removed. The wound was then closed with silver sutures, the drainage-tube of the abdominal sac being brought out at its upper angle. From this time the patient made an uninterrupted recovery; the scrotal wound healed readily, while the upper cavity, which for a time discharged freely, gradually contracted, and by degrees pushed out the drainage-tube. He was discharged well on May 12th, returning to his former avocation of cart driver. I have since had an opportunity of seeing him. The scrotum is of natural size, while the abdominal sac is apparently obliterated, and the sinus quite closed.

I think this case is worthy of publication, both from its rarity and on account of the success of the treatment adopted. I have never seen or heard of a similar case in this country, where hydrocele and hæmatocele are so common. Professor G. M. Humphry mentions a case of "abdominal" hydrocele in his article in the "System of Surgery."¹ Nothing further has been added to this by Mr. Jacobson in the third edition. J. Rochard records an instance of "abdominal" hæmatocele complicated with hernia.² Beyond these cases I can find no reference to the subject. The liability, after a cursory examination only, to mistake the present case for one of retention of urine was natural enough, and forms an interesting feature of it. As regards the origin of the abdominal sac, the very unsatisfactory history of the double tumour leaves us more or less in the dark. In the absence of any better explanation I am content to accept that offered by Professor Humphry—namely, the persistence, unclosed except at its upper part, of the funicular portion of the peritoneal pouch which accompanied the testicle in its descent. The gradual distension of the scrotal sac caused the canal to yield where it passed through the abdominal wall, and finally to dilate into a large pouch behind. The patient, however, adhered to his original statement, that up to a year before his admission to hospital he had no swelling of either the scrotum or cord, nor had he sustained any injury of the parts. Still, long experience has taught us that the histories of their diseases given by our hospital patients are, as a rule, more or less incomplete or untrustworthy.

¹ Vol. v., p. 85, second edition.

² Mentioned in the Sydenham Society's Year-book of Medicine and Surgery for 1861, p. 312.

I shall be glad to learn whether readers of *THE LANCET* have met with cases at all similar to this, and if so, whether they can throw any further light on its mode of origin and progress.

Bombay.

ON A CASE OF POISONING WITH BICHROMATE OF POTASH.

By EDWARD ORR MACNIVEN, M.B., C.M. Ed.,
House-Physician in the Glasgow Royal Infirmary.

B. D—, twenty-two years of age, a workman in Mr. Carlyle's chrome works, was admitted under Dr. Maclaren in the Glasgow Royal Infirmary on Dec. 10th, 1882, suffering from the effects of swallowing a quantity of bichromate of potash.

History.—The patient, a fairly muscular man, in a fit of jealousy went to the chrome works about five o'clock on Sunday evening and swallowed a lump of chrome (the purified salt) in the solid form. He then returned to his lodging, which is about fifteen minutes' walk from the works. As soon as he reached his room he experienced the following symptoms:—The first thing he noticed was a lightness in the head, then a sensation of great heat in the stomach, with a glow of heat all over the body, and this was followed by a cold sweat. Next he became sick, and vomited freely. He then suffered from agonizing pain in the epigastric region, with giddiness, specks before the eyes, and loss of power of the legs. (He had complete power of his arms.) His thirst was intense; and he aptly expressed himself, "that he felt as if he could drink the sea dry." Lastly, he complained of severe rigors, with coldness of the whole body, more especially of the extremities.

The patient was carried into the hospital at ten minutes to seven o'clock (nearly two hours after swallowing the poison), and on examination I found the pupils slightly dilated, the face pale and extremely cold, and the pulse feeble and fluttering. There was no vomiting then; but he complained of intense pain over the region of the stomach, and a feeling of great depression. No cramps or diarrhoea were present. There was a degree of stupor, but he answered questions fairly well. Sensibility to touch and pain was well marked.

Treatment.—This consisted in giving a full dose of sulphate of zinc, and washing out the stomach with tepid water by means of the stomach-pump till the fluid was colorless. As the pulse threatened to fail, I injected subcutaneously twenty minims of sulphuric ether, which was followed by a marked improvement. The patient was covered with plenty of warm blankets, and hot bottles were applied to the feet and sides. A mustard poultice was applied over the stomach, which gave great relief. I next tried the administration of some tepid coffee well diluted with milk and plenty of brown sugar. This was rejected at once; but some milk well mixed with a good quantity of lime water and ten grains of subnitrate of bismuth were retained. Barley water was given as a drink, and the patient was ordered milk diet with lime-water. He slept fairly well that night, and in the morning every symptom had disappeared, except a slight soreness of the mouth. Diet was strictly attended to as usual. The patient made a perfect recovery without a single bad symptom.

Remarks.—(1) The first symptom—viz., the lightness in the head, apparently a tendency to syncope—took place fifteen minutes after he had swallowed the poison. (2) Had it not been that vomiting occurred in his lodgings, which happened about twenty minutes after he had taken the poison, and that the patient had taken food

about an hour and a half before he entered the works, the effects might have been much more disastrous. (3) Although a good quantity of the poison was found in his stomach, yet the rapid evacuation of its contents, together with the application of tepid water, along with milk, lime-water, and bismuth, tended to soothe the mucous membrane and diminish the chance of inflammatory action. The application of the mustard externally had also a beneficial effect in the same direction. (4) Over two drachms, according to the patient's account, must have been swallowed, and, by a rough analysis of the stomach's contents, I estimated that it contained nearly one drachm of the bichromate. (I made the patient select a piece of the bichromate, which he thought was exactly the same size as that which he swallowed, and then I weighed it, and found it over two drachms.) No trace of the poison was found in the urine with the ordinary tests for its detection—viz., nitrate of silver = red, acetate of lead = yellow, H_2S = dingy green.

As bichromate of potash poisoning is of somewhat rare occurrence, perhaps a brief summary of the leading symptoms of a few cases recently recorded, comparing these with those of the case just described, might be interesting.

CASE 1 (recorded by Dr. McLachlan).¹—Accidental poisoning, in which three drachms were taken dissolved in water, and the first symptom appeared a quarter of an hour after administration:—Symptoms: Excessive vomiting, purging, violent abdominal pains, with cramps in the legs; coldness of the surface of the body. Hands shrivelled, wrinkled, and dusky, like a person in the advanced stage of cholera; face and lips dusky, with yellowness of the conjunctivæ; excessive thirst, feebleness of the pulse, hurried respiration; suppression of the urine; soreness of the mouth; mental faculties unimpaired. Resembling the case I have described in having the following symptoms: Vomiting; abdominal pains; excessive thirst; coldness of the surface of the body; feebleness of the pulse; soreness of the mouth. Differs from it in (1) the following symptoms being absent: Tendency to syncope, with giddiness; specks before the eyes, with slight dilatation of the pupils; degree of stupor; loss of power of the legs; and in (2) the following symptoms being present: Suppression of urine; purging; hurried respiration; peculiar condition of the face and hands, with yellowness of the conjunctivæ.

CASE 2 (recorded by Dr. R. Archer Warwick).²—Intentional poisoning, in which a lump of chrome about half an ounce in weight was taken, and the first symptom appeared in one or two minutes after administration:—Symptoms resembling the case I have described: Pain in the stomach and back; giddiness and vomiting; with violent retching; loss of power of the legs; feebleness of the pulse, and clammy perspiration. Differing from it: Purging, with blood in the stools.

CASE 3 (recorded by Dr. McCrorie).³—Symptoms resembling: Vomiting; dilatation of the pupils; feebleness of the pulse; tenderness of the abdomen; coldness of the surface of the body, with clammy perspiration. Differing: Purging; difficult, wheezing respiration.

CASE 4 (recorded by Dr. Dunbar Walker).⁴—Accidental poisoning in which one drachm was taken dissolved in water, and the first symptom appeared in five minutes after administration. Symptoms resembling: Sickness; tendency to syncope; coldness of the body; pain in the abdomen; feebleness of the pulse. Differing: Purging.

¹ Glasgow Medical Journal, July, 1881, p. 31.

² Glasgow Medical Journal, May, 1881, p. 378.

Judging, therefore, from the cases just mentioned, and from those of an earlier date,³ the symptoms produced with bichromate of potash are those of an irritant poison, and may be described as follows:—

1. General or usual symptoms: Abdominal pains; vomiting; purging; cramps in the legs; feebleness of the pulse; coldness of the surface of the body, with clammy perspiration; soreness of the mouth and throat and excessive thirst. 2. Remote symptoms: Tendency to syncope, with giddiness; specks before the eyes, dilatation of the pupils, and yellowness of the conjunctivæ; suppression of urine; stupor; hurried or difficult respiration; loss of power of the legs.

The accurate experiments on dogs with this substance, performed by Professor Gmelin, of Tübingen,⁴ are also worthy of note, as illustrating the valuable information to be derived from such investigations.

Lastly, the local effects on workmen who use the bichromate of potash in dyeing, as described by Drs. Duncan⁵ and Eadie⁶, of Glasgow, are of great practical interest, and illustrate the caustic action of this poison. It seems that on those workmen who have the slightest abrasion of the skin the poison acts as a caustic, producing a tough slough, followed by an ulcer with hardened cup-like border. These sores may gradually extend deeper and deeper, until they eat their way into the bone, and sometimes they actually make their way through the arm or hand altogether. Attacks of conjunctivitis are also of not uncommon occurrence. These observations I can fully confirm.

Glasgow.

CASE OF CYSTIC TUMOUR OF LEFT OVARY EXISTING DURING SEVERAL PREGNANCIES.

REMOVAL OF BOTH OVARIES, WITH RECOVERY.

By A. C. BUTLER-SMYTHE, M.R.C.P., F.R.C.S. Ed.

Surgeon to the Farringdon General Dispensary and to the Hospital for Women, Vincent-Square.

Mrs. W—, aged thirty-three, married fifteen years, has had eight children (one premature at the end of the seventh month) and two abortions. The catamenia appeared at the age of thirteen, and up to the year 1877 she had always had good health. There is no history of tumour in her family. She states that five years ago, when about seven months gone with her seventh child, she was coming out of the Victoria station and slipped on some orange-peel and fell, striking the left side of her abdomen against the kerb. She was stunned for a few moments, but recovered, and afterwards went her full time and had a fairly good labour. Some days after her confinement, however, she had an attack of what her medical attendant termed "inflammation of the womb," which laid her up for three weeks. Two months subsequently she had rheumatic fever, and kept her bed for seven weeks. About a year after the fall, when three months advanced in her eighth pregnancy, she noticed on her left side a perfectly movable swelling the size of an orange, and complained of a dragging pain in that side. She aborted at the fifth month, and was attended by a midwife, the abortion being fol-

lowed by another severe attack of "inflammation." Two and a half years ago she completed her ninth pregnancy, and had a lingering labour. After her delivery her medical attendant found a large swelling in the left side, and diagnosed "an abdominal tumour of doubtful nature." She was told to go to some hospital for further advice, and attended for seventeen months as an out-patient at different London hospitals, but the abdominal condition seems to have been overlooked. In April last, when three months gone in her tenth pregnancy, the pain in her left side became so bad that she fainted on several occasions, and at last took to her bed. During the next four months her sufferings increased to such an extent that she could not lie down in any position, but had to be propped up in bed, or in a chair, in order to procure sleep. She was prematurely confined of a living child at the middle of the seventh month, after a painful and tedious labour extending over two days. Her confinement was followed by increased pain in the left side, which continued to within a week of the operation. She tells me, and her statement is confirmed by her medical attendant, that in her last two pregnancies the child lay in the right side, but more particularly so in the last, when the womb was pushed completely to the right of the navel; and after delivery a distinct hollow could be felt and seen on the right side, whilst the swelling in the left remained almost unaltered. After her last confinement, the tumour began to grow rapidly, and she lost much flesh. Her appetite failed, and her spirits became depressed. Menorrhagia and metrorrhagia were frequent symptoms, and she complained of pressure over the bladder, with difficulty in micturition. The constant pain and loss of sleep had reduced her to such an extent that walking was out of the question, and the slightest exertion produced giddiness and faintness. I first saw her in January, 1883. She was then pale and much emaciated, her features were drawn and pinched, and she seemed too feeble to stand. She complained of a constant dragging and tearing pain in her left side, which prevented her lying down, and kept her awake at night. Further examination showed her abdomen to be irregularly enlarged, and very tender. There was dullness over the front, and resonance in the flanks. Fluctuation could be detected in parts, and aortic impulse was perceptible. The tumour was movable, and seemed pretty solid. On vaginal examination the uterus was found to be enlarged and anteverted, the os was patulous, and the sound passed two inches and a half. The diagnosis was "a multilocular tumour of the left ovary with little fluid." The patient being in such a wretched state of health, I determined to wait till after her next period, and put her on a course of iron, and gave her carbonate of lithia in five grain doses three times a day, to correct the urine, which was thick and loaded with urates. She rapidly improved under this treatment, but the tumour gained in size. Accordingly, on Feb. 6th, 1883, I performed ovariectomy.

The patient being chloroformed, I opened the abdomen under carbolic spray, and found the tumour free from adhesions on the right side, but on the left there were several long thin bands stretching from the abdominal wall, and in front a portion of the intestine had become attached to the tumour by a thin band which required ligaturing. The contents of the tumour being too thick to pass through the trocar, it was withdrawn, and introducing my hand, I broke down several secondary cysts, but in the end had to enlarge the incision before the mass could be extracted. The right ovary, being enlarged and cystic was also removed, and the peritoneal cavity well sponged

³ Taylor's Medical Jurisprudence, p. 127; Woodman's and Tidy's Handy-book, p. 172.

⁴ Christian on Poisons, 2nd edit., p. 444; Bulletins des Sciences Méd., xx, 188. (From the Heidelberg Klinische Annalen.)

⁵ Edinburgh Medical and Surgical Journal, xxvi., 133.

⁶ Guy's Forensic Medicine, p. 510.

out. The wound was closed with carbolized silk ligatures and dressed with antiseptic gauze. The tumour weighed over twelve pounds.

The patient made a good recovery. On the third day she passed her water voluntarily, and both pulse and temperature were normal. On the seventh the sutures were removed, when the wound was found to be quite closed. On the eleventh day the bowels acted, and before the end of the third week she was up and able to walk. She is now in good health and has resumed her duties at home.

Remarks.—This case seems to me interesting because it shows that during the development of an ovarian tumour several pregnancies may occur, and end in the birth of living children and in the safety of the mother. The history of injury to the left side seems worthy of some notice, since the patient dates all her troubles from the accident, and further adds that she has never been free from pain in her left side since the time of injury. Considering the number of pregnancies and the history of pain, together with the general condition of the patient before the operation, I was rather surprised at the small amount of adhesions met with in this case. The spray apparatus stopped working just before the wound was closed, and I had to finish without it. In all other respects antiseptic precautions were taken during the operation.

Brook-street, W.

CONGENITAL UMBILICAL HERNIA.

By C. W. ROBINSON, M.R.C.S., L.S.A., etc.,

Honorary Surgeon to the North Shields and Tynemouth Dispensary.

THOUGH umbilical hernia is nothing but a common disease, the congenital form is of very rare occurrence, and operations for the same are still less frequent. The case which I wish to place on record is of the utmost interest in more points than one. First, its great size; secondly, its external appearance; thirdly, the morbid condition of the abdominal viscera, with other minor points.

On the morning of Jan. 16th, 1883, at 3 A.M. Mrs. D— gave birth to a female child at full time, to all appearance perfectly healthy, with the exception of the presence of an umbilical hernia of unusual dimensions; the size of the tumour slightly exceeded that of the child's head, which was fully developed. At the junction of the tumour with the abdomen a well-marked constriction was noticeable; the contour of the tumour was even and regular, describing the better half of a hemisphere; it was soft, fluctuating, and tympanitic. It was not difficult to be certain of its contents, because a portion of the front of the hernia, about two inches in diameter, was perfectly transparent, and this transparent portion, which formed what might be called a false covering, was composed of a part of the umbilical cord covering, having evidently expanded under pressure, and was simply, as might be anticipated, in continuity with the integument of the abdomen. The appearance was extremely curious; nearly the whole of the small bowel was distinctly discernible, and its peristaltic action seen very perfectly. There was no approach at strangulation; and on an attempt being made at reduction, nearly the whole of the contents of the tumour were returned into the cavity of the abdomen, leaving plenty of loose integument over the site of the hernia—a fact worthy of note, as upon this point rested principally the chances of a

successful operation, which, on being proposed to the parents, was readily assented to.

The grounds on which I based my opinion for surgical interference were:—1. The apparently perfectly healthy condition of the child. 2. The certainty of a rupture of the transparent and exceedingly thin integument covering the front of the tumour at an early date. 3. There being plenty of loose integument after a reduction was effected left no grounds for hesitation on that score. After a consultation I fixed the operation for 5 P.M. of the same day, as there was clearly no time to be lost, and there was no other alternative left. The operation consisted in making an elliptical incision just a quarter of an inch outside the transparent portion, first making an incision through the skin; then after a little careful dissection coming down to the peritoneum, which I pinched up with a pair of ordinary dissecting forceps, and cut through into the cavity of the abdomen; next, with a director and an ordinary hernia bistoury I completed the incisions, whereby the elliptical portion of integument above mentioned was removed. When on careful examination of the viscera all hope of a successful issue of the operation was nearly at an end (the liver was intensely congested, and a portion of the intestine, which had not been seen before, was in a gangrenous condition, but not in an advanced stage), I deemed it advisable to return the bowel, which had partially escaped from the wound, to await the result, whether favorable or otherwise. I may mention here that chloroform was administered very carefully by a brother practitioner. This being done, I closed the wound by a continuous suture, and, having dressed the wound with oiled lint, applied a bandage. The little patient died within two hours of the operation. Unfortunately the friends would not allow a necropsy, and the exact cause of the morbid appearances can only be arrived at very imperfectly. It seems a curious circumstance that during the few hours of the patient's existence no external signs, either subjective or objective, were observable. The hæmorrhage was very limited in extent.

Tynemouth.

INVESTIGATIONS RELATIVE TO INHALATION AND DISINFECTION.

WITH DESCRIPTIONS OF NEW FORMS OF APPARATUS.

By ARTHUR HILL HASSALL, M.D. Lond.,

Late Senior Physician to the Royal Free Hospital; Founder of and Consulting Physician to the Royal National Hospital for Consumption and Diseases of the Chest on the Separate System.

In my paper published in *THE LANCET* some months since I stated the results of certain experiments made with some of the principal of the oral and oro-nasal inhalers now in use, and I showed that after the completion of one and even two hours' inhalation more than four-fifths of the antiseptic substances usually employed, as carbolic acid, creasote, and thymol, were recoverable from the sponge or cotton-wool of the inhaler. I pointed out that there were several ways in which the small loss which had taken place might in part be accounted for, without its being supposed that the antiseptics had really made their way to the seat of the disease in the lungs themselves. I have since continued my investigations and made many further experiments bearing on the subject of inhalation. In a paper communicated to the British Medical Association at its recent meeting at Liverpool, I gave the results derived from certain trials and experiments made with some of the chief air and steam sprays, and I showed that

in the case of the sprays also a very large proportion of the antiseptics employed were recoverable; the inference being that, except in the case of throat affections, they were but little more effective than are the oro-nasal and oral inhalers, as at present constructed and used. In the same communication I detailed the results of experiments with an apparatus devised in imitation of natural respiration; these proved that, using the oral and oro-nasal inhalers and the air and steam sprays as at present practiced, not more than traces of the antiseptics used made their way into and were to be detected in the water or spirit contained in the receiver, or Woulfe's bottle, placed at the end of the trachea of a recently killed sheep.

Recognizing the inefficiency of the means now resorted to, for introducing into the lungs various antiseptic and other curative substances by means of inhalation, I was led to consider whether it were not possible to charge the air of a chamber with the required medicaments, and these in the proper amounts, and I have communicated my observations and experiments under this head to the British Medical Association in a second paper.

Without entering into details, I may here state that I have arrived at the conclusion that such a charging of the air of chambers is really practicable, an object which has not, so far as I am aware, been hitherto accomplished. For effecting this purpose I rely on two principles: one is the greatly increased volatilization of certain chemical substances, which at the ordinary temperature of the air are but little volatile, obtained by spreading the substances over a very considerable surface, and exposing them either in the air or on water. To show the effect of this principle, I may mention that 50 grammes, or 770 grains, of carbolic acid, exposed to the air on a rough and moistened fabric, having a superficies of eight square feet, had disappeared, and were entirely lost at the end of thirty hours. Now, had the same quantity of the acid been exposed to the air in any vessel presenting only a small surface, the loss would have been but trifling, and in fact the weight of the crystalline acid would have become increased by the formation of the liquid hydrate. The second principle is the augmented evaporation obtained by increase of temperature in combination with extension of surface. Armed with these two principles, applied in a practical manner, we possess the means, as I have said, of charging chambers with medicaments to any required extent, and of forming true inhalation chambers. The second paper already referred to, dealt mainly with the principles of the construction of inhalation chambers, and did not enter into any definite description of the means to be employed; these details were left for further observation and inquiry.

I now proceed to give the necessary data on which the methods to be used are based, and to describe the apparatus I have devised. A piece of Turkish towel 16 by 11 inches, giving a superficies on the two surfaces of 352 inches, was moistened with 100 cubic centimetres of water, containing 100 grains of carbolic acid. Six of such pieces were similarly treated, suspended on glass rods, and the amount of carbolic acid contained in them determined at the end of each successive hour; the quantities recovered were 82.79, 75.49, 63.89, 57.02, 48.73, and 41.39 per cent. These figures show a progressive loss each hour of 17.21, 24.61, 36.11, 42.98, 51.27, and 58.61 per cent. Thus, if the six pieces had all remained suspended for the six hours, of the 600 grains of carbolic acid used in charging them, no less than 350 grains would have disappeared, or more than one half. Six

cloths of the same dimensions were next taken, each being moistened with a mixture of spirit and water in equal parts, containing 120 grains of creasote; the entire quantity in this case for the six cloths would therefore be 720 grains. There were recovered at the end of each successive hour the following amounts: 103.5, 86.8, 83.7, 80.8, 72.0, and 66.0, showing a loss of 16.5, 33.2, 36.3, 40.0, 48.0, and 54.0. Thus, of the 720 grains taken, no less than 324 grains would have disappeared had all the cloths been suspended for the six hours. Lastly, five cloths were each moistened with a mixture of spirits of wine and water, in equal parts, containing 5 grammes of thymol, = 77 grains; these cloths therefore contained 25 grammes of thymol, or 385 grains. The following amounts were recovered each hour: 4.74, 4.44, 4.08, 3.88, 3.12 grammes, = 73.0, 68.3, 62.8, 59.7, and 48.0 grains respectively, the loss for each cloth in grains standing thus: 4.15, 8.78, 14.30, 17.4, and 29.15 respectively.

Here, again, the loss is very considerable, although not so great as in the two previous cases. Had all the cloths been exposed the whole time, the loss would have amounted to 145 grains out of the 385 originally taken. A considerable loss, of course, also takes place in the case of other but little volatile substances, exposed in the same manner on an extended surface, dissolved, if necessary, in suitable menstrua, the extent of the loss being proportionate to the natural volatility of the substance and its solubility. If the loss is so great resulting from the exposure of such a limited superficies as is afforded by a suitable fabric of 16 by 11 in., it is obvious that by extending the surface we possess a most powerful means for charging the air of a chamber with any required medicament, although it may possess only a feeble volatility at ordinary temperatures, and this to any extent required. But there is still another means whereby the same result may be aided or accomplished—namely, by exposing the substances on a comparatively extended surface of water, or even by dissolving them in it, raising and maintaining in some cases the temperature of the water at certain fixed degrees.

The following figures will serve to show the results obtained by this proceeding. Two grammes and a half of carbolic acid were dissolved in 150 cubic centimetres of water, and placed in a small glass dish having a superficies of eight inches; five other dishes were similarly charged, and all were floated on a water-bath, the temperature of the liquid in the dishes being maintained at about 74° C., or 165° F. And here I would remark that the temperature should always be taken of the liquid in the dishes themselves, and not in water in the outer bath, as there is often a difference of 6° to 8° between the two, according to the nature of the vessels employed. The quantity of carbolic acid therefore contained in the six dishes amounted to 15 grammes, or 231 grains. The amounts recovered were 1.838, 1.470, 1.116, 0.868, 0.661, and 0.511 = 28.3, 22.6, 17.2, 13.3, 10.1, and 7.8 grains respectively. It thus appears that of the 38.5 grains originally present only 7.8 grains remained at end of the six hours. It follows therefore that of the 231 grains originally taken all but 47 grains would have been dissipated had all the dishes been exposed for the same length of time equivalent to more than three-fourths. With similar quantities of creasote—namely, 2.5 grammes—for each dish the results stand as follows:—In the first experiments the creasote was allowed to remain at rest, the greater part sinking to the bottom, it being only partially soluble in water, and part floating on the surface. There were recovered successively 1.245, 0.894, 1.10, 0.51, 0.21, and 0.37 grammes, = 19.17, 13.76, 16.94, 7.85,

3.23, and 5.69 grains. Thus, in this case had the temperature of all the dishes been maintained for the six hours, no less than 197 grains would have disappeared out of the 231 grains originally taken.

When, however, the contents of the dishes were stirred occasionally with a glass rod, whereby the heavier portions of the creasote, which had fallen to the bottom of the dishes, became broken up and dispersed, the loss was still more considerable, as indicated by the following figures:—0.76, 0.62, 0.43, 0.13, 0.035, 0.00, — 11.70, 9.54, 6.62, 2.00, 0.54 grains, while from the last dish the whole of the creasote had disappeared. The experiments with thymol furnished results almost equally striking. This substance is soluble only to a trifling extent in water, and when exposed to the air at ordinary temperatures, although it gives off its pleasant smell freely, it scarcely loses weight at all; thus 15 grammes exposed to the air were found to have lost only the most trifling amount at the end of a fortnight. But thymol melts rapidly in hot water, and, being lighter than water, floats upon and spreads over its surface in a thin scum, and in this condition it becomes rapidly volatilized, as will be apparent on an examination of the annexed figures. 2.5 grammes being added to each of the six dishes containing the usual amount of water, the temperature of which was maintained at 74° C., the following amounts were recovered:—1.82, 1.23, 0.874, 0.64, 0.36, 0.096 grammes = 28.02, 18.94, 13.46, 9.85, 5.54, and 1.47 grains. Thus, had the experiments been continued with all the dishes for six hours, the loss would have amounted to 123 grains out of 131 taken at the commencement.

Armed with these principles and data I have been led to devise the following forms of apparatus, the first two being intended for charging the air of chambers for inhalation and disinfection. The first of these, which I have named the "chamber inhaler and disinfector, No. 1," consists of a long fabric woven so as to afford a very large extent of surface for evaporation. The length and breadth of this vary with the extent of the effect required to be produced. This is spread out in several tiers one above the other, by means of an arrangement consisting of a double series of rails which are attached to a box, and which lift out and in. These, when not in use, are packed away in the box, which also contains a tray to catch any drippings, and a tin box to receive the long cloth.

A second apparatus, the "chamber inhaler and disinfector, No. 2," consists of an outer water-bath to which a thermometer is attached, and an inner porcelain dish divided into four equal parts. The divisions of this are also filled with water, the temperature of which, by means of the outer bath, can be regulated and maintained to a nicety. With this apparatus, if desired, no less than four antiseptic or other substances may be used at the same time, either for inhalation or disinfection. It combines the advantages of moderate extent of surface with a temperature augmented, but regulated according to the nature and composition of the substances used—a very valuable combination. No hospital should be without one or more of these powerful disinfectors, especially the No. 1 "chamber inhaler and disinfector." It will also be found of great service in private houses in cases of infectious disease. In using them one important fact must be borne in mind—namely, that it is not possible to charge the air of any ward or room with any medicinal substance or disinfectant while the doors and windows are open, as of course any amount of the substances which may be eliminated will be too rapidly dispersed to be of any service. It is not possible

therefore to combine either effective inhalation or disinfection with free ventilation.

It occurred to me that some, at all events, of the advantages gained by increasing the surface of exposure might be obtained by applying the principle of extension to the construction of oro-nasal and oral inhalers, and with this object I made a variety of experiments. Without giving in detail the results of these I will now describe two inhalers I have devised, the "globe" oro-nasal inhaler, and the "globe" oral inhaler.

That the inhalers at present employed are defective in construction in many ways, and are all but useless in practice, particularly in chest affections, has, I think, been sufficiently demonstrated. One defect is that, as a rule, they are not accurately adapted to the contour of the face of the wearer, so that air enters freely through other than the proper channels. Another is that the amount of the substances used is generally much too small, and this is also the case with the materials on which these are placed; then the nature as well as the size of the materials selected, such as sponge or cotton-wool, are but ill-suited to the object in view, since they hold but a few drops of liquid and even these are sufficient so to clog them as to render them more or less impermeable to the air, which should pass in all directions freely through them. In fact, the physics of the right construction of oro-nasal and oral inhalers have been even less studied than has the chemistry of the substances employed. The "globe" oro-nasal inhaler consists of a covering for the nose and mouth of a material which, becoming flexible in hot water, may be accurately adapted after it is made to the contour of the face of the wearer—a point of great importance with all oro-nasal inhalers. To this is attached a light glass globe, which is filled with a suitable material packed so lightly as to allow of its ready permeation by the air drawn through it in inspiration. This is then charged with the medicines desired to be employed. Supposing carbolic acid to be used, the quantity would be from 1½ to 2½ grammes, = 23.14 and 38.57 grains, partially dissolved in 8 c.c. of water, = 2 drachms. The extent of the loss of this antiseptic varies according to the amount of the acid taken, the care with which the globe is charged, the greater or less vigor with which the act of inspiration is carried on, and the length of time occupied in the inhalation. When 2½ grammes are used and the inhalation continued for two hours the loss varies from half to one gramme, or 15.4 grains.

Although I have repeatedly used my "globe" oro-nasal inhaler with a charge of 2½ grammes of carbolic acid and have inhaled for two hours at a time, I have never experienced any decidedly ill effects, still I would recommend that the quantity used to begin with should not exceed 1½ gramme. The Pharmacopœial dose of carbolic acid for internal administration is one grain only. What portion of the amount of the antiseptic which disappears actually makes its way into the lungs has yet to be determined, but there is no question that, with my apparatus, much of it does really enter the system, part of it being absorbed by the mucous membrane of the mouth and fauces. A little, no doubt, is lost on the skin, and when a mustache or beard is worn upon it as well. While using this inhaler the carbolic acid may be strongly smelt and tasted, and in a short time the skin of the lips becomes whitened and a tingling sensation may even be experienced in them; these last effects are produced wholly by evaporation, as, although the quantity of water or other menstruum used is several times larger than that employed in ordinary inhalers, not a drop ever escapes

from the inhaler to the mouth, as so often occurs with most other oro-nasal inhalers. The last apparatus, the "globe" oral inhaler, consists of a glass globe with, on the distal side, an aperture and a cribriform plate for the entrance of the air during inspiration, and on the near side a flattened tube for the mouth, guarded by a valve, which prevents the air being discharged into the globe during expiration. The nose is uncovered, the flattened tube only enters the mouth, and the air is drawn through the globe in the same manner as through a cigar or pipe. By the use of this inhaler, the objection so often urged against oro-nasal inhalers is removed: that by covering the nose and mouth they restrict the entrance of the air and greatly impede respiration; moreover, its employment is far less irksome and fatiguing; it may be taken up or put down in a moment, and when once charged it may be used for one or two days, in most cases without requiring to be refilled. The ordinary quantities of carbolic acid for this inhaler are the same as those for the "globe" oro-nasal inhaler. All persons do not use oro-nasal inhalers alike; some inhale simply by the nostrils and close the mouth during inhalation, others inhale by both the nose and mouth, and this is the best way since the mouth being open, a portion at least of the medicaments used make their way directly to the throat without having to take the longer and more tortuous course, with the inevitable result of part of the substances becoming absorbed. The "globe" oral inhaler has therefore a distinct advantage over the "globe" oro-nasal inhaler in that the whole of the medicaments pass at once into the mouth, none being lost on the skin of the face and lips, on the mustache or beard, or in the convolutions of the nares.

I have communicated all the necessary particulars to Mr. Banks, of the firm of Messrs. Maw, Son & Thompson, respecting the four different kinds of apparatus above described, and he is now having them constructed. The firm will therefore, I hope, be prepared to supply them very shortly.

San Remo.

NOTES OF A CASE OF UTERINE FIBROID REMOVED BY ABDOMINAL SECTION.

PEDICLE TREATED WITH SILK; HÆMORRHAGE IN TWELVE HOURS; REOPENING OF ABDOMEN, AND APPLICATION OF KOEBERLE'S SERRE-NEUD; RECOVERY.

By J. CRAWFORD RENTON, M.D. Edin.,

Surgeon to the Dispensary of the Western Infirmary; Surgeon to the Eye Infirmary, Glasgow.

Mrs. A—, aged thirty-five, married, no family, was sent to me in October, 1882, by Dr. Allan. She complained of a swelling in her abdomen, which she stated had existed for ten years; recently it had grown somewhat, and had given her pain and inconvenience, so that she was anxious to have it removed if possible. On Nov. 10th she was admitted to the Training Home for Nurses. On examination per hypogastrium, a round doughy tumour was found, movable, with obscure fluctuation; measurement round umbilicus thirty-two inches. Per vaginam: The uterus is high up in the pelvis, but movable, and seems to move along with the tumour; probe passes easily. Per rectum: The tumour is felt passing into Douglas' space; menstruation regular. Had not had attacks of menorrhagia. Dr. Allan and Dr. Beatson examined the patient with me, and we were of opinion that we had probably to deal with a uterine outgrowth closely attached to the uterus. The

woman was otherwise in good health and with no history of serious peritoneal pains, and as the mass gave rise to great discomfort we recommended her to have it removed.

On Nov. 18th, assisted by Drs. Allan, Beatson, and Nairn, I performed the following operation. An abdominal incision, four inches in length in the median line, was made, and the surface of the tumour exposed. No adhesions were found except one or two at the right side; a trocar was passed into the growth, and as only a little blood escaped, it was evident that we had to deal with a solid tumour. The abdominal opening was enlarged two inches upwards and downwards, and the tumour was found growing from the uterus and attached by a distinct pedicle, which was six inches in circumference and two and a half in thickness. The tumour was turned out and a Foulis's band, fitted with hooks instead of the ordinary catch, was applied to the pedicle. This controlled the large vessels in it; and on Dr. Beatson's suggestion I passed a skewer through the pedicle above the band and then cut off the tumour with the ovaries attached. I now secured the pedicle with four strong Keith's silk ligatures below the band, and having done so I removed it and cut off with the cautery an inch and a half of the pedicle, which was now dropped into the abdominal cavity, the wound closed with silk sutures, dressings applied, and the patient placed in bed. The operation lasted an hour and twenty minutes from the commencement of chloroform inhalation to the time the patient was in bed, the length of time being accounted for by the fact that cutting through the pedicle with the cautery was very tedious. Evening: The patient is weak. Pulse 132; temperature 99°.—19th, 10.30 A.M.: The patient collapsed; pulse hardly perceptible; pain in the abdomen, some distension. Hæmorrhage had evidently occurred; and, with the approval of Drs. Allan and Beatson, ether was administered both by inhalation and subcutaneously, and I opened the wound. I found that the pedicle was bleeding freely, shrinking having taken place and the ligatures ceasing to act. The pedicle was drawn up, and Koerberle's serre-neud, which I had obtained through the kindness of Dr. H. Cameron, was applied firmly round it and left fixed in the lower angle of the wound, the clots were cleared out, and the wound again closed. The form of clamp used was most convenient, as it can be gradually tightened as the pedicle shrinks. Stimulants were freely given and ether injected subcutaneously; but the pulse continued frequent and weak. The patient took stimulants and soup, and subcutaneous injections of ether were continued, as they always appear to improve the pulse.—20th, 11 A.M.: Pulse continues to be very rapid, and at times barely perceptible, patient weak and collapsed looking; it was therefore quite evident that unless some improvement took place soon our patient would die. I accordingly determined to perform transfusion unless there was some improvement by two o'clock. At Dr. Allan's suggestion we gave her warm milk in half teacupfuls every half hour, and this she retained, so that by 2 P.M. her pulse was perceptible and not so rapid. This seemed to be the turning-point, for notwithstanding certain alarming collapses she gradually improved, and was soon able to take any form of simple nourishment. The wound healed once, and the clamp separated on the 28th day, the aperture closing a few days afterwards, and the patient was dismissed well on January 6th, 1883.

Remarks.—The result of the operation fully justifies the procedure adopted; at the same time I feel that but for the splendid nursing she received in the training home, she could not have survived

the double operation. It may be argued that there was no urgent bleeding to call for the tumour being removed, but the discomfort and mental annoyance it caused, along with the acknowledged safety of such operations, were sufficient for agreeing to perform it. Whether removal of the ovaries would have been sufficient I cannot say; but in future cases I shall be inclined to try; especially if the patient is weakened by loss of blood. As regards the tumour, it weighed five pounds, and was a distinct outgrowth, and on section presented a very definite fibroid appearance. Dr. Newman examined the specimen, and found that it presented all the characteristics of a uterine myoma.

Glasgow.

ON COLECTOMY.

By C. A. BALLANCE, M.S. Lond., F.R.C.S. Eng.

THERE are some points in Mr. Lammiman's case of colectomy, published in *THE LANCET* for October, upon which I have a few remarks to offer. I wish also to add brief notes upon the operation of colectomy in general.

1. Mr. Lammiman states that in his case the stricture was scirrhus. I should be glad to hear whether this conclusion was the result of microscopical examination. The hard annular strictures occurring in the upper part of the rectum, sigmoid flexure, or lower end of the descending colon, are usually identical, I believe, with the new growth known as columnar epithelioma. It is not possible to distinguish scirrhus from columnar epithelioma by the naked eye appearance alone. In these cases the new formation is of very slow growth, and before complete obstruction supervenes there is a period during which symptoms referable to the intestinal canal present themselves, and the importance of which at the time they occur is not often recognized. It is interesting to learn that Mr. Lammiman's patient exhibited symptoms of intestinal derangement previous to the occurrence of her fatal illness.

2. I fail to appreciate the advantage of administering, as Mr. Lammiman says that he did, a "competent purgative" when symptoms of acute obstruction are present. Such treatment would appear to me likely not only to increase the present peril of the patient, but would interfere greatly with the chance of recovery if operative measures were subsequently undertaken.

3. There is a point upon which I can throw some light—viz., the passage of the rectal tube for such a long distance, while the stricture was comparatively a small way only from the anus. During the month of February, 1881, I assisted Mr. Pitts at an operation for the relief of intestinal obstruction. The cause of the obstruction was discovered, after making a small median incision of sufficient size to allow the hand to be passed into the abdominal cavity, to be a hard annular stricture of the sigmoid flexure exactly as described by Mr. Lammiman. Previous to the operation I had easily passed the rectal tube for eight inches, and at the operation, simply as an experiment, the instrument was used again, and, on reaching the stricture, was seen to bend upon itself, and to return the way it came.

Mr. Pitts' case was published in the St. Thomas's Hospital Reports, and he was the first, I think, to suggest the operation of colectomy in such cases. Mr. Pitts also pointed out the ease with which colectomy can be performed after gastrotomy, by cutting upon the finger placed within the abdominal cavity, and, further, that in this way a colectomy incision through the abdominal parietes an inch

in length is quite sufficient, and that both the colectomy and gastrotomy wound can be kept completely aseptic until union between the deeper tissues be accomplished.

That colectomy will in the future in a great measure take the place which in the past has been held by colotomy I have no doubt; but I am not so well assured that in this country we shall ever attempt the cure of stricture or gangrene, artificial anus or fæcal fistula, by complete resection of the gut and immediate union of the divided ends with such confidence as continental surgeons. It would appear that the English as a nation are not constitutionally so well fitted to bear operations as the people of some other countries. Last winter I read before the Medical Society of London a case of Vesico-intestinal Fistula following Dysentery, which I had treated by colotomy. I ventured to suggest colectomy for the treatment of like cases when the fistula was not due to malignant disease, and when there was good reason to suppose that the intestine was implicated somewhere below the upper part of the descending colon. By this method the contents of the bowel would escape entirely by the artificial opening, and thus the fistula would have rest from the passage of feces, and might ultimately close. When there is any uncertainty as to the cause of the trouble in patients with obstruction of the bowels, and therefore the possibility that colotomy would fail to afford relief, I think it infinitely preferable to make a small incision in the median line so as to explore the abdominal cavity. With thorough antiseptic precautions the danger of such a proceeding is reduced to a minimum. Not only is there no disadvantage arising from such a proceeding, but, on the contrary, I should look upon it as the pathway of safety. If such a case were to occur to me as that in which Mr. Lammiman performed colectomy in the loin, and the patient would submit to the operation at a period when a satisfactory issue might be anticipated, I should certainly choose the abdominal incision, bring the stricture out through the wound, ligature the bowel on each side of it, excise the stricture with every care to keep the parts aseptic, and then attach the proximal portion of the gut to the margins of a small incision made by cutting down upon the finger placed within the abdominal cavity through the iliac or lumbar regions of the abdominal parietes. Colotomy, again, is often performed on patients suffering from cancer of the rectum to remove obstruction, or for the relief of the pain produced by the passage of feces over an ulcerated surface. It is well known that a portion of the contents of the bowel still passes by the natural channel; it will therefore be obvious that the interruption of the continuity of the gut by ligature or division below the artificial opening would be a great improvement upon the old operation. Colotomy is without doubt a very imperfect method of practice, but it must still find a place in surgical procedure. The hope, however, may be expressed that the day is not far distant when colectomy, or perhaps complete resection of the intestine, will supersede it in many instances.

Harley-street, W.

— *THE Union Médicale* narrates a case of obstruction of the lower third of the small intestines, which proved fatal in a child aged two hours. The cause of the obstruction was found to be due to a mass composed of twenty dead lumbricoid worms and some débris of *gras-double* (fragments of gastric mucous membrane of the ox), of which the child and its parents had partaken abundantly.

SEASIDE DRINKING WATER.

By EDW. NICHOLSON, F.C.S., F.I.C., S.S.C. Camb.,
Brigade Surgeon, Retired List A.M.D.

A NOTE in THE LANCET of a recent date induces me to give some of my experience on its subject. During a varied experience of Southern India I had an opportunity of examining the water-supply of many of its stations, and thus controlling the accounts given of the water-supply of many other stations. A great part of Southern India is "seaside," and much that is now dry land, even plateau-land 1,000 feet high, has been seaside at a comparatively recent geological period. The recognition of this led me to use water analysis as a means of geological investigation as a test of the past history of the country, and the results of prolonged investigation led me to discredit a great part of the sanitary opinions deduced from analyses of water made without sufficient recognition of the past history of the soil. The presence of much chlorides in water is too often concluded to be due to sewage contamination. Waters must not be judged from some abstract standard of purity; in each locality there is a general standard of pure subsoil water, to which the various waters may be referred, and the cause of deviations from the standard must be investigated. More or less salinity may arise, not only from the mineral part of sewage, but from marine salts deposited in various ways:—1. From old deposits in a soil not long risen from the sea. 2. From the residue of saline rain water. 3. From the migration of deposits down the subsoil of a valley to a previously pure spot. Another supposed source is the infiltration of sea water into wells near the shore. But this is far less frequent than is supposed. There may be wells of desalinated sea water, of water purified from salt by filtration; but I doubt whether there are many instances of wells in which originally good water is spoiled by infiltration from the sea. Let us suppose rain falling, for instance, on a coral island; if the rainfall be sufficient, the porous soil will soon become saturated with fresh water which will sink down and displace infiltrated sea water. In course of time the saline deposits will decrease to a minimum, and the island will retain in its porous subsoil a head of water which, so long as it is higher than the sea water, will effectually keep this out. As a matter of fact, all seaside places in which the level of the subsoil water is higher than that of the sea are secure against infiltration of sea water. The greater the rainfall, and the greater the height of the retained water in the subsoil, the more effectual will be the washing out of any marine deposits in the subsoil. Where the land is of comparatively recent upheaval, where the rainfall is small, where the land is too low to keep up a steady outward pressure of subsoil water against the sea, the process of washing out is slow, and the water may be normally brackish. I would instance the whole eastern or Coromandel coast of India. There the rainfall is small, coming principally in bursts which flood the rivers, but do not penetrate the soil thoroughly. Consequently it is found that the water is frequently brackish, except where the well is in the neighborhood of a watercourse. Long after the Indian watercourses, from the small nullah, or ravine of a storm-torrent, to the river half a mile broad, have dried up under the influence of the dry season, there remains an underground sheet of water in the interstices of the subsoil; this sheet of water presses down the valley and supplies any well which may be sunk within its influence. This water is generally free from salinity in proportion to the washing effect it has

had in past times on the subsoil. There is, however, an exception. The moving sheet of water carries along with it a certain quantity of salts, and should it all be drawn to the surface and exhausted by the effect of prolonged drought, its salts are deposited in the soil. Next year's rains dissolve the salts and carry them further down the valley, hence the phenomenon of a diffused mass of salts migrating along the lands and either sterilizing them or rendering the waters brackish during their sojourn. Where the position of the country is unfavorable to this washing-out process the brackishness may be persistent. This must not be confounded, as it is likely to be in seaside places, with infiltration of sea water.

Thus, the salts which cause more or less brackishness in the subsoil water may not be from original marine deposits in the soil; they may be deposits by rivers or torrents which have since taken another course or which have dried up. And it must be remembered that salts may not be marine in the ordinary sense. There is a perpetual circulation of salts between sea and land, and, though it is probable that the sea is becoming, in the present geological period at least, more and more saline, yet a great part of the millions of tons of salts swept every hour, nay every minute, into the sea is being continually restored to the land. A remarkable instance has recently come under my notice. I began some weeks ago an examination of the waters of Guernsey, where I was then stationed, and I was surprised to find that the purest subsoil water contained nearly eight parts in 100,000 of sodium chloride, out of a total of seventeen parts of mineral constituents left on evaporation. This water was from a well in which the water lies at about 230 ft. above the sea-level and 60 ft. from the surface; the well is about a quarter of a mile from the edge of the cliffs; its situation and surroundings (in an unmanured field, without any buildings within several hundred yards, and pumped by machinery) are such as to remove all suspicion of contamination. Yet, what would theory not say of a water containing 4·6 centigrammes per litre of chlorine and 1·1 centigramme of nitric acid? Its quality would be expressed in terms of London sewage. Other waters from wells of equal purity were found to contain 5·3 centigrammes of chlorine and 1·9 of nitric acid in the litre. The approximate constitution of the solids was as follows:—

	Centigrammes.
Alkaline chloride.....	8·7
Alkaline sulphate.....	4·0
Nitrates.....	2·3
Earthy silicates.....	4·5
Earthy carbonates.....	3·3

22·8 per litre.

The hardness of the water was 9·6° (centesimal scale).

	Centigrammes per litre.
Ammonia, free.....	·002
Ammonia, albuminoid.....	·0056
Oxygen required by the permanganate process.....	·003

Whence could come these large proportions of marine salts, more than half of the solid constituents of the waters? The subsoil of Guernsey is gneifs, and the wells are cut in this rock. The source of the salts is to be found in the high salinity of the air saturated with marine vapors, and I have no doubt that the whole of the salts are air borne. These salts are continually being returned to the sea by the streams which pour down every valley and trickle from every cliff, but they are restored to the island as fast as they are washed away.

I regret that my departure from Guernsey cut short these investigations of an interesting subject. I, however, ascertained another fact bearing on the present subject. Several wells supplying houses on the esplanade in the lower part of St. Peter's Port (for the whole island is dependent on wells and rain-water cisterns) were found to yield brackish water. In some cases there was obvious sewage contamination, but where this was not evidenced by the amount of ammonia, it was pleaded that marine infiltration might be the cause of the salinity. I found, however, that several of the wells on the slope of open ground above this esplanade were equally, or nearly equally, saline and nitrous, and the circumstances pointed to a large cemetery and several streets of houses on a higher level as the sources of the salinity. As the drainage of the town is of comparatively recent date, it may be imagined that the subsoil of the thickly inhabited parts is considerably contaminated by sewage. The wells in contaminated ground usually yielded about 20 centigrammes of chlorides, 5 to 12 of sulphates, 8 to 14 of nitrates, out of a total of about 60 centigrammes of mineral solids per litre. The hardness ranged from 22 to 31 degrees centesimal ($1^\circ = 1$ centigramme per litre of calcium carbonate).

Returning to my Indian experience, I may mention that on the low Coromandel coast, where there is a comparatively scanty rainfall, wells near the seashore are frequently found to contain brackish water, while elsewhere conditions more favorable to washing out of salinity from the soil are accompanied by freedom from salinity, even though the wells be in very porous soil, and very near to the seashore. Thus on the western, or Malabar coast, the heavy rainfall has long ago washed all salinity out of the porous soil; wells near the shore, and dug down to the sea level (as evidenced by the sand at the bottom and the general level) yield water remarkably free from any salinity except that due to air-borne chlorides. The reason is, as I have said, that in every place where the rainfall is sufficient to wash the soil free of any original marine deposits, it will exercise a pressure sufficient to prevent all infiltration of sea water. Therefore, whenever the level of the subsoil water is above that of the sea, any salinity not due to sewage contamination must be ascribed to marine deposits or air-borne marine salts. Infiltration of sea water could only occur where the subsoil water was lowered by continuous drought. Could it, however, be produced by the pressure of high tides? I cannot answer the question positively, but I would venture to say that the fluctuating level of the sea could scarcely have effect at any considerable distance from high-water mark, and that high tides would only press back the water which low tides had drawn to the shore. The physical effect of the sea on the subsoil water of seaside places is then the same as that of other sheets of water, lakes, ponds, or rivers. Everywhere the level of the subsoil water is not below that of the sheet of water towards which it tends to flow. Apparent exceptions to this rule may occur where irregular cropping up of impervious strata dams the slope; but the rule here holds good as regards the underground sheet of water thus dammed up, though it may be a small supply, and soon exhausted. Where the sheet of water is the sea, the subsoil water can always be reached at a depth less than that of sea level, and less in proportion to the distance from the shore. And unless the subsoil water be exhausted by continuous heavy drought, in a well not far from the sea and sunk in very porous soil affected by tides, I do not think that infiltration of sea water can occur.

Palace-gardens-terrace, W.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendia, nisi quamplurimas
et morborum et dissectionum historias, tum aliorum tum proprias
collectas habere, et inter se comparare.—MORGAGNI *De Sed. et
Caus. Morb.*, lib. iv. Proœmium.

MIDDLESEX HOSPITAL.

CASES OF STRANGULATED HERNIA.

(Under the care of Mr. HULKE.)

THE many variations in their anatomical and pathological circumstances which herniæ offer have ever given to them a peculiar interest. The first of the following cases illustrates a not infrequent complication of the ordinary form of congenital scrotal rupture—a constriction of the sac at some distance below the external abdominal ring separating an upper from a lower compartment, the tunica vaginalis enclosing the testis. Such constriction, more than one may be present, marks a spot where there has been an approach to obliteration of the tube of the funicular process. Its significance in relation to strangulation is evidenced by the greater intensity of the congestion, etc., usually found in those parts of the protruded viscera occupying the sac below it, and also by the resistance it offers to their extrication and replacement in the belly after their complete liberation from constriction at the abdominal rings, an impediment which deceptively simulates that caused by adhesions of the viscera to the bottom of the sac or testis. Perhaps such complications account in some measure for the greater mortality of strangulated congenital ruptures noticed by more than one writer of eminence. The anatomical circumstances in the second case nearly resembled those in the first. The third case illustrates a very frequent event: the supervention of hernia upon retention of the testis in the inguinal canal. In the fourth case the inconveniences incidental to this *error loci*, together with the evidently imperfectly developed condition of the organ, justified its removal, a measure the propriety of which would have been doubtful had the organ been sufficiently mobile to have allowed its being drawn down out of the inguinal canal and planted in the scrotum, or even replaced in the belly. The fourth case exemplifies one of the gravest accidents that can happen in connection with a strangulated hernia—its reduction *en bloc* or *en masse*, by an improper use of the taxis, not infrequently by the efforts of an unskilful patient, who in his anxiety and suffering makes violent and ill-directed pressure in his attempts to reduce the hernia. After such an accident the surgeon who then first sees the patient, and is not informed of the previous circumstances, may, in the absence of an external hernial swelling, pardonably ascribe the symptoms to an internal intestinal obstruction. But reduction *en bloc* may also occur in herniotomy where the sac is not opened, and a thin shell of fascia or condensed subserous tissue external to the sac has been mistaken for this latter, in which case after liberation of every constriction at the abdominal openings, the sac still enclosing the protruded viscera may by injudicious pressure (which need not, however, necessarily be great) be detached from its surrounding connections, and slip up within the belly. This accident (which, oddly enough, was thought by an eminent author to oc-

cur only in inguinal hernia) appears to be more frequent in the femoral variety. Three instances of this occurred within the writer's knowledge in the course of one year in the practice of three surgeons, two of whom had a large experience in herniotomy, and the third one had already operated in several cases. In two of these cases persistence of symptoms caused a suspicion of the accident. The wound was opened up, the unopened sac, with its neck girdling tightly the intestine within it, was found outside the peritoneal cavity, below the pelvic brim brought into view and opened; the stricture formed by the neck of the sac was divided, and the gut replaced in the belly, but too late to avert a fatal issue. Of three cases within the writer's knowledge of reduction *en bloc* of inguinal hernia by improper taxis, two of the patients were males; in the other case, the rupture had habitually distended the left labium pudendi. The persistence of symptoms of obstruction, after an apparently successful reduction of the rupture, led to an exploration of the inguinal canal. The sac was found above the position of the internal abdominal ring, in a subserous space between the peritoneum and fascia transversalis. It was brought down, opened, and the intestine was liberated and reduced, but in this case also the error was recognized too late to save the patient's life. The interest of the fifth case lies in the early time of the operation—one hour after the occurrence of strangulation. Here, in view of the urgency of the symptoms, any delay would have been dangerous.

CASE 1. Strangulated Congenital Scrotal Rupture; Hour-glass Contraction of the Sac; Herniotomy; Recovery.—On June 12th, 1882, a cabinet-maker, aged twenty-five, who had previously occasionally noticed a fullness in his left groin, fell whilst running. He instantly felt severe pain in that region, and had great nausea. He found his scrotum swollen, and soon began to vomit. Two hours after the accident he was admitted into the hospital. The right inguinal canal and corresponding side of the scrotum were distended by a rupture, the scrotal portion of which, by its tenseness and the absence of impulse, was unmistakably strangulated, but this could not be certainly ascertained with respect to the inguinal portion. His suffering was very great; he writhed with pain; and he retched frequently. Anæsthesia was induced with ether, and, the taxis failing, herniotomy was at once performed. Reduction proved impracticable until the sac had been opened, when the obstacle was found to be a diaphragm-like septum, which subdivided the scrotal portion into an upper and a lower compartment, the latter of which also contained the testis. Division of the edge of the small opening in this septum liberated a knuckle of very congested small intestine, after which reduction was easily effected. On the 30th of the same month the man left the hospital convalescent.

CASE 2. Strangulated Bubonocoele; Serous Distension of the Scrotal Parts of the Funicular Process; Herniotomy; Hæmorrhage on the following day necessitating opening up of the Wound; Recovery.—A man, aged twenty-three, received through his horse falling a severe blow in the right groin, causing intense pain there. After a few minutes this abated so that he was able to remount and ride home, but three hours later it returned with increased intensity and he then began to vomit. On the following morning he was first seen by a doctor, who recognized the presence of a rupture and tried the taxis and ice, and as these measures failed he sent the man into hospital. Upon admission, about twenty-four hours after the injury, his right inguinal canal was found occupied by a very

tense, painful, and tender swelling, from which a painless, less tense, fluctuating oblong process, extended through the external abdominal ring into the scrotum. As the symptoms were acute and the strangulation had already lasted twenty-four hours, the rupture was immediately submitted to operation. The inguinal parts enclosed a knuckle of small intestine intensely congested. The scrotal part contained only serum. It communicated with the inguinal at the external ring by a circular opening of the size of a No. 10 catheter. The strangulation was at the internal abdominal ring external to the sac. In the following afternoon hæmorrhage occurred so free that the house-surgeon felt compelled to open the wound. The bleeding proceeded from several small arteries in the scrotal incision; they were secured. The bowels acted first on the thirteenth day, and on the twenty-third day the man was dismissed convalescent. The occurrence of such hæmorrhage is very exceptional.

CASE 3. Retained Testis; Strangulated Bubonocoele; Herniotomy; Removal of Testis; Peritonitis; Recovery. (From notes by the dresser, Mr. Stace).—An engineer, aged twenty-one, whose right testis had not descended into the scrotum, whilst straining in the watercloset suddenly felt pain in his right groin, and placing his hand there found a swelling. Within a few minutes of this occurrence he vomited, and he was sick again later in the day. Suffering acutely he took two opening pills, and as those did not act and his distress grew greater he was brought next day to the hospital. His right inguinal canal was occupied by an excessively tender, painful swelling, the lower end of which protruded slightly through the external abdominal rings. The intensity of the pain in the belly would not let him lie still, but he tossed about restlessly in bed. His face was pale and his pulse quick, small, and weak. There could not be any doubt that the swelling was an acutely strangulated bubonocoele. Ether was given, the taxis gently tried for a couple of minutes, and failing, herniotomy was immediately done. The sac contained about an ounce and a half of turbid bloody serum and a knuckle of distended, purplish-brown small intestine. The constriction was in the neck of the sac. Behind the gut was the testis, not larger than a small nut, and flabby. As it was evidently imperfectly developed and presumably functionally useless, and its situation exposed it to violence and would have made difficult the wearing a truss, it was removed. A sharp attack of peritonitis followed the operation. It was treated with opium internally, by mercurial inunction on the thighs, and the application of leeches, followed by fomentations to the belly. Coincidentally with the appearance of slight soreness of the gums the abdominal symptoms began to abate; they rapidly disappeared, so that by April 6th he had recovered as regarded the hernia, and was about to be dismissed when an attack of pleurisy necessitated his transfer to a medical ward.

CASE 4. Strangulated Inguinal Rupture; Reduction en masse; Herniotomy; Recovery. (From notes taken by the dresser, Mr. G. Cree).—An engineer, aged fifty-nine, who had been ruptured in both groins for twenty years, and had worn an inefficient truss, which sometimes let the ruptures slip by it into the scrotum, was seized with vomiting after eating heartily of pork on the evening of Jan. 1st. For this a druggist gave him purgatives. As these did not act, and his disorder increased on the 4th, he was seen by a medical man, who, learning he was ruptured, examined his groins, and not finding any swelling there, regarded his symptoms as indicative of an internal obstruction, and prescribed belladonna and opium. On the following

day he first detected a swelling in the right groin, and sent him into the hospital. The swelling was clearly a strangulated bubonocoele. The patient's cheeks were pale and sunken; the surface of the body generally was cold. The pulse was small, weak, and rapid. He vomited frequently, and the matter thrown up had a faecal appearance and smell. At this stage it was judged improper to repeat the taxis, which had already been tried by the former medical man, and herniotomy was done without delay. The sac was found to be very thick, and much congested. On opening it two ounces of bloody serum escaped, and the opening being enlarged several coils of small intestine protruded, the quantity being much greater than could have been contained in the inguinal canal. Most of this intestine had occupied a deeper part of the sac lying deeply in the belly between the fascia transversalis and the peritoneum. By drawing this down, the neck of the sac, which constituted the constriction, was brought within reach and divided, after which the gut, very congested and thickened, but not gangrenous, was easily replaced in the peritoneal cavity. The wound was washed out with chloride of zinc solution (forty grains to one ounce of water), and a drainage-tube inserted. A slip of oiled silk, covered by a pad of borie lint, secured by a bandage, completed the dressing. He passed a copious loose stool the same evening. His recovery was uninterrupted, and on the 16th of the month, eleven days after the operation, he was able to return home. The anatomical circumstances disclosed at the operation leave no doubt that by an improper application of the taxis by the patient himself the upper part of the sac had been detached from its connections in the inguinal canal, and thrust up more deeply in the belly, becoming bulged and punctured, but not torn. The straining attending the continued retching forced it again into the canal, and led to its detention here.

CASE 5. Large Strangulated Scrotal Rupture; Operation one hour after the accident; Sac Unopened; Quick Recovery. (From notes by the dresser, Mr. G. Cree.)—An enameller, aged forty, whilst at his furnace felt sick, as he thought, from the metallic fumes rising from his work, and beginning to vomit found his scrotum swell, and he was seized with severe pain in it and in the belly. When admitted into the hospital soon afterwards he was found to have an extremely tense scrotal rupture, of the size of a cocoanut. He was writhing with pain. His face and hands were cold, and bedewed with sweat. He had, he said, been ruptured for several years, and had worn a truss. As the rupture was irreducible by taxis, and its great tenseness and the severity of the symptoms indicated a very tight strangulation, it was subjected to operation one hour after the onset of the symptoms. After division of the margin of the external abdominal ring, and of some tight fibrous bands external to the neck of the sac, the contents were reduced without opening this latter. The bowels acted the same night. The wound healed by first intention.

KIDDERMINSTER INFIRMARY.

TWO CASES OF STRANGULATED HERNIA.

(Under the care of Mr. J. LIONEL STRETTON, honorary surgeon.)

CASE 1.—E. G—, aged thirty-three, female, unmarried, has been ruptured for two or three years and worn a truss, but latterly has left it off because it was uncomfortable. While straining at her work, carpet weaving, it came down, and she has not been able to return it. She was first seen

on May 31st, the following day. She was lying in bed, her expression anxious; her bowels had not been open since the 29th. She had vomited several times on the 30th; the vomit was said to be of a yellow color. There has been no sickness to-day. On examination there was found a small nodular swelling just below Poupart's ligament (right side) in the region of the saphenous opening. It is slightly red, very painful to the touch, resonant on percussion, no impulse on coughing. A slight attempt at taxis was made, and this failing she was ordered into the infirmary. On admission she was placed in a warm bath, and a further attempt at taxis made, but without success. After consultation she was placed under chloroform; another attempt at taxis was made, and this failing it was decided to operate. A vertical incision was made over the tumour and the sac carefully exposed; but as no constriction could be felt the sac was opened. The constriction was found at the femoral ring, which was very high up. The internal edge was nicked with a herniotome, and the gut easily returned. There was no omentum in the sac, and the gut was quite healthy though very tightly constricted. The wound was closed with silver sutures, a small piece of drainage-tube inserted at the lower end, and dressed with carbolic oil lint. To have one grain of opium pill at once, and half a grain every three hours. Iced-water to sip.

June 1st: Has had very little sleep. There has been no sickness. Slight pain in the region of the wound, but no oozing from the dressings. Tongue moist. Temperature 99.8°; pulse 116. To have one grain of opium every four hours. To have milk.—2nd: Has had a better night and feels more comfortable; passed flatus several times during the night; tongue moist. Temperature 101.4°; pulse 116. To have opium every six hours.—4th: Patient doing well; is menstruating; wound dressed, nearly healed; one stitch removed; opium stopped. Temperature 100°; tongue cleaning. To have beef-tea.—5th: Wound dressed again, remaining sutures and drainage-tube removed. Complaints of discomfort; the abdomen somewhat distended. To have enema of milk and assafetida.—7th: There has been no action of the bowels, still a good deal of distension. To have enema of gruel, castor oil and assafetida. Wound healed except aperture of drainage-tube.—8th: Bowels open twice in the night; she is much more comfortable; tongue clean. To have fish.—12th: Patient practically well. To have mutton chops.—20th: Truss ordered, but owing to a sore just below the left anterior superior spine she was unable to wear it and had to remain in bed a week or so longer, at the end of which time she was discharged cured.

CASE 2.—J. G—, male, aged seventy, married; first seen on July 11th at 8.45 p.m. He was in bed complaining of great pain and sickness, and said, "I think I am ruptured." Upon inquiry he said that he was mowing with a scythe at 1 p.m. when he felt something give way, and he was seized with great pain in his right groin. He was vomiting continually, the vomited matter was curdy, not faecal; his bowels had not been open for three or four days; since the accident he had wanted to stool but could not. Examination revealed a small swelling about the size of a walnut in the right groin, a little internal to the centre; it was so tender that no minute examination was made, but he was advised to go into the infirmary. At 10 p.m. he was seen at the infirmary, and after a consultation was placed under chloroform, and an attempt at reduction by taxis was made; this failing, the operation was proceeded with. The usual incision was made and the sac carefully exposed. It was then found necessary to open the sac, which

was accordingly done, when it was found to contain a small knuckle of healthy intestine and a larger piece of omentum, also healthy; the constriction, which was at the internal ring, was very light. Two little nicks were made in it, and the bowel and omentum easily returned. The wound was brought together with silver sutures, and dressed with carbolic oil lint. To have ice and water, a grain of opium in pill at once, and half a grain every four hours.—12th: Had a comfortable night, slept several hours. Much less pain; no sickness since operation. Temperature 100.4°; pulse 78; tongue dry. To have iced milk.—13th: Passed flatus several times yesterday and in the night; partakes freely of iced milk. Temperature 100°; pulse 70; tongue not so dry. To have a quarter of a grain of opium every four hours.—15th: Going on well. Tongue moist; temperature 99.6°; pulse 60. Dressed; nearly healed except lower part; upper sutures removed. Bowels acted this afternoon; motion natural. To have beef-tea; opium to be stopped.—20th: Is going on very well; temperature normal. Wound not quite healed at lower part. Bowels not open since the 16th. To have enema of castor oil and gruel. After enema bowels acted several times. To have mutton chop.—26th: Quite well. Tongue clean; bowels open; appetite good. Wound not quite healed.

Aug. 1st: Wound healed. Truss ordered.—8th: Discharged cured.

Remarks.—These two cases are instances of rapid recovery after operation for strangulated hernia without the so-called antiseptic (Lister) treatment. The success I attribute to two reasons:—(a) The early operation. (b) The absence of any rough manipulation. In neither case was there the slightest room for anxiety after the operation. In the first case the temperature never exceeded 101.8°, though we had the extra upset of menstruation on the fifth day; and in the second, a patient of advanced age, the temperature never exceeded 100.8°. That the operation *per se*, if all due precautions as to cleanliness be taken, is not one of extreme danger, I feel sure. And if cases were only seen early enough, and the operation at once resorted to before too vigorous attempts at taxis had been made, the mortality would, I think, be greatly reduced.

GENERAL HOSPITAL, BIRMINGHAM.

TWO CASES OF MALIGNANT DISEASE OF THE OESOPHAGUS; GASTROSTOMY IN ONE CASE, INCOMPLETE GASTROSTOMY IN THE OTHER; DEATH; NECROPSY; REMARKS.

For the following notes and remarks we are indebted to Mr. Gilbert Barling, M.B., F.R.C.S., resident surgical officer.

Malignant Disease of the Oesophagus; Gastrostomy; Death; Necropsy. (Under the care of Mr. Bartleet).—Richard W—, aged forty-five, was admitted on May 9th, 1883, complaining of difficulty in swallowing his food. He stated that in the previous September he was almost choked in swallowing some meat, since which time he had had to wash his solid food down by drinking very frequently. For six weeks before admission he had not taken anything solid, and occasionally had swallowed fluids with difficulty, especially early in the morning. He had not vomited either blood or pus.

On examination it was found that the man could take milk in small quantities with but little discomfort, but that on attempting to swallow bread or minced meat he experienced much pain, referred to the top of the sternum; this was followed by

eructations until the solid particles were vomited. A bougie passed twelve inches from the teeth before encountering any obstruction. There was no history of traumatism, nor evidence of syphilis or malignant disease to be found in the glands, etc. Loss of flesh was said to be considerable; the urine was of rather low specific gravity, contained a trace of albumen, and an occasional cast.

After consultation with his colleagues, Mr. Bartleet determined to perform gastrostomy, the patient expressing his willingness to undergo any operation, as he was so troubled with hunger. The first part of the operation was performed on May 18th (the method of Howse, as described by Mr. Durham in Holmes's "System of Surgery," being adopted). The abdomen having been opened in the linea semilunaris, a double ring of sutures was inserted to bring the stomach and parietal peritoneum in broad contact. Finding a handled needle inconvenient for passing the outer ring of sutures, Mr. Bartleet adopted the following plan: a piece of silk was threaded with a needle at each end; one needle was passed through the outer coats of the stomach, and then each needle thrust vertically through the abdominal wall an inch from the edge of the wound; six of these sutures were placed in position, and then each was tied over a piece of catheter. The wires first used to fix the stomach were left *in situ*. Lister's method of dressing was employed.

There was no vomiting after the operation. Nutrient enemata were administered every four hours and the lips moistened with water, no food being allowed by the mouth until the second day, when two teaspoonfuls of milk were given by the mouth every hour, and this quantity was gradually increased until May 29th (eleven days after the first operation), when the stomach was opened with a tenotome. Through the opening milk was cautiously introduced, and eventually eggs, broth, and minced meat, the enemata being stopped altogether on June 7th. For a time the patient gained ground, and was so well as to be able to take a little walking exercise, but at the end of June he suffered much discomfort from a profuse flow of gastric juice from the fistula, which could not be controlled, as he could not bear the pressure either of a flat pad or of a plug in the orifice, owing to the pain these caused in the abdomen. He now became much weaker and thinner, and about the middle of July took to his bed again, and died in the tenth week after operation.

The necropsy made by Mr. Puyne revealed a stricture in the oesophagus two inches and a half from the stomach; it was nearly an inch in length, and admitted a body about the size of a No. 10 catheter. There was no ulceration, nor was there dilatation above the stricture. Microscopically it proved to be a carcinoma, which would be best defined as an atrophying scirrhus; there were no secondary deposits. A large gland at the bifurcation of the trachea was suspected of carcinomatous enlargement; but on microscopic examination no evidence was found of epithelial infection. The stomach was attached to the abdominal wall by very firm adhesions, which extended from the fistula for fully an inch in every direction. On opening the viscus, its mucous membrane appeared healthy and its cavity uncontracted, the fistula was found to open about an inch nearer to the pyloric than to the cardiac end, and about midway between the upper and lower borders. An abscess cavity capable of holding nearly a pint of pus was found adjacent to the upper border of the stomach; lying first of all between that viscus and the liver, then passing over the edge of the liver, it was limited below by that organ and the spleen, and above by the diaphragm. The left

lung was firmly adherent by its base to the diaphragm. The kidneys were cirrhotic.

Malignant Disease of the Oesophagus; Uncompleted Gastrostomy. (Under the care of Mr. Jolly.)—J. L—, aged fifty-eight, was admitted on April 26th, 1883, complaining of inability to swallow his food. The patient first came under observation in October last, with enlarged glands below the pinna of the left ear, these were hard, irregular, and fixed; but there was then no complaint of dysphagia, and although it was suspected that the glands were enlarged secondarily to a malignant growth elsewhere, nothing could be discovered in such parts as were accessible to examination. About May the patient noticed that he had pain in swallowing his food, the pain being referred to the middle of the sternum. This trouble increased steadily, so that at the time of admission he dreaded taking any solid food, which at times stuck in the oesophagus and was vomited, but the vomit did not contain either blood or pus. There was evident rapid emaciation. The glands at the side of the neck were much larger than they were in October, and they displaced the trachea to the opposite side; the left axillary glands were also enlarged. Nothing abnormal was to be seen or felt in the air or food passages. Bougies were not passed.

Gastrostomy was decided upon, and the first stage of the operation was performed on May 15th, the abdomen being opened in the linea semilunaris and the stomach stitched to the abdominal wall by one ring of sutures, which transfixed only the outer coats of the stomach, and were then passed through the edge of the wound. Listerism was followed in the dressings. Nutrient was administered by the rectum for the first thirty-six hours only, after that a little milk was allowed by the mouth. There was no vomiting after the operation and hardly any complaint of pain, but thirst was very troublesome. The patient progressed fairly for three days, at end of which time it was evident that he was losing strength, and that his blood aeration was not well performed. He died on the morning of the 20th, the stomach not having been opened.

The necropsy made by Dr. Windle showed a stricture in the oesophagus midway between the cardiac end of the stomach and the crossing of the aorta. The strictured portion felt very hard, and there was no ulceration. Microscopic examination demonstrated that the stricture was carcinomatous; in parts the spheroidal cells, and in others the stroma, predominating. The stomach had been secured at one-fourth from the cardiac end, and at one-third upwards from the great curvature. There was a circle of adhesions between the viscous and the abdominal wall, with a diameter of about an inch; these were moderately firm, but some gave way on handling. The only secondary deposits found were those above-mentioned in the neck and axilla. The right lung was pneumonic almost throughout, in the state of grey hepatization.

Remarks.—There are some points in these cases to which attention should be called. With regard to the outer ring of sutures, the plan followed in the first case is more convenient than that advised by Mr. Durham, and not only more convenient, but safer, as harm is less likely to happen to the stomach walls. It is very important when opening the stomach to make a mere puncture only, as the wound so readily gapes; and this puncture should be made between the wire holders, which it is important to retain, with a quick vertical thrust, for the stomach wall is so thickened and yielding that it would be very easy to separate the adhesions, and so open the peritoneal cavity, as

was demonstrated in the second case when the body was on the post-mortem table. Although the abdomen was open in each case through the linea semilunaris, there was considerable difference as to the position at which the stomach was secured, an important detail, because it has probably been a bar to greater success in many cases that the stomach has been opened too near the pylorus or to the lower border. A suggestion made by Mr. Butlin may obviate this difficulty. It is that a vertical incision be made in the abdominal wall and the stomach carefully examined before it is stitched in the wound, so that a suitable part may be opened; the vertical incision enlarged either way would give more room for this purpose than the curved. The existence of the abscess in the completed case was a great surprise, as there had been nothing to suggest its existence during life; but it is probable that the pain which came on when pressure was applied to the orifice of the fistula was due to the compression of the abscess sac, and so this complication must be regarded as interfering with the more complete success of the operation. How the abscess arose is not easy to explain, but it is most likely to have commenced at the irritation around one of the outer sutures; two of these were left *in situ* until the seventh day, when there was a little suppuration around them, and from this the abscess possibly extended. But the most important consideration is whether the patients gained by the operation. As regards relief from hunger, the first patient was much benefited; whether his life was prolonged it is difficult to say. It must be conceded that the second patient's life was rather shortened than lengthened, as the pneumonia which caused his death was probably due to the operation and the subsequent rigid confinement to the recumbent position. It teaches one lesson, however, that where operation is meditated it should not be deferred until the patient's powers are too far diminished to bear the strain that will be thrown upon them; in fact that gastrostomy should not be looked upon as a forlorn hope, but that it should rather be regarded as a palliative in the light that colotomy is. The pathology of the growths is interesting; the first was an undoubted scirrhus carcinoma; the second, too cellular to be defined as scirrhus, was yet not an ordinary epithelioma, neither from the type of its cells nor their arrangement. The glandular affection, too, arising in the second case before complaint of oesophageal obstruction is worth alluding to.

ASHBURTON AND BUCKFASTLEIGH COTTAGE HOSPITAL.

SEVERE HEAD INJURY, WITH TOTAL UNCONSCIOUSNESS FOR ELEVEN DAYS AND PARTIAL FOR FORTY-THREE DAYS; FRACTURE OF LEFT LEG; RECOVERY.

(Under the care of Dr. JAMES ADAMS.)

F. A—, a butcher's boy, aged twelve, was admitted on the evening of September 7th, 1882. He had been thrown from his horse and dragged a considerable distance with his left leg caught in the stirrup. He had sustained the following injuries:—Two lacerated scalp wounds over the left parietal region and a deep wound along the left eyebrow, all extending to the bone; division of the left upper eyelid; both eyes closed by the swelling all about them; nose and left cheek excoriated; both lips swollen; fracture of the left leg just above the ankle, the inner point of the upper fragment of the tibia projecting prominently beneath the skin, this point being subsequently pushed

through, converting it into a compound fracture. About half way up the leg on the inner side venous blood was freely flowing from a small wound, into which a probe could be freely passed for some distance in a downward direction. Neither at first nor afterwards could any fracture of the skull be detected, although the symptoms and course of the case indicated serious brain lesion.

When admitted into the hospital the boy was unconscious and almost pulseless. The skin was pale and cold. With difficulty the boy was made to swallow a little brandy and water. He passed urine in the bed involuntarily in the night. The wounds were dressed with carbolized oil. The leg was put up with a back and two side-splints. The ward was kept darkened. The head was shaved, and cold water applications kept up as far as possible. Milk diet and brandy were given, and three grains of calomel were administered at night for three nights.

Sept. 8th, 10 A.M.—Temperature 98°; pulse 150, soft and variable. Breathing shallow and irregular. Restless night. No urine voided during the day, and in the evening a catheter was passed and the bladder emptied. This was done twice a day for a fortnight. An enema with castor-oil in it was given daily.—10th, 11 A.M.: Temperature 99°. Bad night, very restless, turning from side to side and displacing the leg splints. Scalp wounds doing well. Takes milk freely.—12th, 8.30 P.M.: Temperature 100.4° (this was his highest temperature). Restlessness continues by night and day; he is scarcely still for a minute. Had to put up the fracture again under a whiff of chloroform, the projecting point of the fractured tibia causing redness of the skin and threatening to come through. Gave him ten minims of Battley's solution each night.—17th, 10.10 A.M.: Temperature 97°. Breathing shallow and very irregular. Pulse soft and very variable. Still restless and tossing about, and requiring constant supervision to prevent his falling out of bed. First spoke this evening, asking for drink. Ten drops of Battley's solution were given at night, and five in the morning.—23rd: Extreme restlessness continues. The tibia thrust through the skin by the constant twisting and moving of the leg, making the fracture compound. The splints had to be again adjusted under chloroform. Noisy, shouting frequently for nurse, drink, etc. Takes milk and broth well, and sometimes an egg. The bowels act involuntarily and urine passed in bed involuntarily. Instead of opium, chloral hydrate and bromide of potassium were given.

October 7th.—Very restless and noisy, requiring very close attention to prevent his falling out of bed. Mind a little clearer. Kept repeating a word or sentence. Began to know when his bowels acted; also knew when he wanted to pass water.—10th: More irritable and restless. Impossible to keep the splints in place. A wound as large as a florin above the inner ankle caused by the movements of the fractured tibia. Not the slightest union between the fragments. Appetite good. Chloral hydrate and sedative solution of opium were given every four hours. The opium was gradually increased till in one day, in the course of twenty-four hours, he took a drachm of Battley's solution and a drachm and a half of chloral hydrate without any ill effect. This combination seemed to quiet him more than anything else he had taken.—18th: Mind distinctly improved and restlessness less. Had a fit of weeping, and was grieving bitterly about his friends and saying they were angels. The draught only required at night.—21st: Mind clear and right. No restlessness. Keeps the leg still. Put up fracture for the last time in fairly good position.

November 28th.—Fracture has united; starch bandage applied. The boy was allowed to get out of bed for the first time.

December 19th.—Discharged with brain power natural. Firm union of fracture with only three-quarters of an inch shortening. A small bit of bone from the projecting end of tibia necrosed and came away, and the wound after this healed kindly.

Remarks.—There were two points of special interest in this case—viz., the prolonged and acute cerebral symptoms followed by complete recovery, and the good result of the compound fracture notwithstanding its having undergone for six weeks such constant and severe disturbance before it was finally set.

SEAMEN'S HOSPITAL, GREENWICH.

TROPICAL ABSCESS OF LIVER; FREE INCISION; ABSENCE OF PERITONEAL ADHESION; RECOVERY; REMARKS.

(Under the care of Dr. CARRINGTON and Mr. JOHN-SMITH.)

For the following notes we are indebted to Mr. W. T. Hodge, clinical assistant.

H. H—, boatswain, aged thirty-two, was admitted on Aug. 9th, 1883. The patient had been frequently in tropical climates. He contracted dysentery three years previously in Calcutta, but got quite well of this. Two months before admission he had an attack of severe pain in the "pit of the stomach." This was continuous and aching in character, and went off after twenty-four hours. The present illness commenced on Aug. 4th, 1883, when the patient was seized with severe pain in the epigastrium, which was followed shortly afterwards by pains between the shoulders and in the lumbar region. He had suffered in this way up to his admission. He had no rigors, but constant sweating, great thirst, and loss of appetite. The bowels acted about six times in the twenty-four hours, the evacuations being rather light in color.

Condition on admission:—The patient lay upon his back, with anxious expression and somewhat restless. The skin was hot and dry; the tongue was thickly coated with yellow fur. There was dulness on percussion in the right hypochondriac and epigastric regions, extending as far as two inches below the free margin of the ribs, and reaching across the median line as far as the eighth costal cartilage. The upper limit could not be defined on account of the excessive tenderness. Pressure over this area caused great pain, more especially at a point three inches above the umbilicus, a little to the right of the middle line. Neither pain nor gurgling was elicited by pressure on the right iliac fossa. Respiration 30, thoracic, shallow, with a catch at the end of inspiration; breath-sounds normal in front and axillary regions; heart normal; pulse 98; urine albuminous; temperature 104.8°.

On August 10th there was perceptible bulging at the part that was so markedly tender on the previous day. Poultices were applied over the right hypochondriac region, with the result of much diminishing the pain and tenderness, so that the swelling could on Aug. 11th be freely touched and handled, whilst formerly the slightest touch made him wince. On the 12th an exploratory puncture was made at a point two and a half inches from the median line, and half an inch below the margin of the ribs, the needle being passed upwards and backwards. When three inches had been inserted pus was discovered; it was perfectly sweet.—Aug. 10th: Morning tem-

perature, 101.8°; evening 101°.—11th: Morning temperature, 99°; evening 100.4°.—13th: Morning temperature, 98.4°, before the operation; evening, 101.8°. On the 13th the patient was placed under the influence of ether, and Mr. Johnson-Smith introduced an exploring needle just below the right ribs, and again drew off pus; under the carbolic spray he then made a vertical incision two inches long, passing through this spot. A director was passed into the abscess, and a free incision made into the cavity by a blunt-pointed bistoury passed along it. About a pint of pus and broken-down liver substance, mixed with blood, escaped. The finger introduced through the incision passed through about an inch of liver into a large abscess sac, and it could also be freely passed into the peritoneal cavity, for no adhesions existed. A large drainage-tube was introduced. The abdominal wall was pressed down upon the liver by two large sponges bandaged on, and the wound was dressed with antiseptic precautions. On the 14th the patient felt quite comfortable. The wound was dressed, and there was a large quantity of discharge upon the dressings. This was perfectly sweet. There was no oozing of pus from the wound. The cavity was not washed out, for fear of destroying newly formed adhesions. Morning temperature, 98.4°; evening, 98.2°.—15th: He slept well last night, and this morning was in no pain. The wound was dressed to-day, and the abscess cavity syringed out. It was looking very healthy. Morning temperature, 98°; evening, 99°.—16th: Patient has been going on well. His appetite has returned. Fish diet ordered. Morning temperature, 98.2°; evening 98.8°; pulse 92.—17th: His wound was dressed to-day. There was a large quantity of perfectly sweet discharge. The drainage-tube was shortened and the sponges discontinued. Morning temperature, 98.4°; evening, 98.4°.—18th: Dressed. A large quantity of sweet discharge. Morning temperature, 98°; evening, 98.4°.—19th: Dressed. Condition unchanged. Morning temperature, 98°; evening, 98.4°.—20th: Dressed. The discharge was slightly diminished. Morning temperature, 98°; evening, 98.4°.—21st: Dressed. Discharge quite sweet. The drainage-tube is more and more extruded from the wound each day, and cannot be made to pass any further into the cavity. It was shortened to-day.—22nd: Dressed. Morning temperature, 98°; evening, 98.4°.—23rd: Dressed; discharge diminished in amount. Morning temperature, 98°; evening, 98°.—24th: Dressed. The discharge does not now amount to more than one or two ounces. The wound is looking very well. Morning temperature, 98°; evening, 98°.—25th: Dressed. There was very little discharge. The drainage-tube was shortened by about an inch. No pus came out on syringing the cavity. Morning temperature, 98.4°; evening, 98°.—28th: Dressed. About three-quarters of an inch of the drainage-tube was cut off. Morning temperature, 98°.—29th: The patient was allowed to get up.—30th: Dressed. Discharge less.

Sept. 2nd: Dressed. Spray dispensed with.—4th: Dressed. Drainage-tube shortened by half an inch. No discharge on syringing out, and very little in dressings.

The patient now gets up every day, and walks about without feeling any pain in his side. The wound is now simply a sinus, which is healing up steadily from the bottom.

Remarks by Dr. CARRINGTON.—The case seems worthy of record, both from its rapidly favorable termination, and from the fact that, in spite of the entire absence of adhesions between the liver and abdominal walls, no ill-effects ensued from the free incision of the abscess. It is the custom now at the Seamen's Hospital to freely excise all

hepatic abscesses under the carbolic spray, and it is rare to find adhesions shutting off the peritoneal cavity absent. Probably the freedom of the incisions, the large drainage-tube, the careful bandaging, and the antiseptic precautions, had much to do with the favorable issue of this case.

LIVERPOOL ROYAL INFIRMARY.

EXCISION OF A TUMOUR FROM THE STYLO-HYOID REGION; LIGATURE OF THE COMMON, EXTERNAL, AND INTERNAL CAROTID ARTERIES; ABSENCE OF INTERNAL JUGULAR VEIN; RECOVERY; SUDDEN DEATH THREE MONTHS LATER FROM DYSPNŒA; REMARKS.

(Under the care of Mr. RUSHTON PARKER.)

HENRY J—, aged forty-eight, a strong man, of previous good health, was admitted on Oct. 12th, 1880, having an ovoid tumour, about the size of a small hen's egg in the right stylo-hyoid region, apparently involving the sterno-mastoid muscle, or its sheath. There was a much smaller tumour on the opposite side in the corresponding situation, to which, however, attention was not drawn by the patient at this time. On Oct. 19th, under ether, the tumour on the right side was excised through a Y-shaped incision, with the use of the carbolic spray, and all Lister's precautions. A portion of the sterno-mastoid, but not the entire thickness of the muscle, was removed with the growth, which also involved the superior laryngeal nerve, and was intimately adherent to the sheath of the great vessels. The bifurcation of the common carotid artery was thus freely exposed, so the main vessel was tied in two places with carbolized catgut, and cut about an inch or more below its division. The internal and external carotids were similarly dealt with, about an inch above their origin, and the Y-shaped piece of vessel removed. Early in the operation the external jugular vein was doubly tied, and divided, as it was much in the way, and was moreover found to be greatly enlarged, and as thick as a correspondingly large artery. No sign of an internal jugular vein could anywhere be found.

After the operation there was a persistent cough, due, it was supposed, to the loss of his right superior laryngeal nerve; there was a subsequent distressing symptom, but there was no evidence of any disturbance of the intracranial circulation. The dressings were changed daily by the house-surgeon, who reported satisfactorily, but on the seventh, at the visit, they were found to be loose, and as the wound was thus probably exposed, they were removed, and the latter examined. The discharge was perfectly sweet, but there was a little purulent admixture; pulsation could be felt in the common carotid up to the ligature, the knot of which was exposed and wet with pus, while the stump of the vessel was also wet with pus. The wound surfaces were granulating everywhere except where a few fibrous points, also wet with pus, were seen. The stump of the vessel was now soaked in carbolic lotion, 1 in 20, and afterwards in terebene oil. Every part of the wound was freely treated with the terebene oil, 1 in 5, and sometimes 1 in 10, several times a day, the stump of the common carotid being additionally washed with carbolic lotion once a day. The upper end of the cut external jugular vein showed a plug of purple blood-clot. On the ninth day the pulsation in the tied common carotid appeared to be less distinct, and on the eleventh it had disappeared altogether. On this day the loop of the catgut ligature, white in color, was drawn away, and nothing was seen of the stump of the vessel beyond it. A purple clot could be seen plugging the artery and peeping out from the granulations.

On the eighteenth day (Nov. 6th), the remains of the ligature, two twisted black ends, that had formed the knot, came away, cicatrization advanced rapidly; and the patient was allowed to get up towards the end of the same month. He insisted on going home in December, but called and showed himself about Christmas. By this time the wound was all healed, except a small strip of granulations; its base was indurated, but whether from inflammatory swelling or commencing recurrence could not be decided.

Early in January he died suddenly, in an attack of dyspnoea, and, unfortunately, no post-mortem could be obtained.

Remarks.—Before operation the growth was judged to be a sarcoma, situated in the sheath of the sterno-mastoid muscle or in one of the deep fasciæ attached to the styloid process. A similar case had been brought to Mr. Parker by Mr. John Bark at the Stanley Hospital, where the growth was excised, in March, 1877. The wound healed, and the cicatrix remained free from recurrence; but the patient died in the following June, after an attack of jaundice and tumour of the liver. The growth proved to be a round-celled sarcoma, and the death probably resulted from secondary visceral infection and its consequences. Much light was felt to have been thrown upon the present case by the circumstances just related of the previous one; and the opinion formed was entirely confirmed by dissection and microscopical examination. The growth was also a round-celled sarcoma, and its position, in the stylo-hyoid region, one that has been the theme of much speculation with regard to congenital source and developmental causation. It is not intended here to enter upon any such hypothesis, further than to mention their existence side by side with the absence of the internal jugular vein. There was no trace of that vein between the styloid process and the middle of the common carotid artery, and of this fact there is no doubt. There was equally no trace of it in the substance or neighborhood of the tumour as examined repeatedly after removal. The great dilatation and increased thickness of the external jugular vein was at first supposed to be the result of compression and collapse of the internal jugular by the tumour; but the entire absence of that vein from the region exposed was absolutely certified by examination. Whatever there may or may not be about the tumour attributable to congenital or developmental causes, the abnormal arrangement of the great veins here has the appearance of a developmental error, of which a more exact anatomical account is unfortunately impossible, through lack of a post-mortem examination. Up to the present no record of a similar state of things in the veins of the neck has come to Mr. Parker's knowledge.

NEPAL RESIDENCY HOSPITAL.

TWO CASES OF PENETRATING WOUND OF THE ABDOMEN AND ONE OF PENETRATING WOUND OF BLADDER.

(Under the care of Brigade Surgeon Dr. J. BROWNE.)

CASE 1. Perforating Wound of Abdomen; Protrusion of Intestines; Reduction; Recovery.—Rajman, aged thirty, a healthy-looking man, was admitted into the Nepal Residency Hospital on the morning of April 3rd, 1883. He stated that on the forenoon of the previous day he was engaged in wood cutting, and when climbing up a tree with his unsheathed "kukhri" in his waistband, one of the branches on which he was supported gave way, and he fell to the ground from a distance of about twelve feet. He

was somewhat stunned by the fall; and when he came to himself he found that the "kukhri" had run into his belly for a distance of some three inches from its point and was still fixed in the wound. He withdrew the "kukhri" himself, and this act was followed by considerable hæmorrhage. At this time there was no protrusion of the viscera from the wound. He lay where he was for four hours, when, with the assistance of a boy, he with difficulty walked to his home, a distance of about one mile. The next morning he was brought to hospital; and the shaking he underwent while being carried a distance of two miles, in a "dandi," caused protrusion of a portion of the small intestine from the wound.

On admission into hospital he was at once attended to, and the following was his condition:—He was suffering from extreme shock, the result most probably of exposure and loss of blood. He complained of great thirst, and pain over the entire abdomen. His cotton cloth waistband was tightly wound round him over the wound, and was found to be firmly adherent to the protruded intestine, requiring great care in its removal. There was a transverse wound in the left side of the abdomen, about two inches and a half in length, situated midway between the umbilicus and the anterior superior spine of the ilium, and some eight inches of highly congested small intestine protruded from it. The intestine, from the surface of which blood was weeping in several places, was carefully freed from all foreign matters by gently pouring a stream of tepid water over it. When this was done, on proceeding to return the intestine a gush of bloody serum came from the wound; and the patient was now turned over on his left side, so as to favor the escape of any more fluid that might be lying in the peritoneum. By this manœuvre three or four ounces of a similar fluid came away. The intestine was reduced without any difficulty, great care being taken that no portion of it was left in the wound, and that all unnecessary fingering of the parts was avoided. The edges of the wound were brought together by three points of interrupted suture, which were inserted through the skin only, while the intervals between them were supported by adhesive plaster. The apposition of the deeper portion of the wound was effected as far as possible by raising the shoulders of the patient so as to relax the abdominal muscles. A piece of lint moistened with carbolic oil was applied over the wound, which was further supported by a compress and bandage lightly applied. For ten days the patient was in extreme danger, as he suffered from peritonitis. On one occasion only was the catheter required. The treatment employed was opium in full doses combined with calomel until the gums were affected. Hot fomentations were constantly applied. Milk, in small quantities at a time, was the only nourishment allowed for many days. On the third day he passed a healthy motion; but unfortunately, afterwards suffered from diarrhoea, which along with the peritonitis, at one time appeared likely to prove fatal. The sutures were removed on the sixth day.

This man was discharged from hospital on April 20th (seventeen days after admission), as it was absolutely necessary for him to return home. He was then convalescent, though much reduced in flesh and very weak, but his appetite was good, and he was taking soup, milk, and rice as his daily food. Rajman came to show himself at hospital on the 28th of April, and though still thin and somewhat weak, expressed himself as being in very good health in every way. The wound was quite healed up, but there was some hardness and thickening underneath it.

CASE 2. Penetrating Wound of Abdomen; Protrusion of Omentum; Permanent Entanglement; Recovery.—Urjun, a healthy-looking boy, when taking a short cut to his home on the night of the 16th April, 1883, fell from the top of a fence on a bamboo palisade, which was put up to prevent cattle from trespassing. The sharpened end of one of the pieces ran into his abdomen, and when he got up he found that he was bleeding freely, and that something was protruding from the wound. He was brought to the Residency Hospital the next morning, when, on examination, the following injury was discovered:—There was a jagged wound, an inch and a half in length, through the right rectus muscle, a little to the right of and below the umbilicus, and from it a portion of omentum, three inches by one inch, protruded. His pulse was good and he complained only of pain in and around the immediate vicinity of the wound. On introducing the forefinger it was found that the rectus muscle was freely torn, and that a portion of omentum protruded through an opening in the conjoined aponeuroses of the internal oblique and transversalis muscle, which was only of sufficient size to admit the tip of the finger by the side of the protrusion. An attempt was made to reduce a portion of omentum, but it was found that it would be impossible to do so without enlarging the opening in the posterior sheath of the rectus, and such a proceeding was, under the circumstances, considered to be neither necessary nor advisable. The protruded omentum was carefully cleansed, and a piece of lint moistened with carbolie oil was applied over it. Opium was given and fomentations were employed so long as there was any abdominal tenderness. The bowels were moved daily. There was no retention of urine. On the day of admission and the following one he had a temperature of 103°. After the third day the protruded omentum appeared to be covered with lymph, and it likewise was diminished in size. For some days he was allowed only milk as nourishment, and in small quantities at a time. This boy recovered steadily and without an unfavorable symptom. He was discharged from hospital on the 20th May, with the wound quite healed up. The protruded portion of omentum was treated as follows:—On the third day a poultice was applied over it for a few hours, and by this means the lymphic exudation was quite removed. Then finely powdered burnt alum was dusted over the surface of the protrusion, which was covered with a piece of dry lint. The burnt alum was applied daily, and on the twenty-fourth day from his admission the protruded part had quite disappeared. From this time the edges of the wound were brought together by adhesive plasters, and they rapidly united.

Remarks.—The treatment of these two cases, judging from the results obtained, appears to have been the best that could have been adopted. It will be observed that in the first case the sutures were introduced through the skin only, as I considered they would cause less irritation afterwards than if they were put in through the entire thickness of the abdominal wall and peritoneum. In one case (protrusion of small intestine) there was severe and general peritonitis, while in the other (protrusion of omentum) the peritonitis was but slight and local. In both cases opium was given with a view to control the peristaltic movements of the intestines, while in the first mercury was administered until the gums were affected. In both cases milk, in small quantities at a time, was the only nourishment allowed for days. Both cases fortunately recovered, and this result was perhaps principally due to the healthy constitutions of the patients, as well as to the close attention bestowed

on them by my hospital assistant, Mahomed Hossein, and by the dresser.

CASE 3. Perforation of Bladder through Perineum; Foreign Body removed; Recovery.—Nund Kaseer, aged seventeen, a weakly looking lad, was admitted into the Nepal Residency Hospital on March 17th, 1883. He states that eleven months previously he fell from a tree in which he was engaged cutting branches. In his fall a withered branch stump ran into him, and when his father came to his assistance he found that a piece of a branch was firmly fixed in the upper and inner part of his right thigh. The stick was so firmly fixed in the lad that it required the united force of his father and another man to pull it out, and this they did with difficulty. From that time urine passed through the wound as well as by the urethra, and the boy felt that there was still a portion of the stick in his perineum. On admission into hospital a fistulous opening was observed a little to the inside of the tuberosity of the right ischium. The opening was small, and a long probe could be passed through it for a distance of some six inches in a direction upwards, forwards, and inwards, towards the bladder. Through this sinus urine has been constantly escaping, but no foreign body in it could be felt with the probe. From the way the boy walked, with his legs widely apart, there could be little doubt that a portion of the broken stick was still in his perineum, and an examination by the rectum, and with a sound in the bladder, confirmed this opinion. The presence of a foreign body in the perineum as well as in the bladder being certain, it was determined on the following morning to cut into the perineum on the right side by making the ordinary incision of lateral lithotomy. The hospital assistant was instructed to introduce a piece of prepared sponge into the fistulous opening at once. The next morning on withdrawing the sponge it was possible to introduce a forefinger into the sinus, when, at a distance of about an inch and a half from the external opening, the end of a piece of wood was felt, which appeared to have run up between the rectum and the bladder, penetrating the latter somewhere in the vicinity of the prostate gland. With a dressing forceps, and without any difficulty, a portion of a branch measuring three inches in length and two inches in circumference was removed. This youth, when permitted to leave his bed, had completely regained his natural gait, and left the hospital on March 30th with the urinary fistula quite healed up, and the urine passing in full stream through the urethra.

BEDFORD GENERAL INFIRMARY.

RUPTURE OF BOTH LUNGS WITHOUT EXTERNAL INJURY; NECROPSY.

FOR the following interesting notes we are indebted to Mr. E. A. Laurent, M.B. Lond., resident surgeon.

J. J. B—, aged sixteen, brewer's drayman, tried to get on his cart whilst the horse was going at a smart trot; attempting which he fell, and the wheel passed over his chest. He was admitted on June 23d, an hour after the accident.

On admission, the patient was unconscious and cyanosed; a loud rattle could be heard in his throat, and dyspnoea was urgent; respiration 50; pupils equal and dilated; extremities cold; pulse of good volume, fair tension and regular (148). No marks of the wheel could be detected on the boy's garments. His jaw was firmly clenched; no blood oozed from his mouth or nose, although there was a history of his having lost a teaspoonful by the mouth. There was no ecchymosis on

the chest, and no evidence of broken or dislocated rib. Respiration abdominal; percussion note normal over left front, hyper-resonant over right. A forcible rhonchal fremitus could be felt over the left lung, and a loud, rough crepitation was heard over the whole left front, obscuring the heart sounds. The patient became restless and very violent, tossing his limbs about. A few whiffs of chloroform (one drachm) were then administered to quiet him and moderate the heart's action. The left side was strapped firmly, and a grain of ergotone was administered subcutaneously. Ice was introduced into the mouth through a gag. Patient got over the effect of the chloroform quickly, and became so restless that he had to be strapped to the bed; his breathing was more distressed. He made several attempts at vomiting, and half an ounce of bright frothy blood issued from his nose and mouth. The restlessness increased, his countenance became paler, his pulse remarkably soft and irregular, when he gave a few gasps and died, two hours and a half after the accident.

Necropsy, thirty-eight hours after death.—Temperature of room 69°; atmosphere damp. Body well nourished and muscular; cadaveric rigidity absent in arms; present in legs. Post-mortem lividity well marked in dependent parts. In mammary region a depression over the sixth rib was observed, corresponding to the buckle of the braces; over left side four discolorations, corresponding to strips of strapping, were seen. There was an ecchymosis as large as a shilling over the right internal malleolus, and another over the shin. On turning the head to one side, a large quantity of frothy decomposed blood oozed from the mouth and nostrils. An incision was made from the chin to the pubes. Some extravasated blood was found in the upper part of the pectoralis major muscles, and under the surface of the sterno-mastoid on the left side. No trace of ecchymosis could be seen corresponding to the marks on the skin. The veins of the neck were distended with blood. On opening the thorax on the right side, air was heard escaping. There was a pint of blood in the pleural cavity; a space three inches deep separated the lung from the thoracic parietes; in the groove between the upper and middle lobes was a ragged tear, three inches long, half an inch broad at its widest part, and a third of an inch in depth; and on turning up the lung along the posterior part of the root an L-shaped rent, three inches long above, one inch and a half long below, half an inch deep, and continuous with the tear along the anterior part, came into view. The right lung (weight 29½ oz.) was contused, emphysematous, and ecchymosed, the lower lobe being one mass of blood-clot; a large quantity of blood could be pressed into the bronchi. There were six ounces of blood in the left pleural cavity; the left lung (weight 32 oz.) was studded with ecchymoses from apex to base; a small slit, an inch and a quarter long and a quarter of an inch in depth, was discovered along the posterior part of the root where the lung touched the vertebral column. A good deal of emphysema was found diffused throughout, and a large quantity of blood was extravasated in the lung substance. The stomach contained four ounces of greenish fluid, and a disagreeable smell of decomposed beer was noticed; the mucous membrane was thickened; the glands and gland orifices were enlarged and mamillated. Several capillary hæmorrhages were observed here and there. The liver (weight 68 oz.) projected three inches beyond the rib cartilage, and showed under the microscope the primary cellular enlargement. The heart weighed 12½ oz. The ventricles were empty; heart substance fattily infiltrated; left ventricle hypertrophied; valves healthy. The kidneys weighed seven ounces each;

cortex thickened; glomeruli apparent; pyramids congested.

Remarks.—Rupture of the lung without any external wound, fracture, or dislocation of the ribs is certainly a rare accident. Rupture of both lungs under similar circumstances must be rarer still. The most feasible explanation of the occurrence seems to be that the deceased was young and robust, his chest walls remarkably resilient, and his lungs getting jammed against his vertebral column, the only firm and inelastic structure of the thorax, yielded at the point of maximum resistance.

SUNDERLAND INFIRMARY.

SCIRRHUS OF RECTUM; COLOTOMY; RECOVERY.

(Under the care of Mr. HOPGOOD.)

For the following notes we are indebted to Mr. J. Whitehouse, house-surgeon.

Mrs. M—, aged forty-eight years, was admitted on April 11th, with urgent symptoms arising from obstruction of the bowels.

About twelve months before admission she complained of severe pain in the left groin, which was pretty constant. About the same time she experienced difficulty in defecation, and the stools were thin and small. Her pain was not increased during defecation. She did not pass any blood per rectum. A month prior to her admission the difficulty of defecation increased rapidly, and she could get no relief from aperients, which she had been accustomed to use freely.

On admission she was in severe pain and seemed utterly prostrate. On percussion of the abdomen there was a little anterior resonance, but dulness existed everywhere else; the abdomen was extremely tense. On examination of the rectum there seemed complete obstruction to the passage of the finger three inches from the anus. The obstructing mass was hard and irregular.

On April 12th Amussat's operation was performed. The descending colon was easily found, and was much distended with feces. An hour after the operation a tremendous amount of excreta passed through the wound, giving the patient complete relief. Evening temperature 100·4°; pulse 88.—13th: Temperature normal, felt well, no sickness; evening temperature 101·6°.—15th: Had a little pain in the left inguinal region, bowels acted freely; temperature 101·4°; she was prescribed small doses of opium and aconite.—16th: Feet all right again; pulse 86, took her milk well.—19th: Wound gaped a little at its posterior extremity, otherwise looks well, union with the skin complete. After this the patient continued to improve rapidly till May 8th, when she was able to walk, and was dismissed.

Two months after the operation she was well and able to walk three miles with ease.

PRESTON AND COUNTY OF LANCASTER ROYAL INFIRMARY.

A CASE OF SPINA BIFIDA SUCCESSFULLY TREATED BY MORTON'S METHOD.

(Under the care of Dr. MARSHALL.)

For the following notes we are indebted to Mr. R. P. Forrester, senior house-surgeon.

F. G—, aged six weeks, was admitted at the end of October, 1882, with a congenital deficiency of the arches of the lower lumbar vertebrae, over which there was a tumour, oval in shape, somewhat translucent in appearance and distended with fluid. The tumour measured three inches and a

half from above downwards, and two inches and a half from side to side, and was, the child's mother said, gradually enlarging. The body was fairly well nourished, but the lower limbs were thin and paralyzed, voluntary motion being abolished and sensation impaired. The child's head was considerably enlarged, and the superficial veins of the scalp greatly congested. On the 31st the needle of a large hypodermic syringe was passed into the tumour, and between two and three drachms of the fluid were allowed to escape. Half a drachm of Morton's iodo-glycerine fluid was then injected and retained, the puncture being sealed by collodion. The operation did not appear to cause any pain.

Nov. 8th.—The swelling seemed to be unchanged. A small quantity of the fluid was withdrawn and thirty minims of Morton's fluid injected.—16th: The baby had improved in appearance, and could move its legs and feet a little. There was not much difference in the tumour. It was thought, however, to be slightly diminished. One drachm of the fluid was removed and forty minims of the solution injected.

Dec. 1st.—Removed one drachm of fluid and injected one drachm of the solution.—22nd: Tumour shrunk and flat. Skin hard and wrinkled. One small portion at upper part still thin and translucent. Head much increased in size; left side larger than right. Bones and sutures very widely separated. Superficial veins much congested. Injected forty minims.—29th: Spina bifida quite cured. Hydrocephalus still increasing. Left hospital and was not brought back.

Remarks.—This was evidently a very unfavorable case for operation, and the treatment was begun, and for a time carried on, with little hope of success; but so far as the spina bifida was concerned, the result was perfectly satisfactory.

WEST LONDON HOSPITAL.

OBLIQUE FRACTURE OF HUMERUS; COMMUNED FRACTURE OF RADIUS AND ULNA AT LOWER END; DISLOCATION OF ELBOW BACKWARDS; GANGRENE; AMPUTATION AT SHOULDER-JOINT; TETANUS; DEATH.

(Under the care of Mr. BRUCE CLARK.)

For the following notes we are indebted to Mr. W. H. Stacey, clinical assistant.

Ellen T—, aged thirty-eight, was admitted on the morning of August 12th. She had thrown herself from her bedroom window, a distance of forty feet, and had sustained an oblique fracture of the humerus about the junction of the middle and upper third, a comminuted fracture of the lower end of the radius and ulna, and dislocation backwards of the elbow. There were two small skin wounds, one at the elbow and the other on the flexor surface of the wrist. She was a woman of intemperate habits, and was drunk and very noisy at the time of admission. The dislocation was reduced with difficulty, the forearm having first been bandaged to a splint. The arm was placed on a pillow and evaporating lotions were applied. Morning temperature 99°, evening 100°4'.—13th: The patient passed a restless night; the arm much swollen. Temperature, morning 101°, evening 100°.—14th: The arm continues painful, and is much swollen; the swelling extends to the shoulder-joint. The patient rambles and shows signs of delirium tremens. Temperature, morning 102°, evening 103°4'.—15th: The arm much swollen; passed a restless night; delirium tremens much worse; fingers are commencing to be discolored. Temperature, morning 103°6', evening 102°.—16th: The fingers and forearm are quite

cold, and there is a small dark spot on the radial side; the whole arm is very tense; oedema extends over clavicular region; smell offensive. Towards the afternoon the blackness extended rapidly, as far as the elbow. The small became most offensive, and it was determined to amputate at the shoulder-joint. Temperature, morning 102°8'. 3.30 p.m.: Temperature rose to 103°2'. Under ether the arm was amputated at the shoulder-joint by transfixion; the subclavian artery being compressed there was very little hæmorrhage. The vessels were tied with carbolized catgut; the wound was washed out with carbolized acid lotion (1 in 40), a large drainage-tube inserted, and antiseptic dressings applied. The patient was rather faint and delirious after the operation, but rallied within the course of a few hours. 8.30 p.m.: There is a good deal of serous oozing; the patient is quieter. Temperature 98°.—17th, 1 p.m.: She has slept from eleven till one. Temperature 98°. 8 a.m.: She has not slept since one; fairly quiet. Temperature 102°: 1 p.m.: There is a little blood oozing from the bandage; temperature 103°4'. 3.30 p.m.: Stump dressed antiseptically. It looks well outside, and was washed with carbolic acid lotion (1 in 40), and dressed. 8 p.m.: The patient complains of feeling low, and is unable to open her jaw. The cervical muscles are in a state of contraction; she swallows liquids with difficulty; there are no twitchings; temperature 101°4'.—18th, 7 a.m.: Tetanic symptoms continue the same, with the addition that she has occasional slight spasms; she still swallows her food with difficulty. Temperature 100°4'. 11 a.m.: Still continues the same; her face presents an anxious look; temperature 103°4'. 1 p.m.: The patient complains of being sleepy; respires freely; temperature 104°. 5.30 p.m.: She has dozed a little; taken a pint of milk and a pint of beef-tea. Tetanus much the same; no spasm on taking food; pulse 142, feeble. 5.45 p.m.: A quarter of a grain of physostigma faba given. Temperature 104°2'. 8 p.m.: Rises sardonious is getting well-marked; skin perspiring freely; slight occasional spasms. Pulse weaker and rapid, 150; quite clear mentally; takes nourishment well. Temperature 105°. 10 p.m.: Pulse very feeble, 164; rambles; spasms are no worse. She has a blue appearance around the mouth; restless; is evidently failing; her extremities are becoming cold. Temperature 107°. 10.55 p.m.: Great difficulty in breathing; slight opisthotonos. Struggled and died at 11.5. Temperature in vagina immediately after death, 108°5'.

No necropsy was made on account of the rapid decomposition of the body.

KING'S COLLEGE HOSPITAL.

A CASE OF LOOSE CARTILAGE IN THE KNEE-JOINT.

(Under the care of Mr. ROYES BELL.)

For the notes of this case we are indebted to the patient, whom, with Mr. Bell, we cordially congratulate on the result.

Mr. C. S—, a medical student at King's College, received a severe kick when playing football in November, 1882, and was laid up for some weeks with synovitis of the left knee-joint. About the middle of March, owing to a fall, synovitis came on a second time, for which the knee was blistered. At this time there was an unpleasant scraping of a small, hard body above the patella. There was, however, no serious inconvenience until the middle of May, when, owing to some inexplicable cause, the loose body slipped into the knee-joint, causing intense pain and effusion. Under the influence of rest, ice, etc., the effusion subsided, and

Mr. C. S.—continued his studies until July 13th, when he entered the Fisk ward. Until this date the knee had been strapped, and Martin's india-rubber bandage was worn. The knee was also kept on a back splint. Actual operation was deferred in order not to break into the summer session studies.

On admission the limb was a little wasted, owing to want of muscular exercise. There was no effusion into the knee-joint, but in the synovial pouch which extends above and external to the patella a freely movable loose cartilage could be felt. An anæsthetic having been given by Mr. Charles Moss, the loose cartilage, which was a thin disc of the size of a broad bean, but not so thick, was removed by making a vertical incision over it, just external to the rectus femoris tendon where the tendon is expanded into the strong fascia which forms the capsule of the knee-joint. The cartilage was squeezed edgewise into the incision, caught with a pair of hooked forceps, and removed after the division of a small process of fascia, which was attached to one corner of it. The bleeding was carefully stopped; a drain of horsehair was passed into the wound, which was carefully sewn up. The operation was done under the carbolic spray, and the usual antiseptic dressings applied; the limb was also put on a splint. Two days later the wound was dressed and half the horsehair drain removed. The dressings were dry and blood-stained, as there had been some oozing of blood. There was no discharge. By the end of the week all the horsehair and stitches were removed; the wound had healed perfectly by first intention. The temperature remained normal. The patient was discharged at the end of a fortnight.

August 21st: The bandages and splint have been discontinued, and the joint has been freely used, and is in all respects as useful as the other joint.

metre, and about 4.3 white corpuscles to every 1,000 red discs. A week after her admission she was seized with palpitation; there was no fever, but the urine was found to contain a trace of albumen, and the patient died the same day. At the post-mortem examination the mesenteric glands were all enormously enlarged. The stomach was studded on its mucous aspect with numerous cream-like flattened tumours. Below the duodenum the small intestine began to be diseased. The valvula conniventes first became firmer and more swollen than usual, then polypoid and creamy lower down. The solitary glands and Peyer's patches, were enormously swollen. The spleen was greatly enlarged, but of natural shape, so that the section seemed to exhibit large Malpighian bodies throughout. The microscope showed the growths to be of lymphomatous structure. Dr. Carrington had been able to find only four similar cases recorded in the Transactions of the Society.—Mr. Hulke considered the case to be of great interest; he had never seen a similar one.—Dr. Pye-Smith referred to a case of this kind recorded by Dr. Behier about twenty years ago, which was, he believed, the earliest published case; it was an instance in which the lymphatic tissues of the intestines were enormously overgrown.—Dr. Sidney Coupland observed that Cruveilhier had figured an instance of this disease in his Atlas; this was probably the earliest case of which any note remained.

Dr. Hadden read notes of a case of Scirrhus of the Bladder. The patient was a man aged sixty-three, who was under the care of Sir Wm. Mac Cormac at St. Thomas's Hospital. The prominent symptoms which were noticed three months before admission were hæmaturia, severe pain, and dysuria. A large firm mass was felt per rectum in the position of the prostate. After death the right kidney was found to be very small. It contained a few cysts and some abscesses. Its outer surface was irregular and tuberculated. There was a soft warty-looking growth, made up of granulation tissue, attached to the mucous membrane of the bladder on the right side, just beyond the neck. The anterior wall of the bladder was much thickened, white, and very hard. The prostate was not involved. There were two or three large hard glands behind the bladder, but no other secondary deposits. The growth was of "scirrhus" nature. Although Sir Henry Thompson believes that this tumour is the most common form after villous growths, yet only two cases have been recorded in the Transactions, one by Dr. Bastian, the other by Mr. Butlin.

Mr. Geo. Lawson related the history of a case in which he had excised the eye of a child only two days old, on account of a congenital tumour of the orbit, which had completely extruded the eye from between the lids. The little patient was taken to the Royal London Ophthalmic Hospital in May, 1882, suffering from complete exophthalmos, which was congenital, and evidently due to an orbital tumour. Mr. Lawson removed the eye, and for a time the child did well. The child lived until the middle of the August following, and had been in fairly good health until within two days of its death, when convulsions came on, which were followed by coma. The post-mortem and microscopical examinations were made by Mr. Mills, the curator of the museum. The following is an abstract of his report:—A large tumour was found projecting from and filling up the right orbit. On opening the skull, the upper surface of the brain and its membranes were quite healthy. On the under surface there was a distinct impression in the right middle lobe produced by the projection of several cysts from the sphenoid bone. There was much marked basic meningitis, confined chiefly

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Lympho-sarcoma of Alimentary Tract.—Tumour of Bladder.—Congenital Growth in the Orbit.—Tumours of the Brain.—Gastritis in a Bear.—Sebaceous Cyst from Finger.—Congenital Malformation of Heart.—Gumma of Dura Mater and Syringomyelia.—Rickets in the Monkey.

THE first meeting of the present session of this Society was held on Tuesday, October 16th, J. Whitaker Hulke, Esq., F.R.C.S., F.R.S., President, in the chair. The President said that he had great pleasure in presenting to the Society the thirty-fourth volume of its Transactions.

Dr. Carrington exhibited a number of specimens illustrating a malignant form of Hodgkin's Disease. The patient, a woman aged fifty-five, had died in Guy's Hospital, under the care of Dr. Goodhart. She stated that she had first noted swelling of the glands on the left side of the neck in June, 1882; in August following the legs and abdomen became swollen. When admitted, on Feb. 7th, 1883, she was very anæmic and emaciated, and the subcutaneous tissues were generally cedematous; the cervical, submaxillary, axillary, and inguinal glands were enlarged; the spleen was very large, reaching as low as the crista ili. An examination of the blood showed that there were about 4,720,000 red corpuscles to the cubic milli-

to the right side. The tumour seemed to have originated in the body of the sphenoid bone, and to have grown forwards, filling up the cavity of the orbit, and pushing the eye in front of it. The tumour was pretty solid, but contained numerous cysts in its substance. Under the microscope the tumour was found to consist of several varieties of tissue in different stages of development. The most noticeable were patches of hyaline cartilage of a spherical or oblong shape; these were often surrounded by a zone of spindle cells with a distinct gradation from cartilage cells. Numerous cysts were scattered through the tumour, of all sizes. The walls of the cyst were usually lined by pavement epithelium. In places small cysts were seen to be projecting from the walls of the larger ones. The more solid part of the tumour consisted of masses of round cells like embryonic tissue, spindle cells, and more fully developed fibrous tissue. There was evidence of formation of glandular structure at several spots. The microscopical examination showed that the tumour was evidently one of embryonic origin, with an attempt to develop into the lower forms of connective tissue and gland structure.—The President said that Virchow had described a somewhat similar case. In that case also the tumour had originated in the sphenoid bone, and was in large part cystic in structure.

Mr. Kesteven read notes of a case of Tumours of the Brain. About two years before the patient's death she had had a melanotic tumour removed from the thigh by Mr. Pearce Gould, she being then a patient of Dr. Glover's. About a year before death pain in the back and insidious paralysis of the left leg were noted. Six months before death she had a kind of "stroke," after which she was in a "tranced state" and almost speechless. Sensation was abolished, even that of the cornea. The most remarkable feature was, however, the state of rigidity in which the legs were contorted and intertwined; and the thumbs were turned into the palms. At the autopsy the meninges were found to be healthy, but on removing the dura mater a dark patch, measuring an inch and a half in the antero-posterior diameter and an inch in the transverse, was at once discovered. It was situated in and occupied the posterior two-thirds of the left superior frontal convolution, extending posteriorly to the fissure of Rolando. Below, and external to this, were seen two similar masses, smaller in bulk, and situated, the one in the middle frontal convolution, and the other in the inferior frontal. There were also similar appearances in the superior parietal lobule and in the superior occipital convolution. All these were on the left side. The first tumour mentioned extended an inch in depth inwards from the surface. A tumour was also seen in the right centrum ovale beneath the superior frontal convolution. Many nodules were found on the base of the brain; one occupied the position of the orbital surface of the left frontal lobe; another was seen about one inch below the left fissure of Sylvius. A large mass was also seen to grow from between the pons and left temporo-sphenoidal lobe; the posterior communicating and posterior cerebral arteries were embedded in this mass. Two nodules were detected in the right occipital lobe. Eleven tumours in all were recorded. Microscopical examination exhibited the structure of round-celled melanotic sarcoma. The bearing of the case on the subject of the localization of cerebral functions was discussed.

Mr. Jonathan Hutchinson, jun., narrated a case of Acute Gastro-enteritis in a Bear. The animal died, after an illness of only about a day, in February, 1883. The stomach and upper part of the

intestines were acutely inflamed. The rest of the intestines was healthy. There was no food, but much exudation, in the stomach and neighboring part of the bowel. No torulae or micro-organisms were found in it, but immense quantities of round cells and fibrin, with altered blood. The uterus, bladder, and trachea were in a state of acute catarrh. The other viscera were healthy. The wind was in the east at the time, and the probability seems to be that the disease was purely catarrhal. An interesting point was that there was no fur on the tongue.

Mr. Poland showed a Cyst removed from the flexor aspect of the ring finger of a man aged fifty-nine. The cyst had been noticed for about four years, and had become inconvenient owing to its increase in size; it was lined with layers of epidermoid cells, but there was no distinct sac; he regarded it as sebaceous.—Mr. Godlee had met with three cysts of the kind on the palmar aspect of the fingers; one measured an inch long and half an inch broad. In the third case, which had occurred recently, he had noticed a small black point, such as was commonly seen in sebaceous tumours. He, however, failed to see how the occurrence of a sebaceous cyst in such a situation could be explained.—Dr. Savage said that twenty-three years ago Mr. Bryant had removed a cyst from his forefinger, which was undoubtedly sebaceous.—Mr. Hulke said that there were several cases on record of sebaceous cysts in the anterior chamber of the eye, which had developed after penetrating wounds of the cornea involving the iris. In these cases it seemed probable that at the time of the wound some sebaceous gland had been transplanted on to the iris. This theory might explain the occurrence also of a sebaceous cyst on the flexor aspect of the finger.

Mr. Howard Tooth exhibited a specimen which presented a rare kind of Congenital Malformation of the heart. The pulmonary artery arose from the sinus of the right ventricle, and the aorta from the infundibulum; the foramen ovale was not quite closed, and the intra-ventricular septum was deficient at the base. The patient was a boy aged eight years, who died of enteric fever; cyanosis had been noticed for six years, and when admitted to St. Bartholomew's Hospital, under the care of Dr. Gee, there was, in addition to the symptoms of the enteric fever, a clubbing of the fingers and toes, a loud systolic murmur heard equally over the whole præcordia, and bulging of the chest to the left of the mesial line.

Dr. Frederick Taylor showed a case of Syringomyelus, associated with syphilitic spinal meningitis and gumma of the spinal dura mater. The patient was a woman with undoubted evidence of syphilis, who had suffered from ill-developed left hemiplegia for three years, and from paraplegia with rigidity for one year previous to death. The spinal dura mater was very much thickened throughout the greater part of the cord, and, at the level of the ninth dorsal vertebra it presented a gumma, which pressed upon the anterior surface of the cord, thereby distorting it considerably. At the same point the cord was softened, and secondary degeneration extended both upwards and downwards. Besides these changes, the cord contained a cavity which stretched nearly its whole length. The shape and lateral extent of this cavity varied at different levels. In the cervical region one section showed a cavity in each posterior cornu, the two being disconnected. There was no definite lining to the space, the wall of which merely showed the tissues of the cord in a rather dense state. This abnormal space had no connection with the central canal. Dr. Taylor had shown a similar case at the Pathological Society

four years ago, and others were recorded in German literature. A distinction must be drawn between hydro-myelus, in which the central canal is dilated, and syringo-myelus, which was the condition found in the present instance. Leyden had tried to show that the two varieties had everything else in common, and thought that syringo-myelus might arise from irregularity in the development of the central canal, especially at that stage when the canal had a T-shape, the posterior limb becoming constricted off to form the space found in syringo-myelus. Dr. Taylor was inclined to accept this explanation rather than attribute the cavity to the liquefaction of a tumour or inflammatory growth. The paraplegia was probably due to the pressure of the gumma, whilst the syringo-myelus was regarded as congenital and coincident.

Mr. Sutton said that, having had during the past summer many excellent opportunities for inquiring into the clinical history of Rickets in Monkeys, he proposed to relate certain facts bearing on that disease. The selected specimens consisted of two weeper capuchins from Brazil and a spider monkey from South America, all of them resident in the Zoological Gardens. When a monkey becomes affected with rickets, the most prominent symptoms are diminished activity and paralysis of the lower limbs, so that the creature swings himself along, using the long arms as crutches. The upper extremities then bend from the weight. Gradually the animal becomes completely paraplegic, suffers from incontinence of urine and feces; priapism is frequently observed. Death is most commonly caused by bronchitis or broncho-pneumonia. The disease advances very rapidly; in some of the more severe cases the disease runs its course in three or four months. The most interesting symptom is the paraplegia. Capuchins exhibit in an extreme degree all the characteristic signs of advanced rickets—beaded rib shafts, softened and curved bones, enlarged epiphyses and epiphyseal cartilages, deformed pelvis, etc. The skull of one specimen is remarkably eroded, perforated, and slightly thickened; on either side of the foramen magnum is a large tabetic patch. The shafts of the long bones present a very peculiar condition, for the compact tissue, instead of being arranged in the familiar concentric layers, is split into longitudinal lamellæ separated by tracts of richly cellular connective tissue, which is readily seen to be continuous with the deeper layers of the periosteum; the medullary cavities are filled with dark-red marrow. The epiphyses exhibit in the highest degree that condition to which Mr. Sutton has assigned the name "diffuse epiphysis." Further investigation has convinced him that the enlarged epiphyses met with in rickets are due to the ossific matter being deposited in a diffuse and irregular manner. In some he has counted as many as thirty in the epiphysis for the condyles of the femur. In the spider monkey the disease seems to have occurred in an older animal. The shafts of the long bones gave one the impression that new bone had been deposited in the compact tissue of a well-formed bone. The thorax was transversely deformed, due to the distension of the stomach and upward displacement of the diaphragm. The stomach was so dilated that it reached from the diaphragm to the symphysis pubis. All monkeys in whom this disease assumes severe proportions become paraplegic. He has found that this is due to gradual and slow compression of the spinal cord, the result of overgrowth encroaching upon and narrowing the spinal canal, not in one place, but general, so as to narrow the canal. Not only does the cord itself get nipped, but the nerves themselves are pinched, for the softened laminae allow the inter-

vertebral foramina to be encroached upon, due to the weight of the body. This condition explains the pain, paraplegia, incontinence, and priapism. This condition is best seen if a transverse section be made across the column, with the cord still *in situ*. In all the recorded cases of mollities ossium in man, pains, and in some paraplegia, were the leading symptoms. In all the instances in which the disease has endured for any length of time, softening of the vertebral column has been recorded whenever that portion of the skeleton has been examined at the autopsy. Pain may be due to compression of cord and nerves. The spinal cord of the monkeys presented the usual degenerations which follow on compression, from whatever cause.—Dr. Goodhart asked Mr. Sutton whether he could state the age of the monkeys; it was important to know this, because the monkeys mentioned by Mr. Sutton in his earlier communications were probably all adults; if that were so, then this affection of monkeys was analogous to that disease known as "late rickets" in man, and it was doubtful whether this was rachitic in nature. He also inquired whether lardaceous disease had been observed.—Mr. Sutton replied that there was no lardaceous disease, and said that it was extremely difficult to adjudge the age of the monkeys, as they were not born in the Zoological Gardens. The state of the epiphyses was the only guide, and this was by no means reliable.

Mr. A. Q. Silcock showed a card specimen of very extensive Ulceration of the Mucous Membrane of the lower part of the Colon, Sigmoid Flexure, and Rectum, so that only small islets of membrane with undermined edges remained. Dr. Frederick Taylor showed card specimens of Abscess of the Liver and of the Brain secondary to dysentery. Mr. Jonathan Hutchinson, jun., exhibited a card specimen of a portion of the Stomach of a Deer, which presented on its peritoneal aspect small inflammatory spots; the peritoneum also contained a small hydatid cyst, to which the spots were probably due.

CLINICAL SOCIETY OF LONDON.

Catheter Fever.—Abdominal Abscess in Children.—Cerebro-Spinal Sclerosis.

THE first meeting of the above Society was held on Friday, Oct. 12th, Sir Andrew Clark, Bart., President, in the chair. There was a good attendance of members, and two very interesting communications were read. The President congratulated the Society on reassembling at the beginning of another session. He hoped its work would result in the better treatment of disease. He asked from the surgical members of the Society information on one subject. In 1870 a man, who was otherwise in good health, consulted him for slight incontinence of urine. He consulted a specialist, who found his prostate enlarged and his bladder unable to empty itself, and advised him to use a catheter. Four days later he was taken ill; urine contained a little pus; pulse 120; temperature 100°. After two days the temperature rose higher, the pulse became more frequent, and in eight or nine days he died; the bladder was inflamed, and the kidneys were reported to be healthy. Since 1870 he had seen four or five such cases every year. He had not been able to gather sufficient information on this malady, which was not very uncommon. He was not alluding, of course, to the slight rigors after catheterism, but to a fever which generally ended fatally. The catheter had sometimes been tied in, and at others only passed occasionally.

Dr. Goodhart read notes of three Cases of Peritoneal Abscess in Children. The first was that of a girl, aged eleven years, who was said to have suffered from typhoid fever four months before she came under treatment. She was in bed for eight weeks, and in the seventh week had chicken-pox. Soon after this an abscess formed at the umbilicus and opened. She was admitted into the Evelina Hospital with a sinus discharging pus copiously at the umbilicus. She was placed under chloroform, and Mr. Howse made a thorough examination with a probe. This left no doubt, from the freedom with which it passed deeply in all directions, that the pus came from the peritoneal cavity; but, seeing that there was now no febrile disturbance, it was decided to keep the child in bed, feed her well, and watch the course of events. She steadily increased in weight, the discharge gradually diminished, and after three months had nearly ceased. She has now been for many months quite well. The second case was that of a boy, aged eleven, who had been quite well till shortly before admission. This illness, attributed to getting wet, began with rigors and vomiting. When admitted he was extremely ill, and the case was very obscure, but gradually a diffused abdominal dullness became localized in the hypogastrium and the abdominal wall began to bulge. After he had been in the hospital a month Mr. Howse made a small incision into what appeared to be an abscess. This was followed by the escape of a quantity of thin pus and some fetid gas. A long probe passed several inches in all directions into the peritoneal cavity. A quantity of fetid pus continued to discharge daily, but his condition did not improve, and the opening was therefore enlarged; but neither did this mend matters, and shortly after an explanation of its failure arose in the fact that the right pleura began to fill with fluid. The chest was incised and sixteen ounces of very fetid pus came away. Before long it became necessary to treat the left chest in the same way and with considerable relief to the child for a time. The lung, however, became consolidated, and he ultimately sank. The post-mortem examination showed that there had been a peritoneal abscess for which no cause could be discovered; that this had localized itself in each hypochondrium, and had thence perforated the pleura and on the one side had set up a destructive pneumonia. There was no evidence of any tubercular disease. The viscera were lardaceous. The third case was a female child of five years. Her illness began six weeks before admission with inflammation of the bowels, and she was sent into the hospital for supposed retention of urine, the abdominal swelling resembling a distended bladder. But the temperature was raised. So at the end of a week an exploring syringe was introduced two inches below the umbilicus, and some thick, dirty, fetid pus was withdrawn. A free incision opened a cavity which appeared to be limited behind by the intestine covered by omentum. A drainage-tube was inserted for a few days, but the discharge soon diminished so much as to allow of its withdrawal, and at the end of six weeks she was well. Dr. Goodhart thought the cases worthy of record, first, because of their rarity, and, secondly, because the question of treatment is not an easy one to determine satisfactorily. On the one hand, there is the risk of the pus gravitating to the hypochondria, as actually happened in one case, if a free opening be not made; on the other, there is the difficulty of draining the cavity of the peritoneum if it be opened freely; though, on the whole, the cases point in the direction of the latter course as being the most advisable. It is probable that the surgeon might have no doubt upon the point. He would say that free

drainage after abdominal operations presents few difficulties, and cases so treated are most successful. But it may be questioned whether the conditions after operation are quite parallel to those of pus in the peritoneum, and where there is a considerable tendency for the one collection to become distributed and to form several separate abscesses.—Sir A. Clark recounted a case in which the opposite treatment resulted well. Some three months ago he was summoned to a dignitary of the Church who had limited peritonitis, and it was thought that there was a phlegmon at the bottom of it. Soon after he became very ill with collapse and wider peritonitis. When next seen a lump was evident in the abdomen. At his third visit the swelling lying above the umbilicus fluctuated. A relative, a doctor, proposed that a surgeon should now operate; this was overruled. Three days later a quantity of pus was discharged by the rectum, and he improved. Later on again he became worse, but again pus reappeared in the stools, and since then he has steadily improved. He thought there were some cases best left to nature, and not operated upon.—Mr. R. J. Godlee had recently had a case in a child two years old, who, two months after whooping-cough, had a swelling in the abdomen, which burst and discharged first pus and then fecal matter. This went on for many months. Mr. Godlee made a free opening; the child lived about ten days, and then died. There was a cavity in front of the intestines in which were several small openings communicating with them. The glands were not enlarged. He had now at University College Hospital a baby with a small fecal fistula in the abdomen.—Dr. Mahomed thought these cases were not very rare, and he believed they tended towards recovery, and if fatal they were found to be obscure in their origin. His first case was a man admitted to hospital very ill with severe peritonitis. The abdomen was explored by Mr. Pepper, and an abscess cavity was found, partially ruptured. The peritoneal toilet was made, and wound closed, but the man quickly died. At the autopsy two abscesses were found connected with two suppurating mesenteric glands. The next case was one under the care of Mr. Davies Colley. At the autopsy no tubercle was found, but long-standing general peritonitis, with sinuses burrowing in varying directions; and openings between the bowel and abscess cavity. He quite recently had a boy, aged four, under his care with scarlet fever; he appeared to be recovering, when his temperature rose, and he became ill with peritonitis. He died on the sixth day. At the autopsy the intestines were thickly covered with creamy fluid, much matted, and collections of pus were found in the mesentery. The mesenteric glands were enlarged, but not suppurating. He suggested that in some cases irritating food or an organism excites acute inflammation in the mesenteric lymphatics, and that the disease tends towards recovery.

Mr. Howard Marsh had seen five or six of these cases. A little girl, aged six, had had some intestinal fever, possibly typhoid; this was followed by a fistula at the umbilicus. There was induration at the umbilicus, and the probe passed in here in all directions. The opening was widely dilated, and a large tube was placed in it. After about six weeks the pus was much less, and she improved considerably, and became fat and robust. He remembered, also, an infant, aged two, who had similar symptoms, with an abscess at the umbilicus, which was opened; and this case also did well. Two months ago he saw a man who, after a strain, felt a pain in the abdomen; a very large abscess formed, which was opened at the umbilicus, and afterwards another opening was made at the

right hypochondrium. But the quantity of pus was very large. After a purgative he became suddenly very collapsed, as if from perforation; he, however, got better, and two months after his return home he died suddenly in ten hours from collapse, apparently from perforation. This was one of the dangers of these abscesses. He doubted whether these cases were really tubercular.—Mr. Barker referred to a woman who, last April, was admitted to hospital with signs, it was thought, of a femoral hernia. He cut down upon the cedematous tumour, though in doubt as to its nature; he opened a very thickened sac and liberated a large quantity of pus. There was no intestine or omentum, and his finger passed freely through the femoral ring; he made a counter-opening through the abdominal wall, and drained it freely. The patient did very well. He thought all abscesses getting down towards the pelvis ought to be opened very early.—Dr. F. Taylor thought that where abscesses were recognized they should be treated as such and opened early. But as a physician he often saw cases of general peritonitis, which then became localized in abscesses. A young girl had general peritonitis, which subsided, but her temperature remained up for five or six weeks more, and then a tender spot formed in the lower part of the abdomen, which was incised; pus discharged and the case quite cleared up.—Dr. Habershon thought the cases related in the discussion were different from those described by Dr. Goodhart. They were, in fact, abscesses arising from peritonitis. In some cases there was a phlegmon in the parietes, which had a tendency to pass inwards and open in the peritoneum; and he had seen several such cases. In other cases there was a tendency to suppuration round the umbilicus in young children. Some abscesses, like Dr. Goodhart's, seem to arise from a blow.—Dr. Edis had met with cases of encysted peritoneal abscess among women. A young woman got wet and cold just before her menstrual period. A week after she was admitted under Dr. Coupland. She was very febrile and ill; pulse scarcely perceptible; great vomiting, which became stercoraceous; tongue dry. There was pain in the abdomen; the uterus was normal. Just at the "roof of pelvis" an abscess was felt, and he suggested that this should be aspirated, and he drew off twenty ounces of pus, washed the cavity out with Condy's fluid, and the patient convalesced very rapidly. He thought such cases were often overlooked, and he believed it was always well to aspirate them. He also mentioned a case of abscess which burst into the rectum.—Dr. Goodhart said that his paper referred only to peritoneal abscess in children, and in quite young children, and in them such abscesses he thought were rare. He could only find casual reference to them in literature, and then following scarlatina. He was not wedded to immediate operation when fluid was detected beneath the abdominal wall.—Sir A. Clark noted that four speakers had referred to cheesy deposits as non-tubercular, while all such deposits were generally said to be tubercular, a view which he did not share.

Dr. Charlton Bastian read an abstract of the notes of an anomalous case of Cerebro-Spinal Sclerosis. Joseph H— had been under observation at University College Hospital from time to time since the year 1877. He died on March 24th, 1882, being then sixty-two years of age. There was a neurotic history; no syphilis. In August, 1868 (then aged forty-nine), he fell down a flight of stone steps. The patient dates his illness from eighteen months after the accident, when he began to complain (1) of dragging of the left foot in walking, (2) of tingling at the tips of left fingers,

and (3) of deafness in left ear. After twelve months the first of these symptoms had disappeared; the other two remained. Four years and a half later his left leg again began to be weak. This was soon followed by weakness of the right arm and leg, and deafness on the right side. From August, 1876, he became gradually worse. He was first admitted into the hospital in October, 1877. He then suffered from paresis in all limbs; tingling in both hands; deafness and noises in both ears; giddiness; occasional headache, and pains in the eyeballs. There was no optic neuritis now or later on. There was no definite mental defect, but speech was indistinct and slow, with separate pronunciation of each syllable. Motor cranial nerves not distinctly affected. Deglutition natural. He stood and walked only with much difficulty. There was considerable rigidity of both legs, and some loss of power over the bladder. Knee-jerk present and equal on two sides. No tremors, either spontaneous or on movement, in either lower extremity. He left the hospital early in 1878, walking slightly better, but otherwise in much the same condition. Early in July, 1880, the patient was again admitted under Dr. Bastian's care. His intellect was unimpaired. Voice even more drawling and slow. Deglutition natural. The chief alterations in his condition were these:—Loss of all power of walking and of standing without assistance; loss even of power of raising feet from bed; loss of power over right hand (so that he could not feed himself or write with it as previously), with slightly increased force of grip on left side; much more paralysis of trunk muscles; the occurrence of the so-called "tache cérébrale" and of "factitious urticaria" after slight and more severe irritation respectively of skin; burning pains in trunk and limbs. The joints of the upper extremities were now rigid, and the muscles were wasted. The right leg was slightly flexed at the knee, the left extended at all joints—some rigidity on both sides. Muscles irritable to mechanical stimuli, and the interrupted current produced a tetanic condition of the muscles of the lower extremities to which it was applied. Both ankle-clonus and exaggeration of knee-jerk well marked, especially on the left side. There were still no spontaneous tremors or fibrillary twitchings in any parts, and no tremors on movement. Morning temperature often above, and evening temperature often below, the normal—99.5° and 97.5° respectively. About this time, too, the patient became more emotional, crying and laughing frequently and on slight provocation. He left the hospital at his own desire on Oct. 14th, 1880, but was again admitted under the author's care on Jan. 2nd, 1882. Still no intellectual impairment. Speech and deafness as before. Deglutition still unimpaired. Tongue protruded in straight line. No tremors. Right upper extremity rigidly flexed and motionless. On left side slight power of movement at all joints. No power of moving any part of either lower extremity. No control over fæces. Retention of urine, with dribbling and some cystitis. Breathing wholly diaphragmatic. Intercostals almost completely paralyzed. Wide-spread numbness, with diminution of sensibility. Superficial reflexes all abolished. Knee-jerk exaggerated as before. Ankle clonus easily obtained on left, absent on right side, though it returned two or three weeks later. Factitious urticaria still easily obtainable. During the next two months the patient suffered from frequent emotional disturbances—strange dreams of a terrifying nature, and many painful subjective sensations. On March 15th it was found that the patient had wasted considerably since the beginning of January. About this time his appetite

failed, his tongue became thickly furred, and his temperature rose slightly. Fresh cystitis, with blood in the urine, appeared; and bronchitis, from which he had been suffering slightly for about a month, became gradually worse. He died asphyxiated on March 25th, having been quite unable to expectorate any mucus.—Autopsy, twenty hours after death. Brain: Meninges healthy; slight amount of subarachnoid serum. On the under surface of the pons two superficial grey patches were seen. One of them, a quarter of an inch in diameter, was situated near the middle line, contiguous to the extremity of the left anterior pyramid of the medulla, which was flatter than natural, and had a greyish tinge almost uniformly throughout its substance. The right anterior pyramid on section was also found to show much grey degeneration, though less than its fellow. Sections through other parts of the medulla and through the pons showed many greyish-red patches of sclerosis, varying in diameter from a pea to a mustard seed. The root of the right auditory nerve for nearly half an inch was distinctly grey and semi-translucent. On the left side this was less marked in the superficial portion of the auditory root. The other cranial nerves were apparently healthy. The white substance of both cerebral hemispheres, but especially that of the posterior half of the left hemisphere, showed small grey areas here and there. In one section, through the region mentioned, about fifteen small patches were seen within a space of about two and a half square inches. None of them seemed to implicate the cortical grey matter. The lining membrane of the lateral ventricles was thickened, and very tough, and grey patches of discoloration were seen here and there on the surface of the thalami. On section similar patches were found through different parts of the interior of both thalami, but the corpora striata and the cerebellum were free from them. Spinal cord: Meninges healthy. Cord presenting no unnatural appearances externally. When sections were made the antero-lateral columns seemed to occupy an area relatively smaller than natural. No distinct changes of texture were recognizable by the naked eye on the cut surfaces in the eight or nine places in which sections were made. But after the cord had been immersed for some time in bichromate of ammonia, areas of degeneration were easily recognizable when fresh sections were made. A well-marked patch was seen, for instance, in the left cervical region, implicating a large portion of the lateral column, as well as a portion of the contiguous grey matter. Smaller patches also existed in this region, in the lateral column of the right side. In the lower dorsal region a distinct tract of sclerosis occupied the central portions of the posterior columns on each side of the middle line. In other portions of the dorsal, and in the lumbar regions, no very distinct patches of degeneration were seen with the naked eye, but on subsequent microscopical examination a diffuse overgrowth of connective tissue (not taking the form of limited patches or tracts) was seen in many parts of the lateral and of the posterior columns. The nerve cells, also, but especially in the lumbar region, were very notably atrophied. The central canal was enlarged throughout the whole of the cord, and densely packed with small round cells. The patches of degeneration in the medulla and other parts of the brain presented all the typical characters of areas of sclerosis in nerve tissue. Charcot, in his admirable account of "disseminated sclerosis," says:—"It rarely shows itself after thirty years. The age of forty seems, on the other hand, to be the outside limit to which patients attacked with disseminated sclerosis attain." It is worthy of note,

therefore, that in the case of J. H.—the disease first showed itself when he was over fifty years of age, and that the patient lived to attain the age of sixty-two. In regard to etiology, the only points to attract attention are—first, some evidence of a neurotic tendency; and, secondly, the fall over a flight of steps eighteen months before the first distinct signs of the disease. The arrest of the disease for four and a half years, and the symmetry of its manifestation after this date, are interesting features. Although the patches of degeneration were so numerous in the medulla and in the pons, convulsions were absent from first to last. Again, it is worthy of note that the characteristic tremors on movement which so frequently constitute a marked feature in this disease were also absent from first to last. The early weakening of cerebral control over the bladder was probably due to the existence of an extreme amount of disease in both anterior pyramids. Although the sclerosis of the anterior pyramids, and especially of that on the left side, was so marked, yet nothing like a secondary degeneration existed in either lateral column of the cord. This is in harmony with what might have been expected, since it is well known that in these patches of sclerosis the axis-cylinders are usually not destroyed, although they are more or less pressed upon and damaged. It could not be expected, therefore, that the same results would follow from a patch of sclerosis, however well developed, involving the anterior pyramids, as might be looked for from a destructive lesion (e.g., a traumatic section or a complete softening). It seems probable that the hallucinations and abnormal sensory phenomena which occurred, especially during the last few months of life, were due to the late development of patches of sclerosis in the thalami as well as in the white substance of the posterior third of each cerebral hemisphere. The power of provoking in this case, over a period of several years, both a "tache cérébrale" and "factitious urticaria" are interesting facts in themselves, and especially from the point of view of the pathogenesis of this latter condition. In regard to diagnosis, it was pointed out that in the early stages of this patient's illness all the symptoms were to be accounted for by a disease of the medulla oblongata, and that the evidence even at that time was clearly against the existence of a tumour, and in favor of disseminated sclerosis involving this region in such a way as successively to abolish the functions of the auditory nerves without interfering with the portio dura, and again of impairing the power of articulation whilst it left that of deglutition intact. The subsequent progress of the case was felt to strengthen the diagnosis of disseminated sclerosis.—Sir A. Clark asked if the vessels and kidneys were healthy.—Dr. Bastian replied that these organs were healthy.—Dr. Althaus said that Dr. Bastian had anticipated all questions by his careful and complete description. He had lately seen a case of sclerosis with absence of tremor, which was very unusual. In this case there was loss of power, nystagmus, and atrophy of the optic nerves. One of the earliest symptoms of such cases was increase of mechanical irritability of muscles.—Dr. Longhurst had traced such cases to long antecedent injury.—Dr. Money asked if the absence of implication of cerebellum and corpora striata was connected with the absence of tremor.—Dr. Bastian replied that there was no distinct nystagmus, but there was a jerking movement of the eyes. He was not disposed to accept Dr. Money's suggestion, but to explain the absence of tremor by the stress of the disease being at the first located in the anterior pyramids; which cut off the cerebral influence from the cord below. He

thought injury had much to do with the development of chronic spinal disease.

The Society then adjourned.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

President's Address.—*Tubercle (?) of Choroid.*—*Tumour of Right Eye, with Right Optic Atrophy and Left Hemiplegia.*—*Glaucoma.*—*Cases of Homonymous Hemianopia.*

THIS Society met for the first time this session on Oct. 11th, Mr. Jonathan Hutchinson, F.R.S., President, in the chair. A copy of the Society's Transactions, Vol. III., was laid on the table by the President.

Mr. Hutchinson said: "In Mr. Bowman you have enjoyed the services of a president of unequalled fitness and ability—of one, indeed, who had already conferred inestimable benefits on ophthalmic science. His acceptance of the office of president at once secured the success of our infant Society, and in his recent resignation of it we have sustained a very heavy loss—one which, I am well assured, it will be quite out of my power in any degree to make you forget. It is almost certain that the Society could not have afforded to continue in these rooms and develop itself in the proposed directions had it not been helped by an act of scientific beneficence not often surpassed. Having acquainted himself with the facts, and noting our position, our late president made an offer to the Council to himself undertake the cost of purchase of all fittings necessary for the museum and library, and further, to make a gift to the Society annually for twenty years of the sum of £50, in order to defray the expenses of rent of rooms. Need I say that the Council on your behalf thankfully accepted Mr. Bowman's munificent offer? And I have now the pleasure of informing you that we are, in all probability, rent free for twenty years, and shall be able to devote the whole of our income from subscriptions to the publication of our annual volume. I am sure that you will receive this most liberal gift of your past president as one in the highest degree worthy not only of praise in the present, but of imitation in the future. The pecuniary advantages which it confers upon us are solid, extensive, and durable. But, warmly as we appreciate them, I believe I may say that those who have been most closely associated with the early years of our Society derive yet greater pleasure from the fact that one so competent to judge should in so emphatic a manner have crowned their efforts with his approbation. I have next to allude to a remarkable coincidence. Mr. Bowman's offer was made only about a month ago, and quite unexpectedly to us all, whereas for at least three months before this, and wholly unknown to him, the Council had had under consideration a proposal to recognize his pre-eminent position in respect to ophthalmology in Britain, and the invaluable services which he had already rendered to our Society. It was from Dr. Gowers that the suggestion had first come that we should found a lectureship to be known as the Bowman Lecture, but it was no sooner mentioned than it was received with unanimous approbation. This lecture will probably be an annual one, and will be delivered at a meeting specially appointed for the purpose. I cannot but think, however, that it is possible that in the future such societies as ours may find another kind of work open to them, which is only second in importance. I allude to the systematic and strenuous endeavor to diffuse

rapidly amongst the profession at large, for the prompt benefit of our patients universally, all items of new knowledge which may have been obtained. There is another branch of the same topic on which I incline, if you will permit me, to enter into a little more detail: it offers possibly a sphere for much useful work in the future on the part of societies like ours. It is one, indeed, to which perhaps this Society in particular is more specially called than any other. I refer to the promotion of what may be named every-day therapeutics. I do not doubt that there are, at the present moment, whilst I am speaking to you, in the homes, the schools, the workhouses, and the hospitals of England, some thousands of children who are suffering from ulcerations on the cornea, attended with intolerance of light, causing the patient great suffering and annoyance through many months, and destined often to leave disfiguring and incapacitating scars. If my own experience may be trusted, I believe that three-fourths of these would be almost well in the course of a fortnight under the use of a very weak yellow oxide ointment. Many of them, no doubt, are getting it, but a considerable majority probably are not; for the rule of treatment is not yet universally acknowledged amongst specialists, and certainly not very widely known in the profession. But the fact that it is meritorious in individuals to abstain from pushing their favorite remedies, only throws the duty to which I have been alluding the more definitely upon public bodies like ourselves. No one could impugn our motives or doubt our sincerity, and our verdicts would be received, not certainly as final, but as entitled, at any rate, to a temporary acceptance. I might easily mention a number of special types and forms of eye disease—purulent ophthalmia, rheumatic iritis, episcleritis, catarrhal ophthalmia, glaucoma, and the like—for which definite schemes of treatment could easily be laid down. Some years ago, in the early days of the keratome, I felt so strongly on this subject that I had some thoughts of engaging a full page in *THE LANCET* for a big red-lettered anonymous advertisement, so staring that all must read it, stating in a dozen words the symptoms and inevitable result of glaucoma, together with the certainty of its cure by operation."

Dr. George Johnson begged to propose a vote of thanks to Mr. Bowman on behalf of the Society for his munificent gift. This was seconded by Mr. Wordsworth, and carried with acclamation.

Mr. W. H. Jessop showed a girl aged twelve years, in whose family history there was a marked account of phthisis, she having also tubercular disease of both apices, especially the right. In the left eye, about the yellow spot, a round white brilliant swelling, ill-defined at the periphery, projected one millimetre. Between this swelling and the disc there were also about eight small brilliant spots. The case was regarded as one of doubtful choroidal tubercles.

Dr. J. A. Ormerod brought forward a man aged forty-four, the subject of Left Hemiplegia and Atrophy of the Right Optic Nerve. The former symptom developed first fifteen months ago; the latter appeared last May without preceding neuritis. A rounded smooth projection also existed in the upper and outer part of the right globe, detaching the retina. The patient had had syphilis ten years ago, and there was no cardiac disease or albuminuria.—Mr. Nettleship thought that the swelling in the right globe in Dr. Ormerod's case was probably due to a sarcoma of the choroid, with detachment of the retina.—In this view Mr. Adams concurred.—The case is to be submitted to a committee, composed of Messrs. Nettleship and Adams and Dr. Ormerod, for special report.

Mr. Frederick Mason, of Bath, showed a patient who had been the subject of a communication to the Society on December 8th, 1881. In this case there was a tumour at the sclero-corneal junction, which had not recurred after removal.

Mr. Pigeon exhibited for Dr. Brailey a case of Glaucoma of the Right Eye in a boy aged fourteen, following a blow from the cork of a lemonade bottle. The lens was not dislocated; but some opacities had appeared in this structure some three weeks after the accident. The instillation of eserine caused considerable improvement in the vision, and the tension of the globe diminished.

Mr. Nettleship read notes of a case of Blindness of one eye with Hemianopia of the other, due to the pressure of a tumour on the optic nerve, chiasma, and tract on the same side as the blind eye. The man came under care first in 1876, at the age of thirty, for recent failure of the left eye. The disc showed slight atrophic changes, and was said by an earlier observer to have been inflamed. Subsequently this eye became nearly blind, the disc atrophied, and the patient lost the right half of the visual field in the other eye, the disc of which also became atrophic. The hemianopia was sharply defined, and the boundary line passed through the fixation point. The left third nerve also became paralyzed. At the same time, discharge of bloody mucus from the left nostril, defective smell, difficulty in opening the jaw, and the appearance of a lump behind the jaw on the left side, pointed to a tumour at the base of the skull involving the optic nerve, and at a later stage the tract and third nerve on that side. The man died seven years after he was first seen by Mr. Nettleship, and a large tumour was found, apparently growing from the body of the sphenoid, and compressing, but not infiltrating, the parts mentioned, as well as the crus and pons.

Dr. Sharkey read a paper on a case of Homonymous Hemianopia, probably due to a cortical lesion. The patient was a female aged fifty-one, who came under Dr. Sharkey's care on July 5th, 1883. The present illness began two years and a half before whilst the patient was walking across a hayfield, when she had the first of a series of "fits" of exactly similar character. The order of events in these attacks was as follows: Suddenly there appeared "in the right eye" a play of all the colors of the rainbow "quivering" and "fluttering" before her. Then the right arm became convulsed, and the forearm and hand were rotated inwards. Soon the right leg was rigidly extended backwards and outwards; then loss of consciousness supervened, and she bit her tongue. She remained unconscious of her surroundings, and when she did recover her senses she found she had a severe pain in the top of her head and weakness of the right arm, but none of the right leg. Moreover, she could see nothing on her right side without turning her head in that direction. She had no loss of sensation or of speech. When first seen by Dr. Sharkey she had a painful area on the top of her head posteriorly about two inches in diameter, which was tender on percussion. There was weakness of the right hand and arm, and right lateral homonymous hemianopia of such a kind that there remained a considerable area of normal central vision on all sides of the fixation point. Color-vision was intact except in the blind portions. Dr. Sharkey thought that the diagnosis of a lesion of the left hemisphere affecting the cortical centre for the arm and its neighborhood was as nearly certain as any diagnosis could be, which was not subjected to the test of an autopsy. The succession of phenomena above described presented a vivid and typical picture of cortical lesions. Ferrier long ago established a

connection between each hemisphere and the opposite eye, and localized the "visual centre" in the angular gyrus. But since then Munk has proved by experiment that lesions of other parts produce, not amblyopia of the opposite eye, but homonymous hemianopia. Dr. Sharkey's case showed that in such conditions central vision may be unaltered. This being the case, it proves that there must be to some extent a separation between the area in the cortex, which receives the peripheral fibres of the corresponding halves of the retinae and that which receives the central fibres of the retina. The probabilities are in favor of the "visual centre" being an extensive expansion of grey matter in the posterior parts of the hemispheres, in which is represented separately every portion of the retinae. And probably great variety will be found in the shape of visual defects in homonymous hemianopia due to cortical lesions. In order to represent the state of our knowledge the well-known diagram of Charcot requires slight modification. Leaving in his diagram the crossed fibres as representing the central fibres only of each retina, let the neighboring but somewhat distinct cortical centre be added, from which the peripheral fibres to corresponding halves of the retinae start. From this centre draw a line running down the optic tract of its own side and bifurcating at the chiasma, one portion of the fibres passing to the periphery of the temporal half of the retina of the same side, and the other portion to the periphery of the nasal half of the opposite retina.

OBSTETRICAL SOCIETY OF LONDON.

A MEETING of the above Society was held on Oct. 3rd, Dr. Gervis, President, in the chair.

Hypertrophy of Mammar.—Dr. J. A. Mansell-Moullin showed a patient, aged eighteen, unmarried, the subject of hypertrophy of both mammar. The patient's health was otherwise good. The nipples were small, the areolae large.—Dr. Champneys had seen a case in Professor Billroth's clinic treated by rest in bed, the breasts being suspended from above.

Tumour of Clitoris.—Dr. W. A. Duncan showed a large fibro-cellular tumour involving the clitoris and both nymphæ, which he had removed.

Ruptured Ovarian Cyst.—Dr. W. A. Duncan also showed a multilocular ovarian tumour, one of the cysts of which had ruptured during an ordinary examination, leading to fatal peritonitis.—A committee was appointed to examine and report upon the specimen.

Arrested Development of one Fetus of Twins.—Dr. Edis exhibited a specimen of this kind. One fetus was born alive in the seventh month of pregnancy; the other, expelled seven hours before it, was shrivelled, and its placenta atrophied, apparently having died in utero about two months previously. Dr. Edis also showed Twin Fœtuses at about the fifth month of development.—Dr. Malins had seen a case in which one fetus had been born living at the eighth month; the growth of the other, expelled at the same time, having been arrested at the fourth month. Cruveilhier had illustrated the same condition. Such cases showed the power of toleration possessed by the uterine; and were also interesting in their medico-legal aspect.

Placenta Succenturiata.—Dr. Champneys showed a placenta succenturiata. It was impossible, from an examination of the afterbirth to diagnose the retention in utero of such a body.—Dr. Daly said these cases were of medico-legal interest. He had been called to a case in which a woman died from hæmorrhage caused by a piece of placenta left in

the uterus. An unqualified practitioner had attended to the placenta, and at the coroner's inquest pleaded that the retained piece was a supernumerary placenta, a view which was accepted by the jury.

Gangrene during Pregnancy.—Dr. Swayne related a case of gangrene occurring during the seventh month of pregnancy. The disease came on after a long journey, and attacked the integuments and muscles over a space the size of a man's fist on the upper and inner third of the right thigh. The symptoms had existed about four days before the occurrence of premature labour, but were not very severe until after delivery, when they became much intensified, and proved fatal early on the third day. There was no injury, wound, or erysipelatous inflammation to account for the occurrence.—Dr. Burchell said that, although the case was not clear, he could not help believing it to have been one of strangulated femoral hernia.—Dr. Herman asked if the case were not one of gangrenous carbuncular inflammation?—Dr. Swayne thought the most probable explanation was that the gangrene was caused by undue pressure on the iliac vessels, possibly from tight lacing, to which the patient was accustomed. The situation of the tumour precluded the idea of strangulated hernia, the vesication and absence of any head that of malignant carbuncle, and the absence of diffused redness at the onset that of erysipelas.

On the Anatomy, Physiology, and Pathology of the Os Uteri Internum.—This paper, by Dr. Henry Bennet, was then read. The author had, in 1849, drawn attention to the existence of a muscular sphincter at the os uteri internum, and this, like all sphincters, was closed when at rest. This fact was accepted by many at the time, but now seemed to have passed out of mind. It had a most important bearing on uterine therapeutics. The ordinary, physiological, closed state of this sphincter offered resistance to the passage of the metallic sound, but a small wax bougie could be passed through it. By the use of such bougies he had, in 1846, discovered that the cavity of the uterus was not straight, but had an anterior concavity. This sphincter was no doubt developed by pregnancy. It opened slightly before, during, and after menstruation, and probably during sexual congress. It was relaxed by disease, such as fibroids, chronic uterine inflammation, and endometritis. The easy passage of the sound was therefore an indication of a morbid rather than of a healthy condition of the uterus. This fact had an important bearing on the theory and treatment of sterility. If a closed os uteri were presumed to be a morbid condition, then nearly all healthy young women who were examined would be erroneously considered to require surgical treatment.—Dr. Galabin had no doubt of the existence of a sphincter at the os internum; this was shown by the constriction often seen at this point in a laminaria tent, and by the rapid contraction of the os after dilatation. But he could not agree with Dr. Bennet that it was normally completely closed. Where the passage of the ordinary sound was resisted, a smaller one without a bulbous end would often pass if the direction of the canal were hit upon, although a hitch was sometimes caused by flexion of the canal. He thought further evidence was much to be desired as to the cure of sterility by incision or dilatation of the cervix. His impression was that he had seen a larger proportion of pregnancies follow dilatation by bougies than incision. He thought it would be of great value if some of those who performed the operation would give the number of pregnancies following in a complete series of consecutive cases. The only such series he remembered did not show a greater number than might

be accounted for by coincidence.—The President remarked on the interest and value of Dr. Bennet's paper. In former years he (the President) had rarely incised the os internum. But lately, where there was evident constriction (a fact of which he had no doubt), he had done so, and his results had been distinctly better. Where the os internum was fairly patulous, and the constriction affected the os externum alone, he was satisfied with its division.—Dr. Heywood Smith protested against the use of scissors to divide the os externum, for too extensive an incision was thus made, and the power of imbibition possessed by the external os destroyed. The most scientific method of doing the operation was with Sims's narrow-bladed knife.—Dr. Playfair believed very little in stenosis of the os internum, and not at all in its incision for the cure of sterility. Incision of the os externum in well-selected cases was occasionally followed by pregnancy, but he believed it was done far too often and too indiscriminately. He believed it acted not only by enlarging the os, but by remedying the conical condition of the cervix, which was more often than stenosis the cause of sterility.—Dr. Champneys pointed out that difficulty in the passage of the sound was not proof of stenosis of the os internum. Difficulty might arise, even when the canal was larger than usual, from the instrument being passed in the wrong axis, or from its point catching in a fold of mucous membrane. It was only when the bulb of the sound was gripped during withdrawal that stenosis could be inferred.—Dr. Aveling was sure that contraction of the os internum was a cause of dysmenorrhœa and sterility, and believed that incision gave more permanent relief than dilatation. After incision he did not use a stem pessary, but passed the sound daily for a week, and then less often, till healing had taken place.—Dr. Edis thought there were instances in which division of the internal as well as the external os was needed. Each case must be treated on its own merits, it being impossible to lay down any general rule. After incision he used a stem pessary, the patient being carefully watched.—Dr. Murray thought division of the os uteri for sterility alone of doubtful utility. He had seen many cases in which it had been done without good results. It was not free from risk to life, and ought not to be done simply at the request of the patient.—Dr. Henry Bennet gathered that his views were generally accepted, although some might not go as far as he did. Deep division of the cervix had been formerly, and he believed was still, too frequently performed by some practitioners. The abuse of surgical treatment might be on the wane in England, but certainly was not elsewhere. It was therefore desirable to establish the anatomy, physiology, and pathology of the os internum on a sound basis. Other waves of opinion were setting in, equally exaggerated in their character; as, for instance, in America, the unjustifiable sewing up of the lacerated cervix uteri for insignificant lesions, easily cured by the simplest local treatment, and with us the abuse of pessaries.

LIVERPOOL MEDICAL INSTITUTION.

A MEETING of this Society was held on Oct. 11th, Mr. T. Shadford Walker, President, in the chair.

The customary conversazione at the opening meeting was limited this year to an exhibition of frozen sections of the human body and a collection of skulls and teeth from the Medical School. The former, prepared by Dr. Barrow and his assistant demonstrators, proved very attrac-

tive, for after being cut and hardened in spirit the sections had been allowed to dry slightly, and the various tissues then colored with oil paint. They were mounted in spirit in large basins with flat glass tops, and were fixed in tinted plaster-of-Paris, the result being very effective. Some of the sections had been sketched in water-colors by Mr Dixon, a senior student, the structures being all lettered and named, and corresponding letters being placed on the same structures in the sections. When all are completed in this way they are to be put in the dissecting-room. The skulls and teeth had been collected and prepared by Mr. Paul for the dental department of the school.

When the above specimens had been viewed, the President opened the session with a few introductory remarks, and the ordinary business was proceeded with.

Multiple Sarcoma.—Dr. Carter showed the internal organs of a man aged twenty-two. The following is the history of the case. Three months ago he noticed two small lumps in the skin above the umbilicus. Shortly several others appeared; and when first seen, two months subsequently, there were thirty or forty over the trunk, but only one on the limbs. At the same time vomiting and jaundice came on, with progressive debility and hæmatemesis, till he sank and died. At the post-mortem examination a large mass of a soft sarcomatous appearance involved the pancreas, and another smaller mass infiltrated the root of the left lung, and the neighboring thoracic and abdominal glands were affected. There were numerous nodules of small size in the liver and kidneys, and a rather large mass occupying the left adrenal. The deposits beneath the skin had the same appearance as those in the internal organs. Dr. Carter thought the mass in the pancreas to be the oldest. The growth was a round-celled sarcoma.

Tumour of the Medulla.—Dr. Glynn read the history of a middle-aged man, who had contracted syphilis fourteen years ago, and was recently admitted with headache, vomiting, and hiccough. Shortly, there supervened numbness and loss of power on the left side and of the lips, paralysis of one vocal cord, and external strabismus. He was subject to what he called weak fits. Subsequently he became ataxic and salivated; but the reflexes and taste were normal. Optic neuritis became marked, and temperature high. No sugar in the urine. When raised in bed he was attacked with epileptic seizures. At the post-mortem a tumour was found occupying the restiform body below the level of the floor of the fourth ventricle, and extending through the medulla to the olivary nucleus. It involved the nuclei of the pneumogastric and hypoglossal nerves, and part of the long nucleus of the fifth.

Ligature of the Brachial for Wound of the Palm.—Mr. Puzey read a short paper on this subject, based upon two cases in which a high division of the brachial was found. In each there had been several hæmorrhages, and the operation was only adopted when the symptoms became urgent. In the first case, an incision having been made over the brachial in the middle of the arm, a large artery was met with, upon ligature of which pulsation in the ulnar alone ceased. Further exploration discovered another similar vessel, which proved to be the radial. In the second case ligature of the main artery in the position of the brachial stopped pulsation in the radial, and lessened it in the ulnar. During the operation a large vessel, supposed to be the inferior profunda, was turned aside. Mr. Puzey subsequently believed this to be a high ulnar, and upon recur-

rence of hæmorrhage three days later he ligatured the ulnar at the wrist, after which recovery took place. From his experience of these cases, Mr. Puzey recommended that ligature of the brachial should be resorted to much earlier than was the usual custom for hæmorrhage from the palm.—In the discussion which followed, Mr. Mitchell Banks considered that in a fresh wound of the palm the bleeding vessel should if possible be ligatured, but that in older wounds the brachial should at once be tied upon the occurrence of secondary hæmorrhage.—Mr. Rushton Parker and Dr. Alexander advised ligature at the spot if the superficial arch were wounded, but compression in the case of the deep arch.—Dr. Macfie Campbell and Dr. Barrow criticised the anatomy of the high division of the brachial.—Mr. Paul had found that in punctured wounds treated by compression in which secondary hæmorrhage had taken place there was usually a small false aneurism. He thought that it was rather this condition which prevented closure of the artery than any process of sloughing or ulceration, and, with antiseptic precautions, recommended ligature of the vessel at the injured part under all circumstances.

ACADEMY OF MEDICINE IN IRELAND.

At a recent meeting of the Surgical Section, a paper was read by Mr. Thornley Stoker, on Removal of the Thyroid Gland in Cases of Bronchocele. He detailed the case of a boy on whom he had himself operated, the disease being the most extensive of which he could find any operative record. The tumour extended nearly from ear to ear and hung down nearly as low as the navel. He removed two-thirds of the mass, comprising the right lobe and isthmus, in March, 1882, and the remainder, on the left side, a year later. Complete recovery followed the first operation; but the patient died five days subsequent to the second, from pulmonary thrombosis. He was incompletely cretinish, but developed greatly after the first operation. Mr. Stoker considered that the ablation of the thyroid gland for disease should be held justifiable, the patient so desiring, not only in cases where the disease threatened life, but where discomfort or disfigurement existed and minor treatment had failed.—Dr. R. McDonnell said he was present on both occasions. The first operation might be regarded as quite successful, and taught the lesson that in cases of the kind the operation was justifiable. The second had a fatal issue, from a cause not necessarily connected with the operation.—Mr. Corley stated that in his hospital practice some years ago a similar case arose, where the pressure of a large thyroid gland became so great as to render operative interference necessary. He did not think Mr. Stoker had placed sufficient emphasis on the magnitude of the operation.—Dr. H. Kennedy drew attention to the treatment of thyroid tumours by the seton, and mentioned a case in which at the end of some months the disease was entirely cured. Such a measure as that would be more justifiable in the first instance than the terrific operation described by Mr. Stoker.—Mr. Thompson thought, whatever use the seton might be in some cases of small thyroid tumour, it would have been useless in Mr. Stoker's case, in which the vessels were of enormous size.—Surgeon-Major Hamilton remarked that 10 or 15 per cent. of the population in the Himalaya valleys suffered from bronchocele. Sometimes twenty or thirty coolies might be seen climbing mountains 2000 to 3000 ft. high, carrying heavy loads, 50 lb. or 60 lb. in weight, and

each having a tumour. Rubbing in biniodide of mercury ointment with a spatula as they lay on their backs in the sun always relieved. The great benefit seemed to be derived from doing it in the sun. He had seen many cases so treated, and had not known any of the men to die from it. In the Himalaya valleys syphilis was supposed to be the cause, and the people lived on inferior food in overcrowded, dirty, and badly ventilated houses.—Dr. Foy instanced the case of a woman, aged twenty-two, who had a very rapidly growing thyroid tumour, which caused her inconvenience both in breathing and swallowing. It became urgently necessary to do something, and he applied a blister on the back of the neck with the best result. A seton was subsequently inserted, and the gland in a short time assumed its normal size.—Mr. Stokes endorsed what Mr. Stoker had said regarding the inutility of using any mild measures in such cases as he had described; but in those referred to by Dr. Kennedy, Dr. Foy, and Surgeon-Major Hamilton, the tumours were probably of extremely simple structure. He recollected two cases in which merely tapping, followed by a weak solution of tincture of iodine, sufficed. The employment of setons found little favor in his eyes. In Mr. Stoker's case nothing short of the very heroically performed operation adopted would have given the patient the slightest chance of recovery. The introduction of air into the veins was avoided by the application of the double ligature and dividing the veins between them.—Dr. Bennett did not suppose any surgeon would propose to operate, knowing that if the epidemic influence, or the particular exciting cause, such as pregnancy or menstruation, was past, the tumour, troublesome and dangerous at the time, would become quiescent or even disappear. The point that struck him as difficult of explanation was, how it was possible to make the tumour disappear by biniodide of mercury. It would be interesting to know whether such treatment was successful in the case of Europeans in India, or was the success confined entirely to the natives? He was inclined to think, however, that the result of exposing a European to the sun for a sufficient time to cure him of the goitre would be to kill him. The great desideratum was to diagnose exactly the kind of tumour that ought to be the subject of removal.—Surgeon-Major Hamilton observed that it was the smaller tumours which were often radically cured. Europeans were treated for enlargement of the glands the same as the natives. The only danger was from sunstroke, but this was avoided by placing the upper portions of the body in the shade.—Mr. William Stoker mentioned that similar treatment was the rule in Switzerland.—Mr. Wheeler said that no one would think of extirpating the thyroid gland for enlargement due to anemia, or the thyroid enlargement of menstruation, or what might be termed the cystic bronchocele; but he was of opinion that bronchoceles of large size, and when very chronic, if causing dyspepsia, dysphagia, pressure on the jugular vein, or vertigo, ought certainly to be removed. He did not think that the rays of the sun were essential to act on the biniodide ointment; the heat of the fire would answer very well.

Mr. Swan read a paper on the Primary Consideration of Orthopædic Cases. He explained certain allusions to affections not strictly to be termed orthopædic by stating that they very frequently were seen by surgeons practicing that branch of surgery. From a prolonged observation of a limited number of examples made by himself, and from the results obtained from the records of Dr. H. Cuthbertson and Dr. Virgil Gibney, of New York, he arrived at the following conclusions:—

(1) That the advantages of excision or evitement in tarsal caries do not appear to be so obvious as to warrant their frequent application; (2) that, as there is no evidence of amyloid degeneration of viscera in long-continued suppuration of the tarsal joints, conservatism in its widest signification may be specially applied to disease of this structure; (3) that an anchylosis of the tarsal articulations, a result of the generation of plastic material during the course of the disease, will occur, but that this process, though diminishing the mobility of the foot, will leave it fairly useful. In referring to angular curvature of the spine, the impossibility of predicting the amount of deformity was maintained. The supervention of paraplegia, on the other hand, might be confidently anticipated to occur only in caries of the cervical or upper dorsal vertebrae. So far as the paralysis was concerned, the prognosis might be stated to be usually favorable. The probability of the development of abscess was shown to be chiefly the results of motion, and not necessarily the sequence of extensive gibbosity, or even extensive implication of tissue. Scoliosis was stated to be, except in an early stage, an incurable affection. In equinovarus section of all resisting structures was insisted on, and relapses were said to be often due to a neglect of this rule. Mere congenital distortions of the feet were divided into—(1) those the result of nervous lesions; (2) those depending on ligamentous relaxations; (3) neuro-mimetic affections; and (4) those of traumatic origin. In the treatment of deformities of the lower limbs depending on essential paralysis as usually adopted, whether by counter irritation, localized galvanism of Duchenne, massage, or the Swedish movement cure, the writer did not put much faith, but held a strong opinion on the utility of the direction of volition to the limb, while by proper means maintaining symmetry, holding that the development of the use of the unaffected muscles even remotely attached to the member established a compensating power and believing that in many cases some of the fibrillæ of muscles, the bulk of which were paralyzed, retained contractile power.—Mr. Wheeler was of opinion that Mr. Swan was not sufficiently explicit in his paper with reference to the disease of bones of the foot, and the excision of bones, etc. A tolerably acute diagnosis of the extent of the disease could be formed by observing where the disease commenced. There were four distinct synovial sacs in the foot. Hence it would be easily understood that the extent of the disease would be greatly influenced by its starting-point. Complete excision of the os calcis was not a common operation. The results in two cases he had were most satisfactory; a third, however, was not quite so successful. He deprecated the use of the gouge as a dangerous and unscientific practice, especially in disease of the ankle-joint.—The President remarked that the partial removal of carious bone was exceedingly unsatisfactory. Although Mr. Wheeler had condemned gouging, his experience of it had been attended with marked success.—Mr. Swan replied.

At a recent meeting of the Medical Section, Mr. Stokes read a paper on the Therapeutic Value of Nerve-stretching in *Tabes Dorsalis*. He commenced by pointing out that the evidence afforded by the cases of *tabes dorsalis* treated by nerve-stretching indicated the fact that relief from some of the most distressing symptoms of that disease may, if the operation be performed sufficiently early, be anticipated. He considered that the absence of a physiological explanation as to how the operation acts is no reason for its rejection, and

gave instances of other operative procedures of which the *modus operandi* is as yet unexplained. The particulars of two well-marked examples of the disease treated by him, in one of which he stretched the sciatic nerve on one side, and in the other on both sides, were then given. Although the operations were not followed by any signal improvement in motor power, the results in other respects, as regards relief from lightning pains and vesical irritability, and return of sensibility in certain regions of anæsthesia were satisfactory and encouraging. Then Mr. Stokes discussed the importance of estimating accurately the amount of force that should be used, and was of opinion that a very moderate amount is sufficient to obtain the desired therapeutic results. He also stated his belief that many of the recorded failures of the operation were to be attributed to the employment by the surgeon of an undue amount of force. He advocated the use of an electric cord and dynamometer in nerve-stretching, and believed that in the case of the larger nerves a force of about 10 lb. would be found sufficient.—The President did not see why they should pass over nerve-stretching merely because they did not understand the *rationale* of the treatment. He thought the procedure would apply to nervous functional affections, such as sciatica.—Dr. Duffy said there was no doubt that the operation gave a certain amount of relief to some of the distressing symptoms of the disease. Ceccherelli, in giving an analysis of 100 cases of nerve-stretching for various conditions, had described certain pathological changes where the operation had been followed by extravasations or regenerative changes affecting the vessels of the nerves, which, he presumed, tended to diminish the sense of conductivity of the nerve. The amount of traction was so great as to affect the cord directly. Some observers believed in certain changes having taken place in the cord itself. In favor of this view nerve-stretching on one side of the body might relieve symptoms referable to both sides.—Dr. C. J. Nixon considered that the operation of nerve-stretching in this disease should only be used in desperate cases, after all other means of giving relief had failed.—Dr. H. Kennedy thought that slightly pinching the nerve, and thus conveying irritation that could not injure its substance, might have a beneficial effect.

Dr. McSwiney read the notes of a fatal case of Thoracic Aneurism occurring in a sailor, who had worked at his employment up to within one month of his death. The aneurism was not diagnosed during life, as there were no signs or symptoms present specially characteristic of the disease. The man was supposed to have got cold from exposure during bad weather. He had cough, bronchial rales, and pain in the region of the heart. Physical examination threw no light on the nature of the case. The patient expectorated nine or ten ounces of bright-red blood and died in a few hours afterwards. At the necropsy the aneurism was found to spring from the posterior and outer aspect of the descending portion of the arch of the aorta, and to project into the upper and inner parts of the left division of the thorax, a portion extending across the vertebral column, eroding the bodies of the third, fourth, fifth, and the upper part of the sixth dorsal vertebrae, and lying in the upper and inner portion of the right division of the thorax. The third and fourth ribs on the left side had been eroded, and the tumour had passed backwards between them a short distance. The entrance into the aneurism was about as large as a sixpence, and a quarter of an inch below it a little pouch was formed in the site of the origins of the first pair of intercostal arteries.

This was evidently the beginning of a second aneurism, the aorta being in this position very much diseased. The arch and thoracic portion of the aorta were atheromatous, as were all the valves of the heart in varying degrees. The bronchi and œsophagus showed no signs of pressure. The thoracic duct could not be found, but large lymphatic vessels connected with glands lying at the sides of the dorsal vertebrae were to be seen. The sac was filled with laminated fibrine, and was covered with a quantity of tough matted tissue. The aneurism was therefore diffused. A few fibrous strings were to be seen at the upper portion of the pericardium, but no signs of pericarditis on any other portion of the pericardium. The lower lobe of the left lung at its superior posterior part had become adherent to the aneurism, which had here burst into it. There was a cavity in the central portion of the external part of the lobe, which was covered only by pleura. The costal pleura was thickened on both sides, and on that portion nearest the tumour the deposited lymph had undergone fatty degeneration.—The President could not agree that symptoms were quite absent.—Dr. Finney drew attention to the absence of hypertrophy of the left ventricle, notwithstanding the size of the aneurism, which confirmed Stokes's observation on this point.—Dr. C. J. Nixon related a similar case of fatal aneurism, in which the only symptoms present during life were those of severe bronchitis.

At a meeting of the Pathological Section, held on May 4th, the following living specimens were exhibited:—Dr. J. S. McArdle: Deformity of the Upper Extremity and Arrest of Development following Injury of the Median Nerve. Mr. Benson: Nyctalopic Conjunctivitis. Mr. Coppinger: a patient suffering from Hydatid Disease of the Femur.

The following specimens were exhibited by card:—Mr. Abraham: Ulcerations of the Intestines associated with Malignant Disease of the Cæcum, with microscopic mountings. Mr. Coppinger: Portions of Bone affected by Hydatid, removed from the Femur of the patient exhibited. Mr. Stoker: Thrombus of the Pulmonary Artery. Mr. Abraham: a single Kidney from the body of a man; the Left Kidney, with its vessels and ureter congenitally absent. Dr. L. Maturin: (1) Congenital Deformity of the Forearm and Hand; (2) Aneurism of the Ascending Aorta. Mr. Corley: Impacted Alimentary Bolus.

Dr. E. H. Bennett read a paper describing the characteristics of a Congenital Malformation of the Thorax, in which the anterior extremities of a single rib failed to reach its cartilage, and there existed, in consequence, a depression of the thoracic wall on one side, while the cartilages attached to the corresponding part of the opposite side were hypertrophied, and projected as tumours in front of the level of the sternum. Having referred to the description of this malformation given by Otto and Rokitsky, in which no mention is made of excessive development on the side opposite to the defect, Dr. Bennett showed a preparation which presented the characters mentioned in a most marked degree. He pointed out the importance of a knowledge of this malformation in relation to diagnosis of lesions of the costal cartilages, illustrating the point by the facts of the case from which he had obtained the specimen, and from two other clinical observations. In all three cases injuries had occurred, which suggested that the thorax had been crushed, and the diagnosis had been erroneous in one, that from which the specimen exhibited had been taken.

The Secretary (Dr. Bennett) read for Mr. J. Davidson a paper on the Influence of Fracture on the

Growth of Bone, in which the author recorded the results of his observations on the fracture of the long bones of the lower animals, chiefly fowls, in which the injury occurred during the active growth of bone. Comparison of the injured bones with their fellows showed that there existed a marked increase of size in all dimensions, the bones being heavier and longer on the fractured side.

Drs. Fraser, Stoker, Corley, McSwiney, Bennett, and Abraham discussed the foregoing paper, and expressed their sense of the exactness and care displayed by the author in his investigation.

Dr. Coppinger read a paper on Hydatid Disease of the Femur, the patient and parts removed which established the diagnosis having been exhibited to the meeting already. He alluded to the infrequency of the occurrence of hydatid tumours in the human subject in Ireland, notwithstanding the known prevalence of the echinococcus disease in sheep. He observed that hydatid tumours, even in countries where the affection is comparatively common, seemed scarcely ever to invade the bones, and that no instance of the disease occurring in the bones had up to the present been recorded in this country. The patient had been under observation for three years, having been admitted to the Mater Misericordiae Hospital with a spontaneous fracture of the upper third of the femur, due apparently to its invasion by the parasite. The disease was not diagnosed until Mr. Coppinger had made an attempt to excise the patient's hip-joint and discovered a large cavity in the dilated upper part of the femur containing hydatid cysts and loose pieces of bone studded over with small echinococcus vesicles; these exhibited the characteristic features of echinococcus cysts, etc. The complicated excision was abandoned, but the great trochanter was removed with a saw, and the cavity finally laid open and syringed out with chloride of lime solution. It was then ascertained that the shaft of the femur was firmly connected with its neck by means of the thin walls of the bony tumour, and it was hoped that the disease having been apparently removed the space would fill by granulation from below; it had since become much smaller; but the patient's condition was so unsatisfactory, even after nearly two years' treatment, that another operation would have to be performed for the purpose, if possible, of eradicating the disease. The limb was three inches shorter than its fellow. The man was obliged to have a crutch, being unable to rest his weight upon the limb; and the wound, which was still open, led through a narrow slit in the bone into a cavity in its centre, extending upwards into the neck as well as downwards into the shaft of the femur. Although this cavity was daily washed out with carbolic and boro-glyceride solution, and although all disease was apparently removed, collapsed cysts and shreds of membrane still escaped from it occasionally, proving that the peculiar disease caused by the presence of small exogenous cysts in the cancellous tissue of the bone had not yet been eradicated.

Mr. Thornley Stoker read notes of a case of Thrombosis of the Pulmonary Artery occurring in a boy subsequently to the removal of the thyroid body, and proving fatal. He exhibited the specimen.—Dr. Bennett expressed his doubt as to the character of the thrombus, regarding it as a post-mortem production.—A discussion followed, in which Drs. Thompson, Corley, Kidd, and Abraham took part; and Mr. Stoker replied.

Dr. R. A. Hayes exhibited on a screen with the lantern photographs of the microscopic appearances of normal and diseased tissues, and explained the details of the process.

The Section adjourned.

At a meeting of the Medical Section, held on May 18th, the following living specimens were exhibited:—Dr. J. C. Nixon: Case of Aortic Aneurism, with patency of aortic valves; anomalous physical signs. Mr. Coppinger: A Case of Paralysis following gunshot wound of the spinal cord.

The following specimen was exhibited by card:—Dr. J. Magee Finny: Nodose condition of the Hairs.

Dr. John B. Story read a paper recording three cases of Exophthalmic Goitre. The cases occurred in three women, two of them being unmarried. The following were the points of interest. Two of the patients were sisters, and the third exhibited the remarkable, and probably unique, complication of double optic neuritis, which, however, had subsided at the time the patient came under observation. In this patient the goitre was more marked on the left side, and the palpitations did not occur until five years after the goitre and exophthalmos; in the other two, the goitre and exophthalmos were more marked on the right side, and the palpitations were the earliest symptoms observed. Mr. Story called attention to the support these three cases gave to the theory propounded by Dr. William FitzGerald in the *Dublin Journal of March and April, 1883*.—The President said that although the disease was almost peculiar to females, he recollected three cases in which it occurred in males, the course being short, not quite eighteen months. On the other hand, he had seen it run on for eight or ten years in females. To him the disease appeared to be of neurotic origin.

Dr. Walter Smith related a case in which he had successfully removed a small Polypus from the right vocal cord of a lady aged thirty years by Voltolini's sponge abrasion method. About Christmas, 1881, loss of singing voice came on. This was followed by hoarseness, which persisted for a year. In December, 1882, the patient consulted Dr. Smith, who recognized the existence of a pale-red pyramidal tumour attached to the edge and lower surface of the anterior third of the right vocal cord. After a short preliminary training, he succeeded in passing a moistened sponge about the size of a hazel nut beyond the growth, and then forcibly withdrawing the sponge through the rima, and bearing towards the right side, was fortunate enough to detach the little tumour, which came up adherent to the sponge, and was preserved. Immediately after the operation voice was restored, the hoarseness had disappeared, and the patient was able to sing. Six weeks subsequently she reported herself as perfectly clear in voice. The operation is a safe and painless one, and suited to a limited number of cases.—Dr. Beatty remarked that the attachment of the tumour to the under part of the vocal cords favored its removal by Voltolini's method. He had met another case in which, owing to its position anteriorly, this method failed.

Dr. Henry Kennedy read a paper on some of the forms of Dilatation of the Colon. The condition of the patients who had this affection was always that of impaired health. With this state, when the patients, who were usually thin, were examined lying on their backs, there was chronic tympany, though not necessarily to a great degree. Pressure on the abdomen did not cause pain. In conjunction with these symptoms the author stated that the main characteristics of the disease were the faecal discharges, always dark, pasty, and unformed. He insisted particularly on the persistence of such discharges for weeks, months, and even years, during which periods the patients were constantly subject to attacks of diarrhoea,

acute or chronic, and were liable even to perforation of the bowel and rapid death. He considered the prognosis should always be guarded. Treatment could much benefit those cases; but he doubted whether a complete cure could be effected.—Dr. Gunn asked if electricity had been tried, and quoted a case of atonic condition of the large bowel in which it seemed to have proved of benefit.—Dr. Finny, too, bore testimony to the great advantages of galvanism applied by a rectal rheophore in cases of atony of the bowels.—Dr. Walter Smith said it should be remembered that there were great difficulties in applying any anatomical rules to the living subject, deduced from the position of parts of the dead body.—Dr. H. Kennedy, in reply, said he did not use electricity in any of his cases, nor had he made any post-mortem examination.

The President congratulated the Section on the success of its first session, which had now come to a close.

Editorial.

THE SEARCH FOR THE CHOLERA GERM.

WHATEVER value may ultimately be assigned to the discovery by Dr. Koch of the presence in the intestines in cholera of a definite kind of bacillus, such a discovery is, it must be admitted, a substantial advance upon previous knowledge. It is moreover an advance in the very direction to which all the known facts of the disease point; for whether the conditions of its origin be regarded, or the manner of its spread, cholera has undoubtedly with good reason been held to depend upon the presence of a specific organized virus. There are indeed few diseases to which the germ theory is more applicable. But just as has been the case with many of the infective diseases (in some of which the truth of the theory has received striking confirmation), the hypothesis which is put forward to explain the phenomena of the affection is in advance of actual fact. When, however, we find good proof of the existence of an organized virus in malarial fevers, and in relapsing fever, we cannot deem it at all beyond the range of probability that some day similar facts will be discovered in regard to cholera, the nature of which is apparently more clearly related to the great group of specific infective diseases than is either of these two affections.

The search for the presence of a micro-organism that could be proved to be possessed of the specific qualities of the cholera virus was the main object that Dr. Koch and his colleagues had in view. They arrived in Alexandria when the epidemic, which was never very severe in that city, was already on the wane; and the total number of cholera cases examined by them amounted to twelve only observed during the progress of the disease, and ten which were examined after death. Nothing distinctive was found in the blood, nor in those viscera which are usually the seat of specific micro-organisms—as the liver, lungs, and

spleen; the organisms that were found in the vomited matters, and in the alvine evacuations, were not distinctive; but the search in the intestinal walls revealed uniformly and invariably the presence of a rod-shaped bacterium or bacillus, much resembling the glanders-bacillus. The micro-organism occurred chiefly in the lower part of the small intestine, in and beneath the epithelial lining, within the tubular glands and villi. Its presence excited inflammatory changes in the glands, and in severe cases hæmorrhage in the submucous tissue. Ten years ago a similar search was made in India by Messrs. Lewis and Cunningham, but with less positive result. No special form of bacterium rewarded their efforts. Dr. Koch in his report mentions that a year ago he had detected this bacillus in specimens sent to him from India, but being unable to exclude the possibility of putrefactive changes in these specimens, he had not laid much stress on the fact, preferring to wait until, as has now happened, opportunity should be given him of conducting the examination free from all possibility of error on this score. It may be remembered that Messrs. Lewis and Cunningham observed peculiar changes in the protoplasm of the blood. They also experimented largely by inoculation of lower animals with the alvine discharges of cholera patients; but the result of their labors did not determine the existence of a special virus, for their inoculation experiments did not reproduce cholera in the animals, but a form of hæmorrhagic enteritis, similar to that induced by inoculation with non-choleraic evacuations. Indeed, on this very point of the transmissibility of cholera to lower animals—the key-stone of the proof of its specifically infective nature—Dr. Koch has been no more successful than his forerunners. He, too, has failed to reproduce cholera in the animals experimented upon, including mice (to which Thiersch is said to have succeeded in giving cholera) and monkeys. Proceeding according to his well-tried method, Dr. Koch succeeded in isolating the bacillus met with in the intestine, and in cultivating it outside the body. But all the further experiments by feeding and by inoculation failed to transmit the disease, and therefore to establish a proof that the bacillus in question was the virus of which he was in search.

It will be unfortunate for the sake of the value of this discovery if the lower animals be proved to enjoy an entire immunity, and therefore it is with some relief that we find Dr. Koch affording an explanation of his failures which has sufficient probability in it to justify the German Government in sanctioning his further research in India. He points out that the virus had already lost much of its power; the epidemic was subsiding, and the immunity enjoyed by the animals might really be due to the same cause as was conferring immunity upon the human inhabitants of Alexandria. He argued, and with justice, that more fruitful results

might follow if he could deal with cases occurring in an epidemic that was still at its height, and he wished to proceed to some of the villages where he could prosecute his researches under such conditions. His desire was, however, frustrated by the authoritative statement of the insuperable difficulties which would meet him in these districts, and hence his appeal to be sent to Bombay, where he would have the advantage of working in the hospitals, and not run the risk of being subjected to the opposition of an ignorant populace. It may yet happen that these lower animals do enjoy an immunity which will render their employment as a confirmatory test of the value of the discovery quite futile. Still hope must not be too soon abandoned, since it must be remembered that it was long after the discovery of the spirillum that relapsing fever was found to be communicable to monkeys by inoculation. Dr. Koch does not prejudge the question in his report; he does not claim to have discovered the "germ" of cholera; he only asserts that he has met with a peculiar organism, which may exist in such numbers because the conditions for its existence have been prepared for it by the disease, or which may, on the other hand, be the prime agent in the disturbance of function which constitutes the disease.

What is really important is that at length cholera, which has so long defied the researches of the pathogenist, is now being submitted to the same rigid and careful investigation that has been so fruitful in its application to other infectious diseases. It is quite true, as has been before remarked, that a new era in etiological inquiry has been opened; so that whereas upon this subject of cholera we have records as full and exhaustive as it is possible to have concerning its history and its geographical extension, and the progress of its epidemics, we may hope to see it investigated to the full from this new stand-point. It is easy to be too sanguine of the results of such an investigation. It may be doomed to failure, but the possible results are worth the labor that will be expended upon it. And we may be sure of this, that it could be committed to no better hands, for it will be dealt with by men who, by dint of skill and patience, have achieved great things in the field of pathology, and who will work with methods which have stood the test of experience. Until their research into cholera is crowned with success, it would be idle to speculate upon the light that may thus be thrown upon its prophylaxis and treatment.

DYSMENORRHOEA.

THERE are few subjects more worthy of sound study than dysmenorrhœa. It has received for the last fifty years more attention at the hands of gynecologists than ever before. But still it cannot be said that authorities are agreed on its essential causes. For a long time it came to be re-

garded as eminently a case for treatment by specialists. The mechanical theory of its causation largely ruled practice, in some few cases with brilliant relief, and perhaps cure, in others without success, and often with the effect of adding to the mischiefs which it was intended to remove. The very nature of the complaint, and the fact that in its serious forms it affects chiefly unmarried women, render the complete investigation of it a matter of much difficulty. The existence of more or less dysmenorrhœa in the majority of women is a fact. Even those who are unwilling to recognize in this fact any argument against the capacity of women for competing in the labor market with men do not deny that in a large proportion, nearly fifty cent., this dysmenorrhœa is considerable in amount. We have before us a paper by Dr. John Williams on the Natural History of Dysmenorrhœa, which was read last year before the Obstetrical Society of London. We can do little more than direct attention to Dr. Williams's principal conclusions from a large and painstaking observation of several hundred cases. He divides his cases into two sets—first, cases of primary dysmenorrhœa; secondly, cases of acquired. The acquired cases are so few (22) compared with the others (873) that we need not here allude to them. It is not easy to do justice to the details which constitute the interest of such a paper as the one under notice. But we can give his conclusions, and after doing so emphasize the chief of them. His conclusions are as follows:—

1. "Dysmenorrhœa should be studied first under the least complex conditions—in single women.
2. Dysmenorrhœa in single women is rarely acquired; it is almost invariably primary—viz., it appears with the menstrual function.
3. Dysmenorrhœa in a few, but rare, cases ceases spontaneously a few years after puberty.
4. Marriage, if sterile, aggravates the disorder in many cases; it is only very seldom that it relieves the pain.
5. Childbearing cures a large number of cases, and it is not impossible that were all puerperal complications excluded it would cure every case.
6. The proportion of sterile to fertile women subjects of primary dysmenorrhœa is one to twelve.
7. Menstruation begins in women who become sufferers from primary dysmenorrhœa at about the estimated average age for the appearance of the function in London.
8. Menstruation is regular in about two-thirds of the cases, and irregular in about one-third.
9. The menstrual fluid is profuse in about two-fifths of the cases, scanty in about one-half. It contains clots or shreds in about three-fourths.
10. The changes which take place in the fluid in the course of dysmenorrhœa are various, and cannot at present be classified.
11. The uterus is imperfectly developed. It may be too short, or too small in volume, or it may be defective in both respects. The cervix may be conical, and the os small and round, but stricture of the canal in any part of its course is infinitely rare.
12. The changes in the uterus due to dysmenorrhœa are slight hypertrophy, erosion and eversion of the mucous membrane of the cervix, and catarrh. The cavity increases but little in length, for after years of suffering it measures rarely more than two and a half inches in length. In the early stages the tissues of the uterus

are in some cases soft; in the more advanced, hard. 13. The hypertrophy of the uterus is probably the result of periodically increased muscular action. 14. Ovaritis and perimetritis are possible consequences of dysmenorrhœa. 15. The menstrual pain is the result of spasm of the uterus, excited by the separation and expulsion of shreds of decidua and clots, in an organ whose sensitiveness in the performance of its function is enhanced by inappreciable conditions of tissue dependent on imperfect development, often associated with others, such as anæmia."

Dr. Williams endorses the general opinion that the separation and expulsion of membrane in typical cases have a causal relation to the pain, chiefly by exciting spasm of the uterus, which in a few cases leads to its enlargement. Ovarian pain and inflammation are rare in his experience, and when they occur probably are consequences rather than causes, of dysmenorrhœa. Another very noticeable point in his conclusions is the infrequency of stricture of the cervix. The cervix may be conical and the os small and round, though in some cases the os is patulous, but stricture of the canal is infinitely rare.

The most striking facts in Dr. William's investigations have reference to the important evidence of imperfect development of the uterus. His conclusion is expressed in No. 11 of the above series. He examined physically 21 of 50 cases under twenty years of age. In 15 of these 21 cases the uterus was smaller than normal. Between twenty and twenty-five years there were 62 cases, of which 40 were examined. In 14 the uterus was of small size, in 1 very small; in 1 it was like a thick cord lying on the left side of the pelvis; in 3 it measured two inches only by the sound, but the body was no thicker than the cervix; in the remaining 8 it was estimated by bimanual examination to be smaller than normal; and similarly, though less, in the later quinquennial periods. In the later periods there is sometimes, as is said in the Conclusions, a partial hypertrophy of the organ, the canal still often being of short length.

This observation of the imperfect development of the uterus is consistent with the fact that dysmenorrhœa occurs more frequently in delicate and ill-exercised girls than in others. The whole drift of Dr. Williams's views is to pursue a constitutional and rational treatment of such cases rather than a mechanical one. But we content ourselves with directing this much attention to a very original and painstaking contribution towards the elucidation of a very difficult subject.

DR. CLIFFORD ALLBUTT'S ADDRESS ON MEDICAL ETHICS.

We revert with pleasure to the noble Address of Dr. Clifford Allbutt, in which he deals faithfully and candidly with the profession in regard to what he considers the faults and failings of its members. It is no slight advantage to be told our faults, not

by a candid friend, but by an actual brother, one who is sure to

"Be to [our] virtues very kind,
And to [our] faults a little blind."

There have been few more eloquent tributes to the good qualities of the medical practitioner than that of Dr. Allbutt's in this address. We are on this account only the more anxious to know what he can tell us of our defects and faults. We may differ from him or we may agree with him, but we cannot be indifferent to his judgment, when it is mingled with so much charity and so much praise. Let us face then, what Dr. Allbutt has to say of our shortcomings, always remembering his exquisite exception of Leeds, as a place where he could not have discovered the little faults which sometimes mar the beauty of medical character and the happiness of professional life. What are these faults? They are soon told, and resolve themselves into two or three.

"Our worst fault is that we are a somewhat touchy and jealous class," especially when compared with our cousins of the Bar. Medical men, excepting always "the harmonious brotherhood of Leeds," are too often jealous of each other and tenacious of their own claims. We too readily assume property in patients. We forget the right of the sick man to consult whom he pleases; and when he does so, we lack imagination enough to put ourselves in his place and make the necessary allowance. The same lack of imagination often prevents us from putting ourselves in the place of a brother practitioner who may have been called to one of our cases, and we give place to distrust and dislike. It would be easy simply to deny the accuracy of these suggestions or the faithfulness of the portraiture, or to dismiss the whole subject with the useless regret that we do not all live in Leeds, whose atmosphere must have in it something more exquisite than the smoke which is apt to absorb the attention of a casual straggler in Briggate. It is better to deal faithfully with so faithful a brother, and to say what we can in mitigation of his charges, and in support of his suggestions for diminishing the little friction that jars with the general harmony and good will of the profession. It is difficult to draw any close comparison between men so differently situated as the members of the Bar and the members of our profession in general practice. The situation is different, and the power to hurt a brother, as the temptation to do so, is different. Dr. Allbutt has in a significant sentence indicated the difference. The work of barristers is chiefly conducted with open mouth in open court. That of medical men is private, almost secret. And in the privacy of a bedchamber it is often more easy to kill a reputation than to save a patient. It may not be in any direct way or by any direct word, but by faint praise, or by a shrug of the shoulders or a shake of the head. We cannot surpass Dr. Allbutt's own words: "Unlike the Bar, we do not

play with our cards above the table. In our more intimate work, it is terribly easy for one doctor, *by little intangible tricks*, to elbow out or depreciate another." The intelligence of the friends of the sick is often so slight, their knowledge of disease necessarily so limited, and their judgment perhaps paralyzed by fear and misgiving, that any impression can be made on them by one doctor disposed to injure another. But as to the frequency of this kind of conduct? We are glad to tell Dr. Allbutt that is not much commoner out of Leeds than he finds it in that musical place. A few discordant notes give an exaggerated notion of the real harmony of the profession, and we venture to say that there are many villages with two doctors, and many towns with ten, who give very brotherly help to each other. If there is any less of brotherly and dignified feeling in the profession than there used to be, we should attribute it largely to the unfaithfulness of the examining and ruling bodies of the profession, who have admitted wholesale to the profession men who were not worthy of it, and have declined all ethical or judicial functions in regard to those they admit.

On one point Dr. Allbutt's remarks are worthy of the deepest consideration; medical men have no property in patients. The freedom of patients is often overlooked. It would be terrible indeed, with the limitations of personal wisdom and of medical art, if the friends of the sick had not the absolute right of choice from the whole medical profession. Some medical men shirk consultation; they claim a sort of right to be the exclusive advisers of their clients. Others will only enter into consultation with those whom they think fit to meet. The wish of the patient is little regarded by them. Such persons are apt to treat with scant cordiality a brother practitioner who, under any circumstances, sees a patient whom they had come to regard as their property. For the practitioner who, by unjust or unbrotherly disparagement, by dogmatism, or by any "little intangible tricks" of quackery or vanity, disturbs the confidence of a patient in his ordinary adviser, we have a feeling that we would rather not give a name to; but of the freedom of patients to consult any practitioner they please, and of the freedom of practitioners to see any patient that fairly wishes to consult them, there should be the amplest recognition. Patients who dodge from doctor to doctor have their own punishment, and they lose that inestimable advantage enjoyed by faithful patients—the personal and human interest of their medical adviser. We agree with Dr. Allbutt that there should be more consultation among medical men. It would often be a great kindness and comfort to patients. It would increase the mutual respect and trust of medical men and would attenuate and lighten the great responsibilities of their life.

One point more in Dr. Allbutt's address is good. "Offences must needs come," even between well

meaning and kindly practitioners. How can they be best removed? Dr. Allbutt says by personal interview: "Go and tell thy brother." The pen is never more apt to be a man's master than when he has a grievance, and ink is indelible. Our own experience as referees in many such cases tells us that a letter is often not avoidable; but it is a bad way of beginning to try to settle a quarrel. When we feel injured, the assumption should oftener be that we are misinformed. Such an assumption would often be justified, and when it is not it makes gentle words and a dignified statement easy, which will often convince an offending brother, which is as great triumph as to regain a lost patient.

CEREBRAL LOCALIZATION.

It is an interesting and noteworthy fact that pathological observation is doing more to advance our knowledge of cerebral functions than physiological experiment. At any rate this would seem to be true of the doctrine of cerebral localization, for whereas physiologists agree to differ upon the interpretation of their experimental results in this matter, the clinical and pathological evidence in support of the doctrine is rapidly accumulating. Dr. Sharkey's recent paper read before the Royal Medical and Chirurgical Society is an instance of this, for, although clinical details were wanting, the lesions found in the brain and so accurately sketched by him harmonized very well with the doctrines of Ferrier. In the current number of the *Revue de Médecine* MM. Charcot and Pitres commence a series of articles upon the subject supplementary to a like contribution to the same periodical made by them four years ago, when they collected and sifted all the recorded cases of cortical lesions bearing on the question of the localization of motor function. They point out that since that time many observers have become convinced of the truth of the doctrine, which has been upheld particularly in the writings of Ferrier, Boyer, Nothnagel, Exner, and Wernicke; but they confess that there is not yet general conviction. Some of the opponents of the theory base their objections on abstract philosophical notions, or on doctrinal subtleties which MM. Charcot and Pitres decline to discuss. Others rely too exclusively upon the results of experimentation in the lower animals—results often contradictory, and always more or less complicated. The writers, whilst recognizing the value of physiological experiment, deprecate the propriety of basing upon it too rigid deductions of human cerebral function. In the hope of convincing the still large number, who only half accepted the truth of the doctrine, they have collected upwards of 200 cases of cortical lesions recorded in the past four years, not omitting those cases which seem to tell against the theory. The first section of their work is published in the current number of the *Revue*; it deals with cases of destructive lesion of

the cortex situated outside of the motor area, and, unaccompanied by motor disorder. Thirteen cases of lesion of the prefrontal region are given, in which it is also proved that the root of the frontal gyri may be diseased without causing motor paralysis. Then follow three cases of lesion of the occipital lobe, fourteen of the temporo-sphenoidal, and three of the parietal lobes. They do not think that facts justify the opinion held by some that the inferior parietal lobule is concerned with the movements of the eyes. Only one case of lesion of the insula is given; but as in no case has it happened to be the only part involved, it is not possible to infer much from it. Then follow ten cases of multiple cortical lesions, seated in the "non-motor" areas, making a total of forty-four cases, which go to prove, as the writers think, that there exists a large portion of the surface of the brain the destruction of which is not followed by any permanent disorder of voluntary motion—the convolutions which, in man at least, subserve motor functions being the frontal the ascending parietal, and the paracentral lobule. Unless these regions be involved by a cortex lesion, directly or indirectly by compression or irritation, motor disturbances do not arise. Moreover, they believe that these motor areas are symmetrical in their distribution in the two hemispheres. The second portion of their essay will contain records of cases of destructive lesion of the cortex in the motor zone, with paralysis; a third section will deal with the relations of partial epilepsy to irritative lesions of the cortex; and in the final section they propose to study the cases which present features that do not support the deductions drawn from the majority of cases.

CATHETER FEVER.

SIR ANDREW CLARK, in a short address to the members of the Clinical Society on their reassembling after the vacation, drew attention to the grave and usually fatal constitutional disturbance which not rarely follows the passage of a catheter. He believes that this danger is not sufficiently appreciated, and that surgeons do not fully understand the cause of the malady. At the same time, his remarks took rather the form of an appeal for information on the exact cause and nature of this "catheter fever." Sir Andrew was careful to point out that he was not referring to the chills which often follow the passage of a catheter—the so-called urethral fever—but to a more serious malady, attended with pyrexia, rapid weak pulse, dry tongue, anorexia, and adynamia, which generally ends fatally in a few days. The first thing that suggests itself in considering these cases is the fact that they are not met with as a sequel to catheterism in men who have been previously free from disease of the urinary organs. The history always is that there has been long-standing stric-

ture, or enlargement of the prostate, with atony of the bladder and chronic retention of urine, or calculus in the bladder; and that then, on some slight irritation of the urethra or bladder, such as is caused by the passage of a catheter, this serious chain of symptoms ensues. This undoubtedly throws great light on the pathology of the cases. The condition which is common to these various evils is a chronic interstitial inflammation of the kidney, especially of the cortex. The kidneys thus diseased may be little altered in their general appearance, but the capsule is a little less readily stripped off than usual, and leaves the surface of the organ irregular, and the cortex itself is abnormally pale. With the microscope, however, the change is at once to be detected in a cellular and fibrous intertubular infiltration and a granular condition of the epithelium. There may or there may not be superadded to this absorption of the pyramids the result of the pressure of urine dammed back in the pelvis of the kidney. When the cortex of the kidney is in this condition, a slight irritant is sometimes sufficient to light up an acute and fatal inflammation. This irritant may act directly upon the organ, as when the urine in the pelvis undergoes putrefaction; or indirectly in a reflex manner, as in the passage of a catheter or other instrument along the urethra, or in the performance of any operation upon the urinary tract. This acute interstitial nephritis tends to run on to suppuration, and causes lines and spots of pus or larger abscesses to be scattered through the cortex; the organ is at the same time swollen and greatly congested. The symptoms to which this acute affection gives rise are fever, usually attended with one or more rigors, nausea, often vomiting, dry brown tongue, loss of appetite, drowsiness, absence of spontaneous pain, though in some cases there is tenderness in one or other loin, failure in the pulse and then, later on, cold clammy skin, deepening stupor, perhaps diarrhoea, coma, and death. Convulsions are very rare; oedema is absent; and as the urine is secreted in moderate quantity up to the end of life, the symptoms do not present a likeness to those familiar to physicians in Bright's disease. In the chronic form of the disease the urine is secreted in considerable quantity, is of low specific gravity, and only rarely contains a very small trace of albumen, and an occasional hyaline cast may be detected in it. In the acute form the urine is generally less abundant and more albuminous. But as there is often an added catarrh of the bladder, it is impossible to determine accurately the state of the urine as secreted by the kidneys. We would suggest, then, that the cases referred to by the President of the Clinical Society are those of chronic interstitial nephritis set up by chronic disease of the bladder, prostate, or urethra, in which an acute renal inflammation is induced by the passage of a catheter. The subject is a very important one, and now that attention has been

called to it in so prominent a way, it is probable that the true nature of these cases will be more generally recognized.

MR. HUTCHINSON'S ADDRESS.

MR. HUTCHINSON suggested a new departure in the method of diffusing knowledge in his address read at the first meeting of the Ophthalmological Society this session. He proposed that memoranda dealing with the treatment of many common affections of the eye should be prepared and issued to the members of the medical profession under the guidance of the Ophthalmological Society. In order clearly to understand the nature of the proposal, it is necessary, and will conduce to perspicuity, to discuss, first, the reasons for the issue of such memoranda; secondly, the method by which these documents should be distributed; and, lastly, why this kind of thing should be carried out rather by a corporate body than by other means. The subject, it will thus be seen, has to be treated from the points of view of theory, practice, and ethics.

There can be no doubt that a large number of cases of corneal ulcer do continually get worse mainly from the want of knowledge of the existence of simple remedies, and more especially of that valuable preparation the dilute yellow oxide ointment of mercury. Again, as Mr. Hutchinson urged, the number of instances of loss of sight from acute glaucoma which occur every year even now must be considerable, and this may be chiefly attributed to the lack of information regarding the proper time for the employment of iridectomy. Many excellent general practitioners do not realize the fact that, notwithstanding the presence of acute inflammation, the immediate performance of iridectomy is precisely the remedy, not only because the tension of the globe is thereby relieved, but also because the inflammatory state associated with the glaucoma must disappear by the same act. When we consider that it is hardly possible for the busy practitioner to have much time to devote to the acquisition of special knowledge of ocular diseases, and when we reflect on the amount of mischief and loss to the nation which annually accrues from such, in a measure excusable lack of knowledge, we think enough has been put forward to show that the theory of Mr. Hutchinson's new departure rests on a sure basis. From the standpoint of ethics there can be nothing savoring of quackery in the carrying out of the scheme under the auspices of the Society. All individual names would be suppressed in the idea of the issue of instructions under the abstract title of Therapeutic Memoranda of the Ophthalmological Society, so that no accusation could be made against the proposal on this score. There is yet the further argument, also alluded to by Mr. Hutchinson, that advertising quacks may establish a lucrative business out of the knowledge of one or two simple

remedies, which, however powerful in doing good, are also probably for the most part powerless to do evil. Altogether, we think the suggestion of Mr. Jonathan Hutchinson is of considerable importance, and hope that the Society mentioned, and possibly other more or less special societies, may see their way to the adoption of his overtures.

Reviews and Notices of Books.

The Extra Pharmacopœia of Unofficial Drugs and Chemical and Pharmaceutical Preparations. By WILLIAM MARTINDALE, F.C.S., late Examiner of the Pharmaceutical Society, and late Teacher of Pharmacy and Demonstrator of Materia Medica at University College. With References to their Use, abstracted from the Medical Journals, by W. Wynn Westcott, M.B., Deputy Coroner for Central Middlesex. London: H. K. Lewis. 1883.

Sixteen years have elapsed since the publication of the last British Pharmacopœia, and it has long since ceased to occupy the high position it once held as a work of authority. New drugs and new preparations have come into general use, and the whole aspect of therapeutical science has undergone a gradual but sweeping change. Operative surgery has been greatly influenced by the introduction of new antiseptics and new anæsthetics, dermatology by the invention of petroleum ointments, and pharmacology by the discovery of such important medicinal agents as salicin and salicylic acid, chloral and croton chloral, chrysophanic acid and eserine, gelseminum and gelsemine, homatropine and hyoscyamine, jaborandi and pilocarpine, and nitrite of amyl and nitro-glycerine. In the introduction of these and other new remedies the author of the work before us has, during the last ten or fifteen years, played a by no means unimportant part. He has extracted the active principles from many of our most valued drugs, and has reduced them to a form in which their properties can be investigated by the pharmacologist and their uses studied by the scientific therapist. It is therefore with much pleasure that we record the appearance of an "Extra Pharmacopœia" designed to supply in some measure the deficiencies of that work which is conventionally supposed to represent the present condition of pharmacy in this country. That any one writer could ever hope to provide for all the shortcomings, or even to correct all the inaccuracies, of the official publication is not for one moment to be supposed; but Mr. Martindale has given us a very useful instalment, and his example will, we have no doubt, be quickly followed by others who, like himself, are dissatisfied with the present antiquated condition of affairs. The drugs mentioned by him in the new Pharmacopœia are viewed not only from a pharmaceutical, but also to some extent from a medical, aspect, references to their properties and uses being freely given. The area of selection, we are told, has been limited by personal experience, official drugs being introduced only when non-official preparations are in use. The chemical nomenclature has been adopted throughout, except where official chemicals are referred to, and then the Pharmacopœial name has been provisionally retained. The author expresses his regret that the metric system has not as yet been definitely introduced into this country, and

that for practical reasons he has been compelled to retain for the present the old-fashioned weights and measures. On the Continent the new system is almost universally adopted both for dispensing and preparing medicines. In Germany, for example, the quantities of the ingredients are given in decimals; the gramme, which is taken as the unit, being, as a rule, not specifically named.

The first article is on jequirity, the new remedy for granular lids; and this is followed by an excellent description of the preparations of borax and boracic acid. Under the head of carbolic acid, a good account, compiled from various sources, is given of the antiseptic treatment, and no less than twenty-three preparations of carbolic acid are mentioned, most of them of undoubted value. The "carbolyzed smelling salts," which will be found useful in the treatment of hay fever, coryza, and allied affections, are evidently founded on a well-known proprietary article. The account of goa powder and chrysophanic acid is thoroughly practical, and will be read with interest. Numerous references are given to the action and uses of salicin and salicylic acid, a long extract being made from Ringer's Therapeutics. Aconitia is described as an alkaloid obtained from *Aconitum napellus*, and "probably other species of aconite," but no authority is given for the last assertion, although it is stated that English aconitine (Morsen's) is, according to Flückiger, supposed to be identical with the pseud-aconitine obtained from *Aconitum ferox*, the Bish poison. We feel constrained to take exception to the introduction of the "special preparation" called "oleo-anodyne," which is said to be a combination of "aconitia, atropia, morphia, and veratria, with oleic acid." We have no doubt that, as a local application, it may afford relief in some forms of neuralgia, but the mixture of a number of active principles thrown promiscuously together, is not to be encouraged, and is out of place in a work possessing any claims to scientific accuracy. The *Argaracus albus*, or white agaric, is recommended in doses of from ten to fifteen grains as a remedy for the night sweating of phthisis. Care must be taken not to confound it with the fly agaric, *Amanita muscaria*, which is used for the same purpose, but is a much more active drug. The hypodermic injection of hydrochlorate of apomorphia is mentioned as an emetic, but the statement that the aqueous solution is "not very stable," is vague and might prove misleading. The account of the origin and source of atropia is correct, and shows an intimate acquaintance with the recent literature of the subject. The uses of the various salts of homatropia are referred to, and we are very properly warned that "they are costly." Directions are given for making the sulphide of calcium pills now so frequently prescribed for boils, carbuncles, and enlarged scrofulous glands. Permanganate of potash pills are directed to be made with kaolin ointment, a mixture of equal parts of vaseline, paraffin, and prepared kaolin. The author brings a serious charge against the official camphor-water, which is said to be of uncertain strength, the water taking up a variable quantity of camphor, according to the temperature at which it is kept. "A definite quantity of camphor dissolved in a small but certain quantity of spirit, and this added to a measured quantity of water, would make a more uniform preparation." Under the title of "spiritus camphoræ fortior," a formula is given for the essence of camphor now so largely used in the treatment of summer diarrhoea. Tannate of cannabin is a salt likely to prove useful, although its properties have as yet been but little investigated. The tests for chloroform are given concisely and clearly, but the information con-

cerning another anæsthetic, bichloride of methylene, is meagre in the extreme, consisting of only a short quotation from Garrod. The composition of the substance—we might even say its very existence—has been so freely discussed of late that we had hoped for some definite statement on the subject. The liquor chloromorpha, or chloromorpha solution, the formula for which is given, is evidently intended as a substitute for the too popular chlorodyne. The account of the cinchona barks and alkaloids is excellent, and is by far the best we have seen. *Convallaria majalis* is briefly mentioned, and, in addition to convallarin and convallamarin, an extract is recommended. The author appears to entertain some doubts, perhaps justly, as to the value of damiana as an aphrodisiac, for he passes it by with the shortest possible notice. The emblio-myrrabolin fruit is spoken of as a good laxative, and we can endorse the statements made as to its efficacy. Directions are given for the use of defibrinated desiccated blood, a remedy of much value as an enema in cases of gastric ulcer. A great deal of useful and practical information is given in the article on the oleates, but the preparations commonly called Shoemaker's oleates should have received more attention. The salt here called "pulvis zinci oleates" is very useful, and is a great advance on the compound originally sold as oleate of zinc.

The purely pharmaceutical articles are, as might be expected from an old and experienced teacher of pharmacy, thoroughly practical. The section on pills shows that the author has not failed to appreciate the requirements of prescribers. The modern method of varnishing pills is a great improvement on the old-fashioned custom of covering them with dirty flour. It is to be regretted that the American elixirs are so little used in this country as flavoring agents. A drachm of "simple elixir," a formula for which is given, added to an ounce of almost any liquid medicine will make it palatable. The preparations of the prunus virginiana, the wild cherry bark of the United States Pharmacopœia, might also be used with advantage for flavoring purposes, especially as an addition to cough medicines. We have mentioned only very briefly some of the more important articles in this interesting work, but every page is replete with valuable practical information, which will be found of the greatest use not only to the pharmacist, but also to prescribers.

Though we have only dealt with the pharmacological portion of this work, it would be ungracious not to notice Dr. Westcott's carefully prepared references to the various drugs.

Practical Treatise on the Diseases of the Uterus. By A. COURT. Translated by AGNES McLAREN, M.D. London: J. & A. Churchill.

THIS is by the distinguished Professor of Clinical Surgery at Montpellier. It has been translated by his pupil and some time private assistant, Miss McLaren. The translator was thus placed in very favorable circumstances for producing the views of her master in an English form, and she has done her work well. Court's work has been well known for years to gynecologists in France and elsewhere, and it has been held in high esteem, especially in France, as one of the ablest expositions of the views of the French school. Like the majority of works, both great and small, on the subject of which it treats, the book is defaced by the teachings of what are called the "more advanced" gynecologists of the day, by which are usually meant those who accept what may be called the uterine reflex theory of pains and sufferings, grafted on the mechanical theory

of uterine pathology in its most extreme form, and who carry out these views of uterine disease in practice to their logical ending—that is, perpetual local interference.

The work is divided into an introduction and two parts. The introduction treats of the anatomy, physiology, and teratology of the organs of generation, and of this part it is sufficient to state that it contains a fairly full account of the subjects. Part I. is called a General Survey of Uterine Disease, while Part II. treats of uterine disease in detail, so that the work presents a totally different arrangement of matter from that usually met with in works on diseases of women. Such an arrangement presents many advantages, for it gives an opportunity in the first part to discuss the principles which underlie and run through the second. The first part of the book contains its pith and marrow; the second part is the first carried out in detail. The general survey treats of the diagnosis, symptomatology, treatment, and general characteristics of uterine disease. The uterus has for a long time been regarded as a sort of boggy which casts its evil shadow over any or all parts of the body; there is apparently no condition of it from the blighting influence of which the other parts of the body do not suffer; its power for evil appears to be simply marvellous, to exceed that of any other and all other organs in the body put together. This mighty power for mischief possessed by the uterus Professor Courty accepts with implicit faith, but on what evidence we have not discovered. On page 97 we read, "How often is one consulted for neuralgia or hysteria; for symptoms manifested in the stomach, the heart, or the liver; for digestive troubles—anorexia, nausea, diarrhoea; and for all the train of evils depending on poverty of blood—anæmia, chlorosis, emaciation, and exhaustion; but the natural and symptomatic manifestations of an unrecognized uterine malady!" We cannot help expressing a devout wish that in most of the conditions named the uterine malady may remain unrecognized, for then there may be some chance of relief and cure to the patient, for we find, "that very often an apparently insignificant disorder of this organ [the uterus] is felt throughout the body to a quite disproportionate extent." Tracing reflex symptoms to their source is a work of extreme difficulty, and although it is well established that pregnancy gives rise in many cases to a variety of distant phenomena, yet this is a very different thing from uterine reflex, and it may be safely affirmed that the evidence in favor of the statements we have just quoted is of the flimsiest character. A little further on we meet with the following: "It is of importance to proceed step by step, and to pass from general to local symptoms. . . . It is essential that the patient should be led steadily to the conviction at which the physician has arrived, for this conviction is the only means by which he can hope to make her understand the necessity for a local examination, and agree to submit to this painful trial. . . . Women are so much afraid of polypi, cancers, and ulcerations. . . . that the reasonable terror inspired by these affections will not only remove their repugnance to an examination, but will make them earnestly desire it." The wretched patient, who suffers from some insignificant and unimportant affection of the uterus, or perhaps no affection of it at all, is put through this horrible mental agony, and then is told she has an ulcerated or a displaced womb, and she becomes in a great many instances an invalid for life, for she gets displacement or ulceration of the brain, and it would be as easy to remove Helvellyn and plant it in Wicklow as to remove the impression produced on her mind.

The symptoms of these diseases are almost countless, and we find also that the medicaments and means of relief are extremely numerous. The late Dr. Churchill, having given not an exhaustive list of the many drugs which were said to have benefited amenorrhœa, concluded that the disorder must be very difficult to cure, and we believe that it would be much better for women to put up with many of the minor ills from which they suffer than to undergo the treatment recommended for them in the work before us. Take, for instance, amenorrhœa. According to Professor Courty, idiopathic amenorrhœa gives rise to very distressing symptoms, such as nervous disturbances, chloro-anæmia, headache, and drowsiness. It is true that these conditions are frequently met with in the same person, but there is no evidence to show that the general symptoms are caused by the amenorrhœa. There is evidence to the contrary, however. There are many women living in whom the uterus has been amputated during menstrual life, and amenorrhœa has been established, and these women have not suffered in consequence. McClintock pointed this out years ago, and yet, among others, means which have proved fatal in many cases are recommended for the treatment of amenorrhœa in the work before us. Again, if we take versions and flexions, we find among the many symptoms said to be caused by them, constipation, frequent micturition, and retention of urine; and these are said to be due to the pressure exercised by the displaced womb. We do not know what the weight of the uterus may be when suspended in the broad ligaments, but out of the body, as a dead weight, it is about an ounce and a half, it is evidently much less when suspended in the pelvis; at most, however, it cannot be heavier than a coil of small intestine two inches in length filled with feces, and the weight of the latter has never been suggested as a cause of constipation or of retention; and it is difficult to imagine how a bent or an inclined uterus, so long as it is freely movable, can give rise to any such troubles. Courty adopts the mechanical theory of the uterine pathology in its fullest extent, as well as the now exploded doctrine of ulceration, and his treatment is adapted to these views.

We have said enough to give an idea of the book. There is, however, one other matter which we must mention. Dr. Matthews Duncan has written a preface to the English translation. Should anyone, however, buy the book with the idea that this preface contains a recommendation of it he will be disappointed. The preface appears to have been written because "I have had the privilege of her [Miss McLaren's] friendship since her childhood, and know her excellent qualities." We cannot help regretting that Dr. Duncan consented to do this, for many will naturally think that in doing so he countenanced or recommended a work which promulgates doctrines of which he has been throughout his life one of the foremost opponents.

A History of Tuberculosis from the time of Sylvius to the present day. Being in part a Translation, with Notes and Additions, from the German of Dr. ARNOLD SPINA. Containing also an account of the Researches and Discoveries of Dr. Robert Koch and other investigators. By ERIC E. SÄTTLER, M.D. Cincinnati: Robert Clarke & Co. 1883.—The lengthy title of this book sufficiently indicates its nature. It will be remembered that in the spring of the present year Dr. Spina, the assistant to Professor Stricker, of Vienna, published a monograph upon Tuberculosis, in which, after

entering at length into the history of the subject, he described certain experiments and observations of his own tending to disprove the accuracy of Professor Koch's inference as to the etiological relation between the bacillus and tuberculosis. A controversy sprang up between Vienna and Berlin, and Professor Koch himself replied to the onslaught in a manner which showed that, admirable observer as he is, he was not fitted for controversy. Convinced of the truth of his own observations, he dealt less temperately than might have been expected of a man of science with the views of Dr. Spina and others who had ventured to doubt his conclusions. Dr. Sattler's closing words in this volume place the matter in its correct light. He says: "We are yet on the threshold of a great discovery, and it will require constant inquiry, patient investigation, and deep research before the true relation of bacilli to tubercle, and the part they play in their pathology and causation, are fully determined." The book consists of seven chapters, the first five of which are a translation of Dr. Spina's historical survey, which commences with the pathological anatomy and histology of tuberculosis, and then deals in turn with the various experimental researches by inoculation, inhalation, feeding, and by the inoculation with "pure tubercle virus." The remaining chapters are devoted by Dr. Sattler to an account of Professor Koch's experiments, and to the very numerous investigations that have taken place in all parts of the world since the discovery of the bacillus, including Dr. Spina's researches. As the work is thus so largely based on the latter's "Studien," it is not surprising that the editor should have himself adopted a rather sceptical attitude with regard to the position claimed by Professor Koch. At the same time, Dr. Sattler is careful to be as impartial as possible, as may be gathered from the sentence above quoted. He has done good service in bringing this work before English readers; and when Dr. Koch's work upon Tuberculosis (which he completed, we believe, before his departure for Egypt) appears, we trust it will find as prompt and careful a translator as has fallen to Dr. Spina's lot.

General Medical Chemistry.—By R. H. WITTHAUS, M.D., Professor of Chemistry, University of Vermont. London: Sampson Low & Rivington. 1882.—We have to apologize for the delay that has occurred in noticing this work; it, however, reached us somewhat late, and at a time when there was considerable pressure on the space at our command. The delay, however, has given us a better opportunity of making ourselves acquainted with it, and a minute perusal has convinced us of its high degree of excellence and thorough trustworthiness. It is a book that is much wanted, though probably it will be found more useful as a work of reference than as a text-book, and even then be of more value to the medical officer of health, the food analyst, the toxicologist, and pharmaceutical chemist than to the clinical physician and physiologist. Indeed, the parts referring to physiological and pathological chemistry are the weak points of the work; not that the statements are unreliable, but simply because much useful information has been omitted, and the material used too much condensed. In a second edition this should be rectified, and if the size of the volume must still be limited, the space required might be advantageously gained by cutting down much of the purely theoretical part of the work, dealing with the classification of the elements and carbon compounds. We have many excellent treatises dealing with this part of chemistry, but very few, and those confined to individual particulars, relating to its practical applica-

tion to matters purely medical. If Dr. Witthaus therefore would consent to part with that portion of his work relating to general chemistry, or put it in a separate volume, and develop the more purely medical and technical part of the work he would supply a want at present much felt. That he is well fitted for the task is shown by the admirable chapter he gives to the consideration of "water" in all its chemical aspects. With regard to the chemical portion of the work, we cannot speak in too high terms of its thoroughness and completeness; for example, among the numerous reactions given for glucose, he describes the indigo carmine test, long overlooked and forgotten, thus anticipating Dr. Oliver in the revival of this elegant and useful urinary reagent for clinical purposes.

Rheumatism, Gout, and some Allied Disorders By MORRIS LONGSTRETH, M.D., Physician, Pennsylvania Hospital. London: Sampson Low & Rivington. 1883.—The title of this work is misleading. It contains nineteen chapters, eighteen being devoted to the consideration of rheumatism and only one to gout. The work, too, seems a little behind the time. No notice is taken of the statistics with regard to results obtained by the salicylate treatment, contributed by the leading physicians of the metropolitan hospitals during the debate at the Clinical Society, 1881. We have looked in vain for any reference to the subcutaneous nodules, so well described by Barlow and Warner, as being associated with the rheumatic diathesis. The consideration of the relationship supposed to exist between chorea and rheumatism is dismissed in the following sentence: "Some of the other forms of manifestation of rheumatism of a nervous character are chorea, hysteria, contraction of the extremities, tetanus, insanity, etc." The best chapter in the book is that devoted to a consideration of the various theories that have been started to account for the nature of the disease. The style is good and the arrangement clear, but a good deal more work must be expended on it to make it rank as a first-rate treatise on the subject.

Pathology and Treatment of Nerve Weakness. By C. L. DANA, M.D. New York: Trow's Co. 1883.—There is much more of treatment than of pathology in this little lecture, which was read at a meeting of the Practitioners' Society of New York in May, 1883. A view of the pathology of neurasthenia is propounded which is in accord with the teachings of a yet unformed molecular physiology. The number of means here given for disestablishing the neurasthenic state of molecular instability is certainly large enough: General principles; hygienic; internal medication in the way of sedatives, tonics, stimulants; surgical measures; electricity; hydrotherapy; revulsives and inhibitors; dry cups; massage (Weir-Mitchell treatment); special diet; and mental therapeutics.

Cholera a Disease of the Nervous System. By JOHN CHAPMAN, M.D. London: J. & A. Churchill. 1883.—This brochure is a sort of *réchauffé* of Dr. Chapman's work on Diarrhoea and Cholera, published in a second edition in 1866. It contains a letter in English addressed to the editor of the *Journal de Médecine de Paris* by the author, a French version of which was published by that journal in August last. The second part of the pamphlet gives in full the review of the work on Diarrhoea and Cholera, the writer of which appears to have been Sir Andrew Clark, Bart. It is sufficient for us to say that Dr. Chapman believes that all the phenomena of cholera are due to hyperæmia of the spinal cord and sympathetic nervous systems, and that the most efficacious remedy for the symptoms of the algide stage of cholera is the spinal ice-bag.

The American Journal of Neurology and Psychiatry. August, 1883. New York: B. Westerman & Co.—This well-printed quarterly journal deserves to meet with success. The third number now before us contains a variety of material, some being of considerable interest and value. Of this description we may mention Dr. Hoffmann's article on *Researches in the Normal and Pathological Anatomy of the Grey Substance of the Brain*, with remarks on *Methods of Examination*; A Provisional Communication regarding a case of *Pons Hæmorrhage*, with *Descending Degeneration of the Stratum Intermedium*, by Spitzka, one of the editors. The other original articles are:—*Variola and Insanity*, by Dr. Kiernan; *On the Alleged Relation between the Speech Disturbance and the Tendon Reflex in Paretic Dementia*, by Spitzka; *Simulation of Insanity by a Criminal Lunatic*, by Bluthardt; *The Somatic Etiology of Crime*, by Henry Howard; *Alcoholic Insanity*, by Lewis Mason; *Report on the Recent Appearances observed Post mortem in a Case of Delirium Grave*, by Clevenger; *On the Brain of a Cat lacking the Callosum*, by Burt Wilder; *The Case of Diedrich Mahnken*, by Landon Gray; *A Case of Verbal Blindness with Right Lateral Hemianopsia*, by McBride; and on an *Authentic Case of Disappearance of the Tendon Reflex without ascertainable Pathological Basis*, by Spitzka. This last article relates the case of a doctor who had been in the habit of producing the knee-jerk on himself from his youth upwards. During the last seven years the knee phenomenon could not be got on either side. We should be cautious in drawing any rigid inference from such facts. The disappearance may be due to local conditions, or is it too much to suppose that some other phenomena more explicit in their significance may yet appear in the course of time? The journal further contains a most refreshing review of *Types of Insanity*, by Allan McLane Hamilton.

Medical Annotations.

"Ne quid nimis."

HONOR TO WHOM HONOR IS DUE.

We have received an extract from the ninth volume of the *Electrician*, which seems to show that the honor of having invented the electric telegraph really belongs to Edward Davy, a member of the medical profession, who, at the advanced age of seventy-seven, is now living in one of the Australian colonies. Davy's original paper appeared in the *Mechanics' Magazine* for 1838. An original manuscript, dated 1836, entitled "Outline of a new plan of Telegraphic Communication, by which intelligence may be conveyed with precision to unlimited distances in an instant of time, independent of fog or darkness," has lately been discovered among Davy's papers by his nephew, Dr. Henry Davy, of Exeter; and this, as well as others, have been placed in the hands of Mr. J. J. Fahie, who is the author of the paper in the *Electrician*. The first idea was to use static electricity for transmitting the signals; but this was soon abandoned, and the electro-magnetic properties of the voltaic current was the form of electricity upon which Davy ultimately relied, and the signals were made by the deflections of the needle of a galvanometer. His proposal was to use as many wires as there were letters in the alphabet, but these he subsequently reduced to half the number by making a deflection to the right convey one signal and

to the left another. When Cooke and Wheatstone applied for their first patent in 1837, Davy entered an opposition, lodging with the Solicitor-General of the time a full description of his own apparatus; and in November and December of the same year a working model of Davy's apparatus was shown in a room adjoining Exeter Hall. An examination of Mr. Fahie's paper leaves no doubt on the mind that Davy had a very clear notion of the electric telegraph, but it would occupy too much of our space to go into the technicalities and details. It seems that Edward Davy was born in 1806, studied at St. Bartholomew's, and became M.R.C.S. and M.S.A. in 1828. He soon gave up medical practice, and became a practical chemist, having a place of business in the Strand; and his ingenuity is evidenced by a "blow-pipe," a "mercurial trough," and a "diamond cement," which bears his name. It is probable that he would have succeeded with his invention just as Cooke and Wheatstone did, had he not lacked three necessary things: (1) backers with money, who believed in him and his inventions; (2) good men of business to advise him; and (3) "push," without which inventive genius is of no avail. Just as he had perfected his ideas, he left England and became one of the assayers to the Melbourne Mint. Had he remained at home to enforce his ideas with the necessary pestilent importunity, he might have reaped the reward of his genius. Davy had genius, but lacked another quality, needful but less lovely, and thus the story of his invention is the story, as Mr. Fahie says, of a "magnificent failure."

KAIRIN, THE NEW ANTIPYRETIC.

SINCE Dr. Filehne, a few months ago, introduced to notice the remarkable antipyretic action of kairin—an artificial alkaloid described as being the hydrochlorate of oxy-chinolin-ethyl—the drug has been given by others whose experience confirms that of the introducer. Thus Dr. Sas-setzki (*St. Petersburger Med. Wochenschrift*, Sept. 1st) states as his experience of its use in a case of typhus that kairin is a valuable antipyretic, doses of half a gramme reducing high fever to a normal temperature, which can be kept down by repeating the doses. The pulse falls together with the temperature, and the excretion of nitrogenous and phosphatic substances is lessened. The urine assumes a green color, which disappears very rapidly on ceasing the administration. It is curious that the fall of temperature in this case was not accompanied by sweating. No ill effects resulted from the drug. Another case is recorded by Dr. Knipping of Neuwied (*Berliner Klinische Wochenschrift*, Sept. 10th), which may be briefly given here. A young woman, about twenty years of age, suffered from puerperal pyrexia for about nine days. On the fourteenth day after her confinement she was allowed to rise and take a bath. Next day she complained of pain in the left thigh, and symptoms of parametritis appeared, which was not controlled by the application of ice, leeching, etc., periphlebitis of the left leg also occurred with much irregular pyrexia, and the temperature reached nearly 105° F. On the twenty-fourth day there occurred periphlebitis of the right leg, and the case was further complicated by intestinal catarrh, bronchitis, and some dulness at the apex of the right lung. The morning temperature was 104°; evening, 105.4°, with very slight remissions; pulse 120 to 130, small and irregular. Quinine had been given in full doses without any influence, and the weakness of the patient precluded a resort to cold baths, so that on the thirty-fourth day, when the temperature

reached 106.4°, and the heart was failing markedly, resort was had to kairin. It was given in doses of 0.5 gramme, in gelatine capsules, every hour. After the first dose the temperature fell to 102.2°, with profuse sweating; after the fifth, to 100.2°. The pulse did not correspondingly fall at first, remaining at 100. A reduction of the dose to 0.25 gramme was followed by a rise in the temperature to 105.4°, with return of the bad symptoms, so that 0.5 gramme was again given hourly for four hours, when the temperature had fallen to 101.2°. For the next four hours 0.25 gramme was given, with relapse of fever to 102.2° and 103°, again reduced to 100° by resort to the larger dose. The administration was continued for a week, and by the forty-first day the condition was much improved—temperature about 100.4°; and the intestinal and pulmonary symptoms had passed away. On now omitting the drug there was a slight rise in temperature, but this was easily controlled, and the case did well. In the seven days she had taken 220 doses of kairin without any toxic effects, beyond slight pricking sensations on the nose and forehead after the first dose. The urine became of a deep dark-green color, free from albumen and casts, the normal color returning if the drug was discontinued for twelve hours. The writer describes the sweating as being most marked, subsiding as soon as the kairin ceased to act and the temperature rose. He believes the drug in this case to have been the means of saving the patient's life, and insists upon the dose being repeated hourly if the antipyretic action is to be maintained.

COPPER AND CHOLERA.

The precise set of conditions necessary for the life and welfare of micro-organisms seems to be capable of very fine adjustment. Under some circumstances the development of bacteria may, so to speak, just go on, but with the introduction of another apparently trivial factor this development may become luxuriant. Or that plenteous growth may be determined by the removal of some injurious circumstance, seemingly of no great moment. It is exceedingly probable that the protoplasm of human organisms is just as sensitive to apparently small influences, though the effects may possibly be less obvious. In a paper by M. Bochefontaine, recently presented to the Académie de Médecine, treating of experiments on the antiseptic action of copper, the conclusion is arrived at that whatever action sulphate of copper may have on the contagious element of cholera, it has none on "*vibrioniens ou germes microbiques*." M. Béchamp said that from numerous experiments made in 1867 he had shown that the salts of copper and iron were able to retard the evolution of bacteria in certain cases; but that under other conditions, especially of the atmosphere, this evolution was not prevented. The statements which M. Béchamp has made are quite intelligible, but as much cannot be said of the conclusions of M. Bochefontaine, as reported in *L'Union Médicale*. It is high time that our terminology in regard to micro-organisms were settled. The statement that sulphate of copper has no action on "*vibrioniens ou germes microbiques*," is certainly capable of a variety of interpretations.

ELEPHANTIASIS ARABUM.

M. CORNIL has recently had the opportunity of examining the tissues and organs of a case of elephantiasis Arabum, complicated with albuminuria. The spleen was enlarged and advanced in amyloid degeneration; the kidneys also pre-

sented amyloid and fatty changes, whilst the liver was simply fatty. The skin of the affected limbs is described as being irregularly mammillated, warty, and ulcerated. The epidermis was greatly thickened, particularly the granular and horny layers. The papillæ were enlarged in all directions, composed of a loose connective tissue, containing flat and round cells; the capillaries were dilated, thin-walled, and full of blood. The dermis was enormously thickened, and its dense tissue appeared as if infiltrated with a clear fluid, which could not be pressed out. The bundles of fibrous tissue ran mainly in two directions—some parallel to the surface, and others traversing these perpendicularly, and accompanying blood-vessels. The lymphatics were dilated into irregular spaces or rounded channels. The ducts of the sweat glands were much elongated, owing to the increased thickness of the cutis. Ulceration had occurred in several parts, destroying the papillary body; and micrococci, probably connected with the septic process, were found in vessels in the vicinity of the ulcers. The sciatic nerve and its branches and the anterior crural were about one-third larger than normal; the neurilemma and the surrounding connective tissue were notably thickened, and in some of the fibres the axis cylinders were broken up or wanting. The lymphatic glands were in a state of chronic inflammation. There was also some inflammation of the coats of the femoral artery and vein.

CHLOROPHYLL IN ANIMALS.

SOME biologists have considered that chlorophyll in animals was due to the presence of minute parasitic algae; but this view, entertained by German physiologists, is opposed to various considerations. Chlorophyll has been found in a diffused condition throughout all the tissues, and not merely in the form of little globules, which might be considered as independent organisms. Mr. McMunn read a paper at the British Association in which he defined chlorophyll as that coloring matter or mixture of coloring matters which can be extracted from green leaves by means of alcohol and ether. He had proved that this green coloring matter was present in the intestines of invertebrate animals, and the conclusion at which he arrived was that all the characteristic appearances of vegetable chlorophyll are present in animals, and that such pigments were synthetically built up by and in the bodies of animals.

CONTINUITY OF STRUCTURE IN VEGETABLE ORGANISMS.

The continuity of the protoplasm through the walls of vegetable cells was the subject of a series of papers at the meeting of the British Association at Southport. Mr. Walter Gardiner has embraced in his investigations fifty species of plants, and he found that the cells were placed in communication with one another by means of delicate threads passing through the walls of the cells. For some time evidence has been tending to show the unity of the vegetable individual and the working together of its various specialized organs. In every single property of protoplasm and in the exhibition of every phenomenon the plant and the animal have been shown to be possessed of a common life. The statement that in animal life there is a differentiation of the protoplasm, while in the plant there is only one of cell wall, can now no longer be held. These new facts give us a clearer insight into such phenomena as the downward movement of a sensitive leaf upon stimulation of the action of a tendril to-

wards its support and so forth. Dr. Carpenter expressed the very deep interest which ought to be felt in these communications, because they went to the very fundamental conception of life. We have been coming to perceive, he said, that there are a great many forms of animal and vegetable life which never arrive at the dignity of cell form. This continuity of protoplasm was really just drawing the lower forms of the two kingdoms into closer approximation.

EXERCISE v. BANTINGISM.

OBESITY is a disease—a gradual, yet a true perversion of a normal state, and therefore a disease—which from its continual irksomeness, apart from any worse symptoms, renders those who suffer from it particularly ready to accept any means of relief, reasonable or unreasonable, if only it will ease them of their burden. It would be superfluous to review the various systems professedly based on scientific principles, but really founded too often on fallacious reasoning, which have claimed to achieve this result. When one considers the slow development of this condition, its selection of certain individuals in preference to others who consume the same ingredients of diet, and the other circumstances of those affected, it is clear that there is some inherent state of being or habit of life which, more than mere quality of food, conduces to excessive fat formation. For its safe and effectual treatment, provided that the case be not of so long-standing as to be beyond all treatment, this state must first be understood and regulated. It is well known that whatever interferes with oxidation, with due metamorphosis of digested food within the tissues, is apt to lead to its storage in the form of fat. This is true not only of fat itself, but also, though in a much less degree, of substances—as albumen—far removed from it in the scale of chemical change. Such interference arises, on the one hand, from the ingestion of more food than can possibly undergo assimilation, especially if it be largely composed of carbohydrates; on the other, from insufficient demand for formative material on the part of the tissue elements themselves, and this demand is proportionate to their loss by exertion. It is therefore necessary for health that consumption should be limited as nearly as may be to what is necessary for sustenance, and that discharge of waste and tissue demand should be at the same time encouraged by moderate bodily exercise. But, moreover, the limitation of food must be in its quantity rather than its kind. A certain mixed diet is requisite for healthy growth, and neither fatty, farinaceous, nor albuminoid material can be omitted from it in any considerable proportion without detriment to the general nutrition. If the stout man who desires to be thin will restrict himself to a lean meat diet, taking but a trifling amount of the other more carbonaceous substances after the Banting method, he will indeed lose bulk, but the restriction will not arrest his fat-forming propensity, which still survives, though on reduced fare, and will return to him as soon as he resumes his former mode of living. Moreover, his Bantingism must either underfeed the non-fatty tissues in respect of their most important constituent, carbon, or to avoid this must so overload every organ, but especially the kidneys, with surplus albuminoid excreta as to cause their overwork and degeneration at no distant date. The danger, though still real, is less to men of active habits, but such the obese commonly are not. By this method we seek to avoid one trouble, with partial success, only to fall into another, perhaps worse. While therefore we are ready to

admit that stout persons should be content with a less rich diet than the spare-bodied, we are careful to preserve its essentially mixed character, to limit its consumption in quantity, and to rely for disposal of the products of digestion mainly on regular and methodical physical exertion. There should be no difficulty about this latter, seeing that it may be taken in different forms suited to various ages and constitutional types. Walking, riding, rowing, and for the younger and more robust, athletic exercises of more energetic kinds, are among the most valuable, from their exercising more or less the whole of the muscular energies. Then there are many kinds of amateur work which offer the same advantages. By all such means free play is afforded for tissue changes, for excretion of waste, and for regular and rapid blood circulation. In short, it is necessary for him who would enjoy the ease of an unencumbered person to remember in practice that the laws of supply and demand have a relation to one another as close and as inseparable in the human frame as in the commercial world.

THE MUTABILITY OF BACTERIA.

THE question whether the same germs under different conditions give rise to various diseases has been raised, but not settled. Dr. Carpenter, at the meeting of the British Association, treated the subject from a point of view of natural history. He referred to the facility which the lower forms of life possess of adapting themselves to changed conditions of existence. He believes that the same germs may under altered circumstances produce various diseases, and these opinions he supported by various arguments. The decrease of the virulence of the small-pox which ravaged Europe in the fifteenth century he attributed to the cultivation of the mildest cases which occurred. A severe attack of any particular disease may so affect the system that a disease arises which cannot be recognized as related to that from which it proceeded. Under favorable conditions an ordinary intermittent fever may develop into a virulent form, which is highly contagious. There is in his opinion, very strong ground for the belief that even the innocent hay bacillus may undergo such an alteration in its type as to become the germ of severe disease.

FRUIT AS AN ARTICLE OF DIET FOR THE SICK.

THIS question was lately discussed by Professor Reclam in the *Gesundheit*, and in the course of his remarks he laid stress upon the necessity of properly masticating fruit, as much of the prejudice which exists against its use as a portion of a sick person's diet arises from the fact that it is often consumed in a hasty and consequently injurious manner. He excludes from his dietary scale all fruit which is so hard as to require much exertion in masticating it. As to the choice of fruit, he gives copious details as to the relative proportions of acid contained in different varieties. Plums contain the largest quantity of acid and only a limited amount of saccharine matter, although the taste is deceived in this respect by the other component parts of the fruit in question. Ripe red pears form the other extreme of the scale of acidity.

GRAPHIC RECORD OF MOVEMENTS.

AN ingenious apparatus for graphically recording the movements of the hand and fingers under various conditions has been devised by Dr. Francis Warner. It resembles the indiarubber tubing on the backs of cricketing gloves, designed to pro-

fect the hand from injury; but the tubes are closed, and not jointed; they are connected by means of small conducting tubes of caoutchouc with a series of tambours; with the tubes is also connected an electric apparatus, by which a bell can be rung when a movement is made and a tracing taken. Dr. Warner believes that by observations made with this instrument the mental development of infants may be followed, the amount, kind, and co-ordination of their movements affording information in regard to the internal conditions of their nervous system. He finds that children are, except when their attention is strongly excited, constantly executing spontaneous movements; but such movements fail in adult age, being replaced by the function of "mentation," or thought. When the function of mentation is lessened, as by fever, the excess of movement often reappears in delirium as subsultus tendinum. In many so-called mental conditions the emotions are expressed by the action of the muscles of the face and hand; in other words, we judge of the condition of the nerve-mechanism whose function is mentation by certain nerve-muscular movements, whose exact record and measurement Dr. Warner thinks his apparatus is well adapted to study. The paper is contained in the second part of the fourth volume of the *Journal of Physiology*.

CHOLERA CHEMICALLY CONSIDERED.

THE greater the ignorance which prevails on any particular subject the more numerous are the existing views on that question. An acquaintance with such a variety of opinions possesses a certain kind of interest. M. Ramon de Luna has given expression to his views on cholera at a recent meeting of the Académie des Sciences. He believes that the cause of cholera is always to be found in the atmosphere; that it exerts its action exclusively through the respiratory passages; that it is especially during the passive condition of the individual, particularly during sleep, that its incubation takes place; that the microbe or ferment acts chiefly on the blood-corpuscles, preventing proper oxidation, and so leading to gradual suffocation; that the only remedy which was ascertained to do any good was the inhalation of the fumes of nitrous acid mixed with air; and that the same agent is of prophylactic value against cholera. These conclusions are given as the result of practical successful experience.

VARIATIONS OF THE URINARY CHLORIDES.

No one will deny that a more frequent examination of the constituents of the urine might lead to the acquisition of fresh knowledge. Even in our public clinical institutions the systematic estimation of the most important urinary constituent is not regularly carried out. A complete clinical account of the changes in the urine which attend the active stages of the rachitic process would probably be attended with important additions to medical science. Indeed, the same may be said of most acute diseases. In ordinary medical attainments perhaps the only piece of information with regard to the chlorides of the urine consists in the knowledge of the fact that there is a remarkable diminution of this ingredient in acute pneumonia. M. Barot has done well to draw attention to this unploughed field of clinical medicine. He has devised a simple apparatus for the purpose of estimating the chlorides. A small flask is furnished at its inferior extremity with an ampulla capable of holding just one cubic centimetre of urine. A pipette is obtained, gauged in tenths of a cubic centimetre. Another little flask containing

a solution of argentic nitrate is used from which the pipette may suck up some of its contents by means of a ball of caoutchouc. A cubic centimetre of urine is first treated with a solution of potassic chromate. The solution of nitrate of silver of known strength is then dropped in by means of the pipette. The whole of the chlorides in the urine have been obtained as soon as the *café au lait* precipitate of chromate of silver appears. M. Barot found that the normal amount of chlorides in the urine was eleven grammes for every litre, consisting of ten grammes of chloride of sodium and one of chloride of calcium. In tuberculosis it was estimated that seventeen to eighteen grammes of chlorides per litre were discharged. But a diminution of the chlorides is of greater import, especially in acute affections. In pneumonia, when the temperature is much raised the fall in chlorides is considerable. This diminution was not noted in broncho-pneumonia. But in the pneumonia of typhoid fever at the onset of death the chlorides completely vanished.

DEATH FROM COLD IN MAMMALS.

THE behavior of protoplasm under the influence of different degrees of temperature is still insufficiently known. We are familiar with the general facts that excessive heat or cold brings about death, and that fever is attended with increased tissue changes; and in some measure we understand the kind of way in which this happens; but that is all. MM. Richet and Rondeau have studied the influence of cold on some mammals. They have adopted a method by which the temperature of the animals has been gradually lowered. Dogs resist cold so well that no experiments were made on them. Rabbits were chiefly employed in these investigations. These animals were shaved and surrounded with flexible pewter tubes, through which cold water was made to circulate. When the temperature of the body was lowered to 25° C. respiration began to be ineffectual. The rhythm was not modified; but the amplitude of the inspirations was chiefly diminished. The functions of the nervous system were much abated when the temperature fell to 17° C.; they were not, however, abolished. Reflex movements were obtained, even when the temperature sank to 15° or 14° C.; and the observers believe that the excitability of the nervous system disappeared not directly on account of the cold, but probably from arrest of the circulation. Spontaneous movements disappear before the reflex acts. The reflex from the cornea went before those from the lower limbs. At 16° C. the reflexes were remarkably slow and like those in animals with a cold circulation. Sensibility to pain was not abolished even at the temperature of 16° C. Cold gradually slowed the cardiac action. The form of the contraction at 17° C. was like that of the heart of the tortoise. Systole commenced at the auricles, and by a slow vermicular movement passed on to the ventricles. Even although death had been apparent for half an hour, the animal could be restored to life; so that vitality can be recalled half an hour after the cessation of respiration and circulation. When the temperature was 19° C., it took more than ten minutes to asphyxiate the rabbit by blocking the trachea. We may conclude from this that tissue metabolism is correspondingly slow. The same animal was suffocated in four minutes at a temperature of 32° C. MM. Richet and Rondeau commented on the similarity between the vital processes of hibernating animals and those of rabbits thus experimented upon, in which a condition, so to speak, of artificial hibernation may be induced.

ANIMAL ELECTRICITY.

DR. McKENDRICK, so well known for his physiological researches, delivered an able and interesting lecture on Galvani and Animal Electricity before the Southport meeting of the British Association a short time since. In summing up, the lecturer said that all these electrical changes were really expressions of the vital changes occurring in living tissues under the action of stimuli. It was no part of the functions of nerves, muscles, or of the retina of the eye to produce electrical currents under the action of their relative stimuli; but such currents indicated chemical changes in the organs or tissues. For example, the contraction of a muscle is a movement following or consequent upon many chemical changes, among the results of which were the production of heat and differences of electrical potential. Thus, there was no special production of electricity except in the cases of electrical fishes, and possibly of some other animals. In most animals, including man, the production of currents was an incidental phenomenon, indicating chemical operations and nothing more. Besides, the currents so produced were feeble and evanescent and bore no relation to the general well being. Consequently, all attempts to influence the living body by magnets had no rational basis. It need hardly be said that the so-called phenomena of animal magnetism are of an entirely different kind from those discussed. These are of a subjective character, dependent on peculiar states of the nervous system, having nothing whatever to do with electricity or magnetism; but still in a sense they are phenomena as real as those of physical science. Their subjective character, however, renders them specially difficult of investigation, and consequently they are more liable to fall into the hands of the charlatan.

ALLEGED DISCOVERY OF THE CHOLERA BACILLUS.

It has been announced that the German Commission under Dr. R. Koch, which was sent in August last to Egypt to investigate cholera, has reported to the German Chancellor that its labors, so far as Egypt is concerned, are at an end; but, owing to the important results so far obtained, they have sought and obtained permission to continue their researches in the home of cholera—India. The Commission (which consists of Dr. Koch and his two assistants, Drs. Gaffky and Fischer) has therefore left Alexandria for Cairo, *en route* for Bombay. The methods pursued by the Commission in this inquiry have been those which have been so fruitful of results in recent researches into the etiology of infectious diseases. Although they failed to detect any specific micro-organism in the cholera dejections or intestinal contents, a peculiar kind of bacillus, much resembling in its characters that of glanders, has been discovered by them in the intestinal walls, the post-mortem examinations being made sufficiently early to preclude the idea that these organisms were connected with putrefaction. The cessation of the epidemic in Egypt has not only deprived them of the material necessary to the further prosecution of this research, but has left them without means to verify the possibly specific nature of these bacilli by the method of inoculation in animals. Sufficient has been gained, however, to justify their request to be allowed to proceed to the centres of the disease, where they will enjoy great opportunities for the prosecution of their work. It must be a matter of congratulation, not only to Germany, but to the whole world, that at last there is some hope of the true nature of cholera being brought to light, and that the method of research initiated by Pasteur and pursued by Koch, which has done so much of late years to en-

large our knowledge of many hitherto obscure affections, seems likely to lead to results of immeasurable importance.

It has not yet been announced what results have been obtained by the Commission sent out by the French Government at the instance of Professor Pasteur. The lamented death from cholera of Dr. Thuillier, the leader of this Commission, may have seriously affected its labors; for whilst the German Commission is already on its way to further continue its research, the surviving members of the French Commission have returned home.

One important lesson is taught by the work of the German Commission which the English Government might take to heart. It seems probable that the discovery of the true nature of the virus of cholera will be effected in England's greatest dependency, but not by Englishmen. Is it not something of a humiliation and a reproach that this country, which has generally posed as the centre of sanitation and preventive medicine, should possess no such department as that over which Dr. Koch presides, and that it possesses no means of equipping a scientific commission like that which has been sent from Berlin? It is high time that the ground for such a reproach should no longer exist; and that England, with her vast resources, should not suffer researches of such vast importance to be left in the hands of private individuals.

EARLY SYMPTOMS OF GENERAL PARALYSIS OF THE INSANE.

In a paper read at the annual meeting of the Massachusetts Medical Society, Dr. W. B. Goldsmith, of Danvers, analyzed the initial symptoms recorded in the histories of 100 cases of general paralysis of the insane, in which he points out the exceptional occurrence at an early stage of the disease of any well-marked characteristics; that physical and mental symptoms usually appear nearly synchronously, the most frequent and characteristic being defective articulation. He also concludes that changes in the pupils and disorders of the gait are less frequent, and have less value in diagnosis, than is usually ascribed to them. He found the patellar tendon reflex to be markedly supra-normal in nearly 25 per cent. of general paralytics, the presence of this symptom being of much value in corroborating diagnosis, its absence having, however, no significance. Hallucination, or impaired function of the special senses, is very rare as an early symptom; nor had he noticed in any case the diminution in the sense of smell, thought by Voisin to be very frequent in the early stages. In twenty of his cases, the first "motor" symptom consisted in convulsions or loss of consciousness; and he urges the importance of careful inquiry on this head. Among mental symptoms, the marked exhilaration with delusions of wealth and greatness, usually considered to be characteristic, was present early in less than one-fourth of the cases; the more frequent change is simple failure of mental capacity and activity, and mental depression.

OPERATING BY THE ELECTRIC LIGHT.

A SHORT time since the electric light was used in the operating-room of the Royal London Ophthalmic Hospital, Moorfields. Mr. Lawson, Mr. Couper, and Mr. Tweedy each performed extraction of cataract, as well as other operations, including iridectomy for acute glaucoma and discission for soft cataract by the aid of the light. The day was well suited for the trial, as the early part of the morning was very foggy, and so dark that the operations could not have been performed without

the aid of artificial light; later on the fog cleared off, and the room was then darkened, and several operations were satisfactorily completed with the aid of the new light. The excellence of the light for operations on the eye was well demonstrated, and we have no doubt that it will be shortly in use in most hospitals for operations by night or on dark days. The light was furnished by a platinum wire incandescent burner placed in a metal case, with a polished reflector behind and a lens in front of it. This was fixed on a movable stand, which could be carried in the hand of the assistant. With wires the lamp was connected with a bichromate of potash battery with four two-quart cells, each cell really holding only about one quart and half a pint of the solution, so as to allow of the immersion of the plates. The battery was furnished by Messrs Weiss, of the Strand.

PURE WATER FOR CATTLE.

THE question of "pure water for cattle" which was raised in the columns of *The Times* a short time since is one of such vital importance to farmers that we can only wonder that it has never been seriously discussed before. It takes time, to be sure, for the teachings of science to penetrate to all members of a community; but it has long been common knowledge that impure water is not only a vehicle of contagion but a source of disease in man, and there can be no question that it is an equally fertile source of disease among cattle. If common sense could only be applied in this matter, we should hear less of the ravages of foot-and-mouth disease, and probably of other epidemics of contagious disease in animals, not to mention the numerous forms of parasitic disease, of which the "sheep-rot" is an instance; and if, as we gather from the statements preferred by the writers referred to, the present Acts contain no provisions for enforcing rules as to the supply of water to herds and flocks, it is time they were amended in that direction. The *native* reply which one correspondent alleges is mostly given by the farmer when asked if he is not afraid to let his cattle drink at one of these abominable roadside yards—"Bless you, sir, they delight in it, they prefer it!"—is a sample of bucolic ignorance which is probably not overdrawn. No doubt in many rural districts the remedy for this state of affairs would be a matter of great trouble and expense; but, as the question of the water-supply to the inhabitants of such places has been, or ought to have been, solved, there is no reason against its extension to the case of cattle. As a mere matter of economics the effort should be made, and the results would soon convince the most sceptical.

SCIENTIFIC HANGING.

THE recent selection of a successor to Marwood in the office of common hangman naturally draws attention to the method of execution by hanging. It is of no immediate practical avail to discuss whether hanging is the best mode of inflicting capital punishment; but it is important to consider what precautions should be taken to render the process of extinguishing life by hanging as certain, quick, and painless as possible. Hanging may be fatal in three ways. First, by compressing the larynx or windpipe, and thereby producing asphyxia. This mode of death is comparatively slow and extremely painful, consciousness being only gradually lost, and the obstruction to the entrance of air causing distressing voluntary and involuntary efforts. The second method is that of compressing the vessels of the neck and produc-

ing intense venous congestion of the brain, with possible capillary hæmorrhages in places. At the same time, compression of the vagi nerves may induce inhibition of the heart; this would be generally combined with asphyxia, and would tend to quicken that process. The third way in which hanging can kill is by instantaneous injury to the central nervous system. This can only happen when the head is displaced from the spine, or a dislocation or fracture of the upper cervical vertebrae occurs; in either case the trunk falls forwards, and the arch of the atlas or of one of the lower cervical vertebrae crushes the spinal cord. In this case death must be painless and instantaneous, its mechanism being that long familiar in the "pithing" of animals. Dislocation can only be produced when the ligaments of the spine are subjected to severe and sudden strain, and the amount of strain necessary will vary considerably with different individuals. It will require in all cases a "long drop," and care must be taken that the rope does not catch in any part of the person, and does not break. It is very desirable that the exact mode of hanging should not be allowed to depend upon the caprice of a common hangman, and the Home Office might well draw up instructions to be observed in all executions, with a view of ensuring that the sentence of the law shall be carried out without unnecessary pain, and that justice shall be tempered with mercy.

Correspondence.

"Audi alteram partem."

HOMŒOPATHY.

To the Editor of THE LANCET.

SIR—It is a subject for much regret that anyone, more especially the editor of our leading medical organ, should deem my offer to St. George's Hospital to be disrespectful to the medical profession.

No one more highly appreciates the honorable, humane, and learned character of medical men than myself, and amongst those in orthodox practice I am proud to number many of my oldest and dearest friends. Nevertheless, it is impossible to ignore surrounding facts. At the present moment some thousands of duly qualified medical men are following the system of Hahnemann, while hospitals in every civilized country are publicly testing its value. Further, the most popular work on therapeutics amongst the rising generation of students—Sidney Ringer's—owes much of its fame to the promulgation of a series of specifics, mostly traceable to homœopathy—a system which is allowed, even by its greatest opponents, to be largely permeating general practice. Impressed with the excellence of much that is advocated by the homœopathic school, and still more impressed by the practical results constantly brought under notice in hospital and private practice, the writer was induced to endeavor to bring about a public test of the efficacy of the new treatment, and observing that a number of beds were unoccupied in St. George's Hospital from lack of funds, the offer referred to was made. It will hardly be necessary to add that I have no interest in any system of medicine. My only desire is that that which is most efficacious in the treatment of disease should be adopted; and I know of no better plan for discovering this than the establishment of test beds under proper conditions and for a sufficient period to avoid the possibility

of chance. If the result should be adverse, it will do more to discourage homœopathy than reams of print; if otherwise, surely the members of a progressive profession would be the first to acknowledge, and rejoice at, such an outcome of the experiment.

I am, Sir, yours faithfully,
WM. VAUGHAN MORGAN.

The Boltons, S.W., Sept., 1883.

* * Our correspondent does not seem to be aware that homœopathy scarcely exists as understood by Hahnemann. Its most popular exponent in London has published a new doctrine of therapeutics, directly contradicting Hahnemann's fundamental principle. We published last week the suggestion of a Hahnemannian journal, to drop the word "homœopathy" out of existence, as the only means of averting the imminent dissolution of the school. We are quite aware that there is a section of the public that believe in homœopathy; but they are attended by those who have abandoned all its essential principles while still retaining the name. The argument that homœopathy only needs a trial is quite untenable. It has been on its trial eighty years—as long, in fact, as vaccination. While vaccination is accepted by the whole world of scientific and rational men, homœopathy is without a chair in any university of Europe, and it is proposed by its own leaders to drop the very name. The attitude of scientific medicine to it *ab initio* is thus thoroughly justified. The attempt to take shelter under the name of Dr. Sidney Ringer is now rather a favorite device of homœopaths. But it will not save either their scientific or their moral position. Dr. Ringer takes medicines as he finds them, and investigates their action in health and disease unhampered by authority, and he does not trade on a name.—Ed. L.

CASE OF CHLORAL POISONING.

To the Editor of THE LANCET.

SIR—Thinking that the following case may be of interest from a toxicological and therapeutical point of view, I am induced to send you the account of it.

The patient, a gentleman twenty-six years of age, was suffering extreme pain from syphilitic rupia, for which I prescribed the following mixture in order to relieve his pain and induce sleep: Chloral hydrate, six drachms; bromide of potassium, half an ounce; orange water, four ounces; two drachms of the solution to be taken at bedtime. The patient (wiffully) swallowed the whole contents except one ounce. The draught must have been taken about midnight, and the patient was not seen till next morning at eight o'clock, when his mother saw him, and she, thinking he was sleeping naturally, did not disturb him. He was again seen at ten o'clock, when an effort was made to wake him, which, however, was unsuccessful. I was then sent for, and on my arrival at half-past twelve he was in the following condition: He was lying on his back; eyes and mouth wide open; conjunctivæ injected and pupils contracted; congestion of his capillary system generally; breathing heavily; complete muscular relaxation and reflex action abolished; pulse slow and full; temperature 102°. He was with some difficulty aroused, but by continuous efforts was he awake

and so far aroused as to be persuaded to swallow some strong black coffee. By both vocal and physical means he was at length aroused to a sense of his position; but as soon as these efforts were relaxed he relapsed into the drowsy condition. Strychnine was then administered, and instructions given to keep him awake. In three hours' time he was completely conscious, and felt quite well except for a feeling of lassitude. The strychnine was repeated, and during the afternoon he was quite prepared for dinner. His temperature fell 2°, and his pulse regained its natural strength and volume. His return of consciousness, he himself states, was just subsequent to his having the coffee, and his prior loss of consciousness was immediately after swallowing the chloral. To my positive knowledge no narcotic had been taken for at least six months previous to this occurrence, but at that time he could take four grains of solid opium. Chloral he has had on two occasions, in sixty grain doses. Bromide he never had before. On this occasion he swallowed 270 grains of chloral, or nearly five drachms, combined with three drachms of bromide. Such is the history of the case; its full value is lost of course, owing to the length of time elapsing between the taking of the poison and the notifying of the symptoms. Ten hours had elapsed before my seeing him, but I think had he been allowed to continue his slumbers undisturbed the result would have been the same—namely, complete recovery. The poisonous effects must have been much more decided during the hours immediately succeeding his taking the draught.

Dr. Levenstein reports a case where the dose taken was six drachms, and recovery ensued. But in his case twenty-four hours elapsed before consciousness was restored, and that only after continuous treatment from the first hour of the poison being taken.

I am, Sir, yours obediently,
ARTHUR MECHAN, M.B. C.M. Glasg.

Glasgow, Oct., 1883.

To the Editor of THE LANCET.

SIR—I have read with interest Mr. Mechan's letter on the above. The action of chloral is so uncertain that I have the greatest hesitation in prescribing it, even in obstetric cases. It is in these cases that I consider its employment justifiable, as chloroform is better borne after it than after any other sedative, for obvious reasons. But when we have the choice of a sedative, and there is no special reason for using chloral, as in Mr. Mechan's case, would it not be safer to prescribe bromide of potassium alone, or with some such addition as hyoscyamus or belladonna? I am not casting any reflection on Mr. Mechan, for he did not order his patient to take three-quarters of the whole mixture at one gulp, nor did his patient die; but I am simply insisting on the danger of using the drug at all when it can be avoided, which, in my opinion, is nearly always.

In 1880 I published notes of a case of Poisoning by Chloral Hydrate in THE LANCET, and although the dose taken was 100 grains less than that taken by Mr. Mechan's patient, the symptoms were very serious. The drug, I need hardly say, was taken without my knowledge. More than once I have known even small doses so badly borne that I look on chloral as a very treacherous friend. If taken habitually, the damage done to the brain is very great, and the habit is very difficult to abandon.

In the case of neuralgic females (usually weak-minded ladies) chloride of ammonium is far more

valuable and far less harmful, but they persist in taking chloral.—I am, Sir, yours truly,

A. ST. CLAIR BUXTON, F.R.C.S.

The Grove, W., Oct. 28th, 1883.

CASE OF ANENCEPHALUS AT THE ROTUNDA.

To the Editor of THE LANCET.

SIR—While acting as clinical assistant at the above hospital, I was called to a case of doubtful presentation in the extern maternity, which I diagnosed to be one of anencephalus foetus. I beg to lay before your readers some important points in the diagnosis of such cases, with special reference to the case in hand.

Mrs. G—, aged thirty-eight; third pregnancy, full term; somewhat anæmic, and fairly well developed; previous health good; two former confinements tedious, the forceps being used; last confinement three years ago; both children living, healthy, and very well developed; husband tall and well formed. On external examination the abdominal walls were found to be extremely lax and oedematous; the membranes had been ruptured just before by the gentleman in attendance, as the distension was very great from hydramnios, and the first stage had been very prolonged; sixteen pints of liquor amnii were allowed gradually to escape. By palpation the back of the foetus could be clearly made out on the right side, and the small parts to the left posteriorly; the cranial end of the foetus could be grasped over the pubes, entering the pelvis. The foetal heart was best heard to beat (at the rate of 120 per minute) in the right hypogastrium. The os uteri was found to be almost fully dilated, and what seemed a face presented in the second position. The nose was felt and the eyeballs markedly protruding; the fingers, passing forwards, dipped over a sharp orbital ridge into a depression corresponding to the calvaria, with a small fleshy protrusion in its centre (the exposed medulla), which, when pressed on, caused vigorous spasmodic movements of the foetus. The mastoid processes were very prominent, and the distance between them small. The patient was exhausted, having been in the first stage fully twenty-three hours. A binder was put on, and the uterine efforts aided, but the shoulders seemed to be arrested at the brim. Dr. Henry, the senior assistant-physician, was sent for, and a drachm of liquid extract of ergot administered, immediately after which she was anesthetized, the forceps applied, and a safe delivery effected. The foetus was large, and, with the exception of spina bifida, was well developed from the shoulders to the lower extremities; the umbilical cord was shorter than usual, and constricted the middle of the left arm so tightly as to leave a marked groove one-third of an inch deep, and, strange to say, the distal portion of the limb was well developed, and to all appearance similar to its fellow. Another drachm of ergot was administered at the end of the second stage. There was slight hemorrhage. The placenta was retained and adherent, having a very large uterine attachment, and was detached by the introduction of my left hand into the uterus after gradual dilatation of the os.—I am, Sir, yours, etc.,

H. D. McCULLOCH, M.B. & C.M. Glas.

Dublin, Sept. 11th. 1883.

THE ADMINISTRATION OF ANÆSTHETICS AT HOSPITALS.

To the Editor of THE LANCET.

SIR—May I take the liberty of addressing you on what I venture to call an evil in hospital manage-

ment? It is the practice at some hospitals to bring up patients into the operating theatre and give them an anæsthetic before a crowd of students, etc. I believe such a course is frequently unnecessary, and I am convinced it is cruel. I cannot find any good reason why patients (and I refer especially to women) could not have an anæsthetic given before they are placed upon the operating table. What happens now? A woman, naturally nervous and anxious about the coming operation, is brought up and placed upon the table; she looks round to see where she is, and finds herself face to face with a more or less crowded theatre, and she then awaits the arrival of the chloroformist. The surgeon in charge explains the case to the students present as she is passing under the influence of the anæsthetic, or occupies the time in conversing with courteous amiability to the "distinguished foreigner," or a "fellow practitioner." Could not the anæsthetic be given either in the ward or in a special room for that purpose? I complain of an evil that could be easily remedied, and consider that a woman in a well-conducted hospital ought to be able to undergo an operation without knowing she has left the ward.

The outside public, though ready to obtain advantages from hospital treatment, are ever watching for some loophole for complaint or scandal, and the proper authorities have it in their power to show them that the study of surgery does not produce any indifference to the sensitive feelings of our nature, and to point out to those who assume to themselves a monopoly of humane feeling that they are ever ready to remedy a source of suffering or to save the infliction of unnecessary pain. Hoping you will have room for these few lines in your columns, believe me, Sir, your obedient servant,

GEO. H. DE'ATH.

Guy's Hospital, S.E., Sept. 26th, 1883.

"CHLOROPHYLL IN ANIMALS."

To the Editor of THE LANCET.

SIR—Readers of the report of my paper, read at the meeting of the British Association, on the "Occurrence of Chlorophyll in Animals," as it has appeared in most of the medical journals might be easily led to believe that my conclusions are based on insufficient data, as, from the report, I am stated to have based my conclusions on the occurrence of that substance in the "intestines" of invertebrate animals. I, however, have not done anything of the sort. Finding an iron nail in a horse's stomach would not be considered a proof that a horse had a blacksmith's forge in that situation.

I based my conclusions on the fact that I could extract a chlorophyll pigment out of the appendages of the enteron—e.g., "liver" of *Helix*, *Limax*, *Anodonta*, *Mytilus*, *Astacus*, etc.; pyloric cæca of *Asterias*, *Uraster*, and intestinal appendages of *Echinus*, and so on, this pigment being present under such conditions, and in such a state as to preclude the possibility of its being derived directly from food chlorophyll. Moreover, I stated that I had repeated certain experiments of Pocklington's, published in the *Pharmaceutical Journal* for 1873, on the wing-cases of *Cantharides*, and extended his observations in such a manner as to prove beyond doubt that the wing-cases contained chlorophyll identical with that of plants. Although the reports in some of the newspapers might lead anyone to suppose that some doubt must be attached to my conclusions, I may recall to mind that Professor Lankester and Dr. Sorby have proved that this pigment is found in *Spongella*,

Hydra, and perhaps in other invertebrate animals. The spectrum of chlorophyll alone and with acids is so peculiar—when the whole series of bands is present—as to leave no doubt in the mind of a practiced observer whether he is dealing with chlorophyll or not. What I endeavored to prove, however, in addition to the proof of identity of animal and vegetable chlorophyll, was the fact that this substance is built up by the animal, and is not due to “symbiosis” in those cases which I have observed, as recent German writers have tried to show that in all cases where chlorophyll has been found in animals the presence of parasitic algae has been the cause of its being present. The coloring matter observed by me in the appendages of the enteron of the above-mentioned animals I have named, for obvious reasons, “entero-chlorophyll,” and the results of these observations, as well as the spectra of the various solutions, will be found in the Proceedings of the Royal Society, No. 226, 1883.

I am, Sir, yours faithfully,

C. A. MACMUNN, B.A., M.D.

Oakleigh, Wolverhampton, October, 1883.

SULPHUR FUMIGATION IN CHOLERA DISTRICTS.

To the Editor of THE LANCET.

SIR—I observe that you mention the plan of disinfection of the cholera districts in Egypt by sulphur fumigation. Since 1872 I have steadily advocated this method of disinfection in India by means of sulphurous acid, and have now the pleasure to forward the last edition of my pamphlet on the subject. Since its publication I have received additional testimony of its efficacy. At Bombay, during the last epidemic there, it was adopted, and the disease ceased almost immediately after the fires were kindled, with an immunity from it as had not been known for five years.

In 1882, when cholera was very virulent at Dumdum, and in all the villages near the cantonments, till at last it appeared in the Sudder Bazaar, sulphur fires were adopted extensively. The disease ceased in a most marvellous manner, and not a single case occurred in the Border Regiment stationed there. Sulphur fires should be kept burning through the streets for several days, at distances of twenty or thirty yards, where cholera is virulent. Every house where cholera has occurred should be evacuated and thoroughly disinfected with sulphurous acid, and the floors and walls disinfected with carbolic acid or phenyle. Furniture should be taken out or covered, as the fumes might fade the colors. A very easy means of disinfection of houses can be effected by the inhabitants evacuating them temporarily, and burning sulphur for a few hours, or in different rooms alternately.

I trust you will give me the credit of being the first to initiate this plan of disinfection by noticing my pamphlet in THE LANCET. Some years since I forwarded you a copy, which was made mention of in a short paragraph. I quite agree with you that street fumigation is not sufficient, but it can be pushed still further by burning sulphur in all infected houses, streets, or gullies. Liquid sulphurous acid might be sprinkled on walls and floors. The measure has been so entirely effectual in India that I feel sure you will do me the justice to review my brochure, for the benefit of the profession and the public.

I am, Sir, yours very truly,

JOHN E. TUSON, M.D.,

Deputy Surgeon-General, Presidency District.
Calcutta, August, 22nd, 1883.

“TREATMENT OF CHOLERA”: A NEW METHOD PROPOSED.

To the Editor of THE LANCET.

SIR—About two months ago I took up my pen to address you on the subject of the treatment of cholera, but relinquished the idea for fear of trespassing on your valuable space. Now that communications under the heading of this letter are well-nigh exhausted, will you, should you deem my letter worthy of a place in your esteemed journal, kindly allow me a small space to mention a method of treatment which has occurred to me, and which I believe might be tried with advantage should cholera again visit these shores? The method I refer to is medication per vesicam. We are all aware of the empty and contracted condition of the bladder, and of the great demand made on the system for its fluids in cases of malignant cholera; and considering the small quantity of fluid we can administer to the sufferer by the mouth or by injection (subcutaneous and intravenous), I think we have in the bladder cavity a means whereby we can supply that deficiency of fluid, and at the same time administer such remedies to the patient as our judgment dictates. I do not believe that in health any great absorption can or does take place; but in cholera I believe it to be otherwise, and that fluid injected into the bladder would be speedily absorbed. Such remedies as chloral hydrate and thymol (strong antiseptics in very dilute solutions) could easily be administered, combined with sedatives (e.g., morphia) or stimulants if necessary, the fluid so injected being first raised to 98° or 99° F.

It is my firm belief that non-irritant fluids could safely be administered by way of the peritoneal cavity; but no one in his senses would attempt such a method without first experimenting on the lower animals (now, alas! in the hands of a favored few). Should, however, future research enable us to overcome the dangers of injecting suitable remedies into the peritoneal and other serous cavities, we shall then have solved the problem of directly acting on the great lymphatic vessels, and so influencing various septic diseases, which we know to have their origin, by open mouths, in such serous cavities.

I am, Sir, your obedient servant,

G. CARRINGTON PURVIS, M.B., C.M. Ed.

Loughboro'-road, Brixton, S.W., Oct. 9th, 1883.

LEPRA VULGARIS.

To the Editor of THE LANCET.

SIR—The following case of the above malady came under my notice whilst resident surgeon at the Clayton Hospital, Wakefield, and was under the care of Dr. Wright. The case was of three years' standing, and had been treated by several different medical men during that time, without any marked improvement. The patient was first treated by us with chrysophanic acid externally and alkalies internally, without any signs of improvement, for three weeks. He was then treated by remedies recommended by the late Anthony Todd Thomson, and was cured in three weeks.

W. B.—, aged twenty-one years, single, coal miner, was first seen on July 5th, 1883, in the out-patient room of the hospital; he was then found to be suffering from an attack of lepra vulgaris in an extensive form. There were patches of eruption upon his head, body (back and front), and upper and lower extremities (extensor surfaces only); the parts which were free were the face and the flexor surfaces of the extremities. The patches

varied in size and shape, some being three and four inches long and two broad, and others from a line to an inch in diameter. Family history good. The patient had scarlet fever when young; but no other illness up to the present one. Three years ago he first noticed a scaly eruption on the back of his elbows, which quickly showed itself in all the parts named above. From this time up to his coming to the hospital he has been under the treatment of several medical men, but has never received any benefit. For three weeks he was treated as an out-patient, and ordered to apply chrysophanic ointment night and morning, and prescribed half-drachm doses of bicarbonate of potash three times a day. He was then admitted into the hospital. His hair was out quite short, and linseed poultices were applied to the scalp to soften the scales, a hot bath was also administered. He was then ordered the following remedies:—Hydrarg. biniod., gr. iv.; arsenici iodidi, gr. ij.; conii extracti, 3 i.; ft. pil. xx., i. t. d. Dec. sarsæ co., 3 ij., inter pilularum doses singulos. Calomelanos, 3 i.; ungt. picis, 3 iv.; cetacei, 3 i.; ft. ungt. utend. h.s.s. quotidie.

In a few days the eruption showed marked signs of improvement, and in three weeks gradually disappeared, when the treatment was stopped, and the patient was discharged. He has since presented himself several times in the out-patient room, without any return of his complaint.

I am, Sir, your, etc.,

D'ARCY B. CARTER.

Late Resident Surg., Clayton Hosp., Wakefield.
Shipley, Yorkshire, Oct. 8th, 1883.

"INTERMITTENT CHYLURIA."

To the Editor of THE LANCET.

SIR—I have just seen a request in your journal by Mr. E. Parnell Griffiths, M.R.C.S., concerning the treatment of a case of intermittent chyluria. According to the latest studies of Manson, we are justified in supposing chyluria to be developed from the obstruction produced in the lymphatics by a swarm of immature embryo filariæ. In other words, the maternal parasite occasionally aborts, and the abortive products have too great dimensions and are of too unwieldy a shape to pass through the fine lymph-vessels into the circulation, as do the fully developed thread-like parasites. As soon as these obstructions are overcome, the patient in question is freed from the chylous urine, but so long as the original parasites infest him, so long is he subject to a recurrence which may at no distant date become permanent. If, therefore, the source can be removed, this recurrence will be abolished, so that the question of treatment is confined to what will destroy the parasites *in situ*. Without entering into the rationale or discussing the *modus operandi*, I have only to suggest that in my hands in the West Indies the salicylate of iron proved successful in those cases which occurred in my practice. I append the formula, which might otherwise not be easily obtained:—Sulphate of iron, six drachms, twenty-four grains; salicylate of soda, one ounce; acetate of soda, five drachms, twenty grains; water one pint. Each fluid ounce of the above is equal to thirty grains of salicylate of iron. Dose, one to two drachms. It may be combined in any mixture with acetate of potash, spirit of nitrous ether, digitalis, etc. It may be used in erysipelas combined with a diaphoretic instead of tincture of chloride of iron. In this disease use half-ounce doses. Salicylate of iron is thoroughly incompatible with ammonia and its preparations. In this preparation the patient not only has the

germicide effect of the salicylic acid, but the tonic action of the iron, which is always indicated, and that in a form easily assimilated, and which may be made easy and pleasant to take.

I am, Sir, yours, etc.,

J. H. ARTON, M.D.

Winnipeg, Manitoba, Sept. 17th, 1883.

ENTERIC FEVER AND OTORRHOEA.

To the Editor of THE LANCET.

SIR—In connection with Mr. Coveney's inquiry, the following notes of a case that occurred in my practice may be worthy of insertion.

On the first day of illness a bad shiver, earache, and general malaise, with pain in joints until the fifth day were reported. On that day a blister was ordered behind the ear on account of excessive pain. On the seventh day, the earache being much better, sudden delirium supervened at 3 p.m.; temperature, 103.6°. At 11 o'clock the same evening a neighboring practitioner thought the case might be typhoid. On the eighth day a London consultant gave a guarded opinion, inclining to the idea that it might be ear trouble, recommending careful watching, and an aurist's opinion if the patient became worse, with a possible view of opening mastoid cells. On the tenth day the patient was carefully examined early in the morning, and bathed by nurse; no spots seen. At 3.30 the same day, at the wish of friends, an aurist examined the patient, and detected nothing the matter with the ear; but on examining the abdomen a large quantity of typhoid spots were found. There was a good deal of delirium, but the temperature except on the seventh day, as above noted, rarely exceeded 102° at night. I should mention that until the sudden invasion on the seventh day the motions were not at all suggestive of typhoid, though carefully examined. The history obtained pointed to frequent ear trouble from infancy, although a case of typhoid had occurred within a short distance where the patient had been staying. There was no discharge from the ear on this occasion, though there had been previous attacks of otorrhœa. I have heard of typhoid following otorrhœa, but do not speak from personal experience. I classified the above case with typhoid, commencing with meningitis (*vide* Quain's Dictionary of Medicine).

I am, Sir, your obedient servant,

W. P.

Oct. 10th, 1883.

ROTHERN OR RUBEOLA.

To the Editor of THE LANCET.

SIR—From October, 1879, to March, 1880, I had to deal with an outbreak of rothern. Measles and scarlatina coexisting at the time gave me an opportunity of contrasting and comparing the diseases and their symptoms. The following summary of the characteristics and symptoms of rothern, taken from a paper I read at the Cork Medical Society in May, 1880, may not be uninteresting at the present moment:—

"An incubative stage of a fortnight, the disease beginning with pains in the limbs, headache, and stiffness in the neck; the short pyrexial period, the rash appearing in most instances in twenty-four hours, beginning on the face and spreading downwards over the entire body, first appearing as a papular eruption like strophulus, then assuming a measles character, and finally, the spots coalescing, produced an appearance resembling scarlatina. It generally took about three days before the body was entirely covered with the rash,

during which time the fever was at its height. The rash then faded as it began, from above downwards, and with it all feverish symptoms. The pulse ranged from 100 to 105; the temperature sometimes reached 102°; and in every instance there were headache and vomiting, sore-throat without any ulceration, cervical glandular enlargement, with occasional tenderness. There were no thoracic complications, no catarrh or coryza, and no sequelae." In many instances there was conjunctival injection, photophobia, and a most unpleasant itchiness over the entire body, with profuse perspirations. The great majority of the cases were children.

I am, Sir, yours truly,
D. D. DONOVAN.

Cork, 1883.

"THE CHEMICAL LUNG."

To the Editor of THE LANCET.

SIR—Will you kindly inform me if Dr. Neale's "chemical lung" has been found practically useful in rendering agreeable the air in small hospital wards? If the expense of charging chemicals is high regarding a modest institution? And who is agent for the sale of them in London?

I am, Sir, your obedient servant,
E. A. STEPHENSON, M.K.Q.C.P.I.

Clareville, Oct. 15th, 1883.

*The only exhaustive experiment hitherto made has been in the Mission-room, Lisson-grove. The experiment at Aden Hospital was, we believe, most satisfactory. Mr. Dodd, 57 Burton-crescent, will supply every information. The cost of charging would not exceed 1s. a week for an ordinary small hospital ward, and would supply an atmosphere free from all impurities, chemical and organic.—
ED. L.

News Items, Medical Facts, &c.

VIVISECTION FOR FOOD PURPOSES.—We sometimes hear the ruthless foes of scientific research by experiment on living animals denounce the medical profession as unequalled in the cruelty of its instincts. What shall we say of the following "instructions for caponing chickens"? This choice specimen of the art of causing pain needlessly and with no compensatory purpose is, we are assured, issued by a respectable house of business for the information of its customers. The origin of the "instructions" is said to be American. Further comment is unnecessary:

"Instructions for Caponing Chickens.—The chicken should be about three months old, and kept without food for about thirty-six hours before the operation, which is best performed on an ordinary table, in a good light. Place the fowl on the table on its left side, and tie one end of a string about three feet long to the wings, to secure them, having previously attached a weight to the other end of this string, which must be dropped over the end of the table, so that it will remain suspended; then take the legs of the fowl and attach another string and weight in the same manner, in order that the wings and legs may be secured for the operation, which is performed thus:—Pick the feathers from the hip bone over the last rib; take a sponge and wet the ribs and feathers around, so that they will be out of the way during the operation. Insert

the knife about half an inch between the first and second ribs from the hip-bone, and cut downwards and forwards to the end of the ribs; then turn the knife and cut up near the backbone. Now put in the spreaders and regulate the tension by the india-rubber band to suit the size of the fowl. Open the ribs and cut through the middle membrane that covers the bowels. Take the forceps and grip the upper testicle, and turn the forceps over once, thereby separating the testicle from all its attachments except the spermatic cord; now pull the testicle out. Repeat the operation on the lower testicle. Be careful to remove the whole of the testicles. Also carefully avoid the large vein under the testicles, or the operation might terminate fatally. Now unite and let the bird go. The incision must not be sewn up. The fowl should not be allowed to roost for a few days. If carefully performed, the loss by the operation does not exceed 3 per cent. The practical result of this operation is to largely increase the weight of the fowl."

DANGERS OF INFECTION FROM GLAZED EARTHENWARE.—According to the *Journal du Ceramiste et du Chauffournier*, M. Payrussen has just addressed a note on this subject to the Academy of Sciences, in which he points out the danger of using glazed earthenware in connection with the administering of food to hospital patients. Amongst other causes of danger, reference is made to the quantity of lead contained in the glaze, no less than .22 of a gramme of sulphate of lead having been found to exist in 100 grammes of milk which had fermented in a vessel of the kind indicated. Reference is made to the economical and entirely inoffensive process of M. Constantin, which is a varnishing with boro-silicate of lime, for the adoption of which the intervention of the Government is suggested. The results of experiments made have pointed to the fact that vessels in which broth or milk have once been allowed to ferment afterwards cause that process to ensue more rapidly, even if carefully cleaned.

A TUMOUR OF HAIR REMOVED FROM THE STOMACH OF A YOUNG GIRL BY LAPAROTOMY.—The following case is reported in the *Pester Med. Chir. Presse*. A somewhat anæmic and nervous girl, fifteen years of age, had since her tenth year suffered considerably from chlorotic troubles, which for the last three years were associated with acute indigestion. For the last year and a half an extremely movable tumour was noticed in the abdominal cavity, which was by some taken for a movable kidney, notwithstanding the fact that some of the symptoms were not in accord with this diagnosis. The pains finally became so severe that laparotomy was performed, when the tumour in the stomach was found to be made up of short hairs, mixed with vegetable cells, starch grains, etc. It weighed 283 grm., and was 13½ ctm. long, 10½ ctm. broad, and 5½ ctm. thick. It was compact and superficially very black. The result of the operation was complete relief. The patient acknowledged that for the past four years she had been in the habit of biting off the ends of her hair and swallowing them. The majority of her schoolmates did the same, believing it would give them clear voices. Seven similar cases occur in the literature of the subject, and one case is recorded where a malignant tumour of the stomach and intestines proceeded from this cause.

Princeton University Library



32101 074830983

